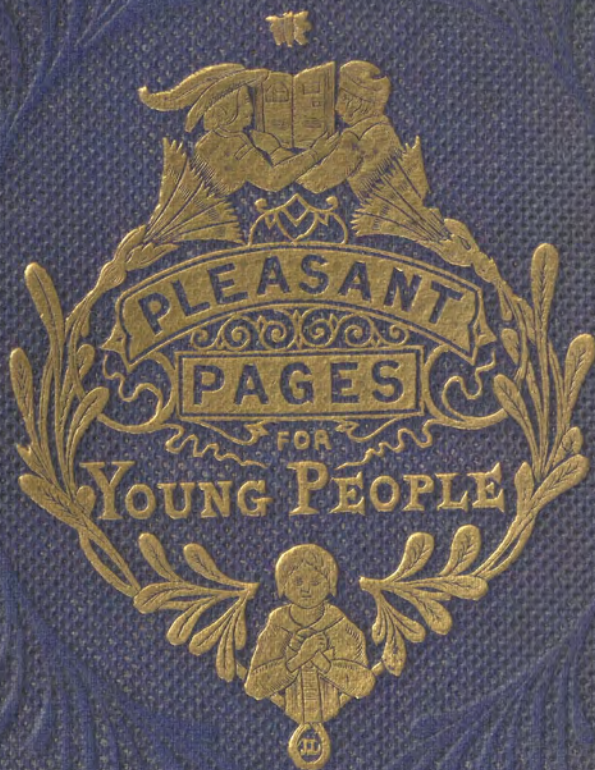
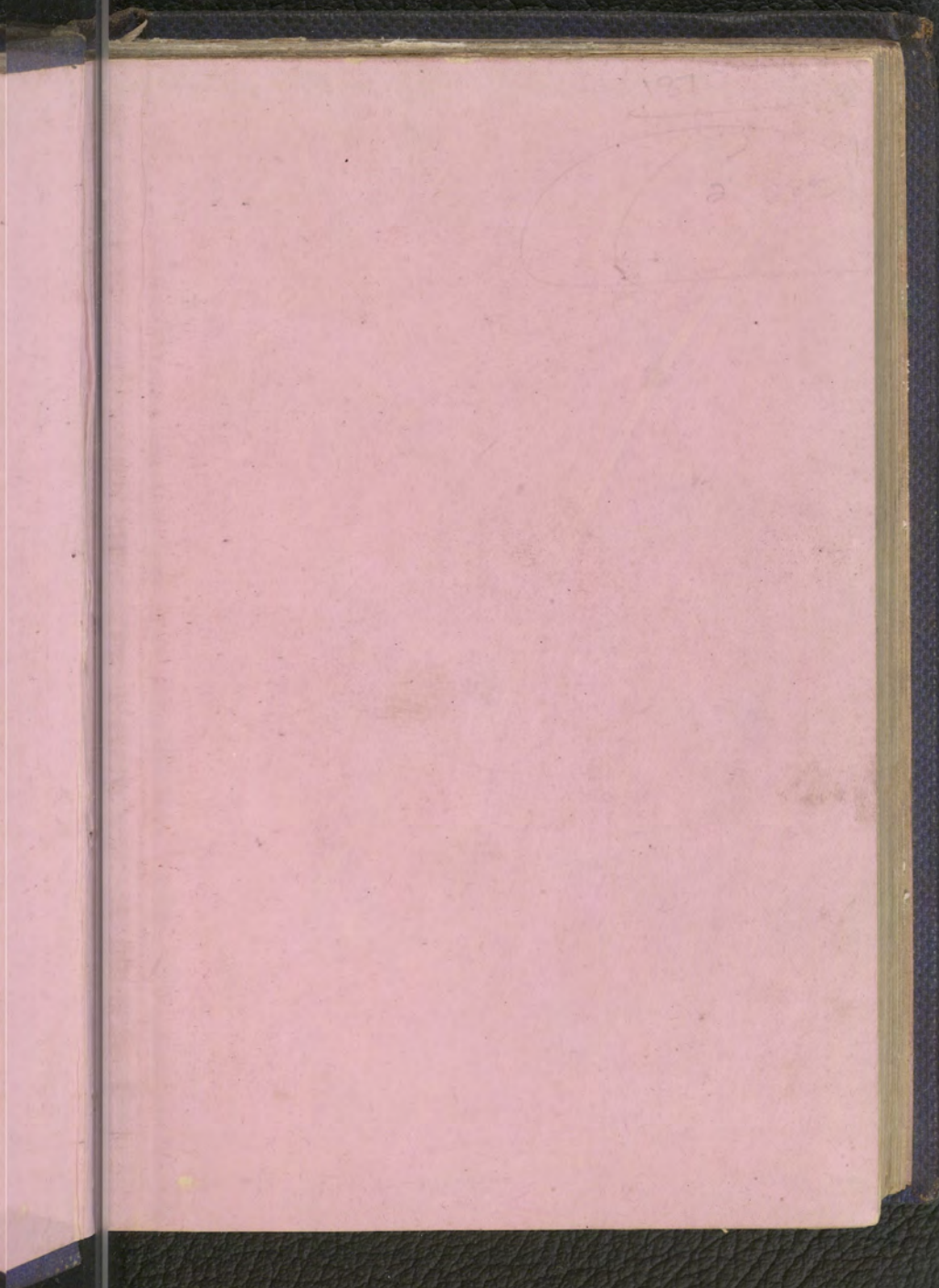




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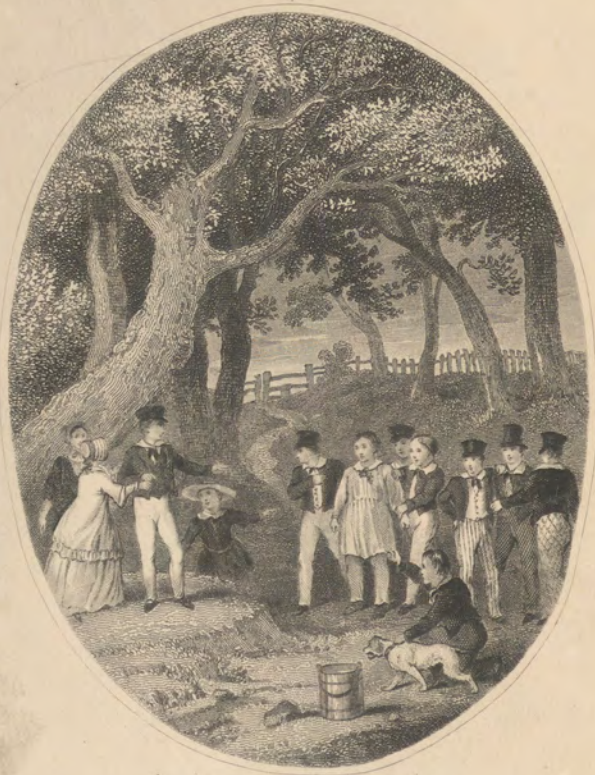
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February 19th 1873.



*"And if my enemy like to do wrong that
is no reason why I should."* See Page 58.

PLEASANT PAGES

FOR

YOUNG PEOPLE

A BOOK OF

INSTRUCTION AND AMUSEMENT

ON THE INFANT SCHOOL SYSTEM

BY S. PROUT NEWCOMBE

AUTHOR OF "THE FAMILY SUNDAY BOOK," ETC., ETC.

ELEVENTH THOUSAND

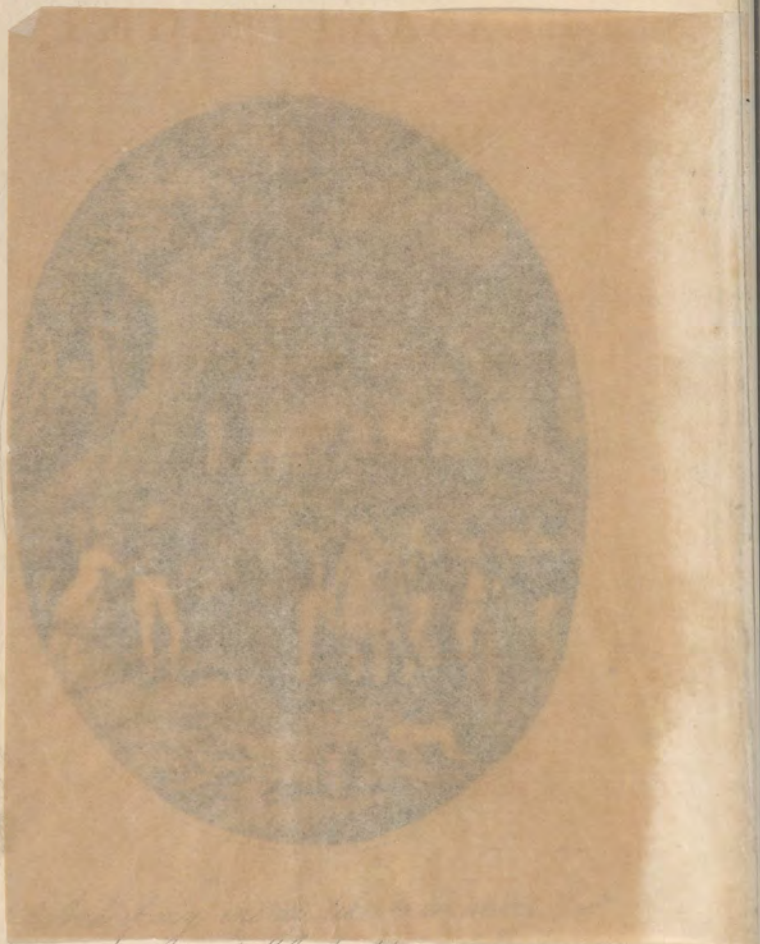
LONDON: HOULSTON AND WRIGHT, 65, PATERNOSTER ROW. PART VII. 24

LONDON

HOULSTON AND WRIGHT

65, PATERNOSTER ROW

STATIONERS.



is no reason why I should.

See Page 58.

PLEASANT PAGES

FOR

YOUNG PEOPLE

A BOOK OF

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ELEVENTH THOUSAND

Pleasant words are as an honeycomb, sweet to the soul—PROV. XVI. 24.

* * * *

LONDON

HOULSTON AND WRIGHT

65, PATERNOSTER ROW

MDCCCLXX.

time to whistle or sing, for, while he worked, his little girl and two younger boys used to sit around him, and read. Every day, during working hours, he "kept school" with them. He had taught them reading, writing, and arithmetic, because they were not yet strong enough to walk with their brother John to the National School.

On the morning when Tom Martingale was sent with his papa's message, these children were obliged to wait. Their elder brother was saying his lesson to his father.

The lesson which the shoemaker's son repeated was from the Latin Grammar. You remember how Tom Martingale promised his papa that he would teach John something every morning; and to his surprise John said he would like to learn Latin. So, every day for three months, John Snub had waited for the Martingales at the finger-post near the common, and had said his lesson to them on their way to school. This was his plan: he used to learn his declensions, or verbs, in the evening, say them to his father in the morning, and then repeat them to Tom again. When Tom heard his lessons he used to teach him how to pronounce the words properly; for, he said, unless you learn the right "accent" and "quantity," you cannot learn Latin properly.

John Snub liked to hear his son say his Latin, but the younger children did not.

His sister Sarah used to sit and work at her needle, and listen to him, and wonder what it all meant.

"What is the use of your learning all this?" she said; "you go on, *amaveram, amaveras, amaverat*, and then again, *amaveramus, amaveratis, amaverant*, until I am quite tired. You are not a gentleman's son, John; what can be the use of Latin to you?"

"I'll tell you," said John; "you know how you like to go with me into the fields, and to learn botany, and to study botany-books. You know the old books which father has, about insects, and the microscope, and chemistry, and natural philosophy, and other things. Now I like to read such books."

"So do I," said Sarah.

"And I should like to buy a microscope one day."

"If you can save up enough money," said Sarah.

"I dare say I shall," said John. "There is no reason why poor people shouldn't examine God's works as well as rich people."

"That's right, John," said his father; "I only wish I had begun to learn a little earlier myself."

"And," said John, much encouraged, "you know how we have been puzzled by those books—by all the Latin names in them. When I know more Latin I can translate these names and understand them."

"Besides I can understand my own language better, Sarah, when I know Latin. I know

the roots of a great many words already, and I am going, too, to learn Greek roots, and—but there's a ring at the bell; shall I go, father?"

"Yes," said his father, "for see, your friends Tom and his brother are looking in at the window."

"If you please, Mr. Snub," said Tom, after he had said good morning to John, "papa says will you be sure and let him have his Wellington boots in the course of the day on Saturday?"

Mr. Snub promised he would; and at the same time he thanked Tom for his kindness in teaching his son. He paid Tom many compliments, and said it was very praiseworthy for a gentleman's son, as he was, to teach his poor boy.

When Tom heard these words he did not behave as he would have done before. Instead of stopping to be praised, he begged Mr. Snub to say nothing about the matter, and made haste to get away. "I think," he said, as he was leaving, "that John knows quite as much as I do; so he deserves to be praised quite as much. He can work arithmetic better than I can; and as for his writing, I cannot write half so well. Papa gave me thirty folios of writing to copy for him at the beginning of the week, and I tried to write them in a lawyer's hand like the copy, but I couldn't do it. I have no taste for writing like some boys. So you see, Mr. Snub, that some have one thing and some another."

The three boys then bade the shoemaker good morning, and set off together for school.

If you had been at Mr. Martingale's house on the next Saturday afternoon, you would have seen Tom sitting up in his own bedroom alone. Although it was a half-holiday, he was hard at work; he was writing the "folios" which his papa had given him to do. They were wanted by four o'clock, in time for the evening post.

Tom worked *very* hard, but he did not succeed well. He drew several long sighs, he shook his head and exclaimed, "I am sure it is not written well enough." He had six more folios to write when a servant knocked at his door with the message that his papa wanted him.

"Well, Tom," said his papa, "have you finished the writing?"

"It will be done, papa, before four o'clock: at least, I think it will."

"I am sorry you should be so late," said his papa; "you see the evil of putting off matters of business to the last moment. When you have anything that is disagreeable to do you should finish it off at once, and have done with it."

"But I have something else to tell you. I have just called on Mr. Snub, the shoemaker; I was afraid he might fail to send home my Wellington boots, but I found that his son John had brought them home an hour ago."

"I have been talking with him about you and his son."

"What did he say, papa?" said Tom, colouring slightly.

"He said," answered his papa, "a great many things in your praise. He showed me how much Latin you had taught John, and how much pains you had taken."

"Oh, he need not have said anything about it," replied Tom.

"He need not, but he liked to do so. There are two things, however, which have made me even more glad than he was."

"What are they, papa?"

"In the first place, I was glad you had not *boasted* of doing good to John. I was glad that you allowed me to find out the circumstance myself. In the second place, I was glad that you would not receive any praise from John's father for what you had done. He told me all that you said last Wednesday."

"There are, Tom, two sorts of people who do good. Some will help you, but they always take care to let you know exactly how much you owe them. Such people think too much of themselves; they have not real charity; they may be said to be *puffed up*, and to behave themselves *unseemly*."

"But there are a better kind of people. There are many who will do you a kindness, and say nothing about it. Such people have true CHARITY. Will you try to be *always* like these people, and never to be 'puffed up' on account of your own deeds?"

"I will try, papa," said Tom. "I am sure I need not be 'puffed up;' you will say so when you

see the writing I have done for you."

"You need not trouble yourself about that," said his papa, "the folios are all finished—here they are!"

"Why, who wrote them?" said Tom. "This is not my writing."

"No, all these folios *came home with the boots*," said his papa, laughing. "John Snub wrote them. He heard you complain of your troubles last Wednesday, and I secretly supplied him with a printed copy, that he might have the pleasure of copying it for you."

"So," said Tom, "he has shown a kindness to me without mentioning it. That is *Charity*."

"It was done," said his papa, "from *Gratitude*. But you may learn two more lessons from this deed of his."

"Thirdly, those who have true Charity will be sure to be found out. Even if they are not repaid by the gratitude of others in this world, 'their Father which seeth in secret will reward them openly.'"

"Fourthly, here is another reason for never boasting of one's good deeds. We can scarcely ever do good to any one person, who cannot render us some service in his turn. In the course of our lifetime, we are all sure to be indebted to others, even to many persons whom we never see."

"So let us learn to do all the good we are able without being 'puffed up.'"

THE JUSSIEUAN SYSTEM.

THALAMIFLORALS.

Order 12.—THE COCOA TREE AND OTHERS.

(Bromacæ.)



Pod, or Capsule, of the Cacao-tree—Pod opened.

P. WE have learned of the Orders from which we get our cotton and linen clothing. We have talked about the Orders which contain the cabbage and turnip, water-cresses, and other articles of food.

L. And of the poppies, from which we get opium and other medicines.

W. And of the water lilies, from which the Egyptians and Chinese get food.

Ion. And of the berberries, from which we get preserves and a yellow dye.

P. "And of other plants," say, "from which we get either medicine, food, clothing, gums, or dyes." Do you not drink cocoa every morning?

W. Yes. You see us drink it at breakfast.

P. You do not yet know to what Order the cocoa tree belongs, neither can you describe the Order from which we get our tea or coffee.

L. Are you going to describe these Orders next, papa?

P. We will talk of the cocoa and tea trees. The coffee tree

is one of the "Calyciflorals." We will also talk of the Orders from which we get our oranges, and grapes, and raisins.

THE COCOA (or Cacao) PLANT. The Spanish word for a sheet is *sabana*. Thus, if you were to go to the Spanish parts of South America, and were to take a walk in the level tracts of land, you would find them to be called *savannahs*.

Shall I tell you where there are some savannahs? If you go to the north-western part of South America, there is a country called COLUMBIA, which once belonged to Spain. It now consists of three independent republics, named Venezuela, New Granada, and Ecuador.

If you go to *Venezuela* in particular, and the island of *Trinidad*, which belongs to the English (you had better look for those places on the map), there you will find low moist savannahs. In these savannahs the cocoa trees grow.

L. Will you tell us about Trinidad, for I have seen "FINE TRINIDAD COCOA" on the bills in the grocers' shops?

P. Very well. Suppose yourself standing in the island of TRINIDAD with an Englishman, the owner of a cocoa plantation. He would say to you, "Sir, we grow plenty of cocoa in Trinidad. Once the greater part of the cocoa used in all parts of the world was grown in Venezuela. It was produced, too, in South Mexico and Guatemala, which you can see are neighbouring countries. But now it is not cultivated there so much

as formerly. The English now grow most of their own cocoa in this island."

Suppose, next, that you accompanied this gentleman to the plantation. As you went, perhaps he would give you some explanations. He might say the name cocoa is properly spelt *cacão*. The *cacão* tree is called by Linnæus *THEOBROMA*, from two Greek words, *Theos*, a god, and *broma*, food. Yet, though Linnæus called it "food for the gods," a traveller, in the sixteenth century, said that chocolate was a drink "fitter for a pig than a man." But people agree with Linnæus now, as you will hear soon.

L. What does the name chocolate mean, papa?

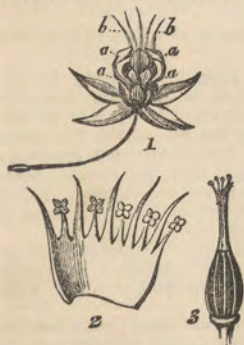
P. The word chocolate is derived from the Mexican word *chocolatl*. It is a compound word, composed of *chaot*, sound, and *alte*, water.

When you reached the cocoa plantation with the planter, he would first direct your attention to the soil. "Look, sir," he would say, "see what a soft, muddy savannah this is! Cocoa trees particularly require two things, moisture and shade. They so delight in water, that if you do not supply them carefully with it, they do not thrive. They do not require any other attention except that you must clear the grounds from weeds and shrubs; if you let them grow they will in a few years exhaust the soil, and destroy the plantation."

If you asked how, in a tropical country like Trinidad, the cocoa trees could be kept in the

shade, the planter would soon show you. He would say, "Do you observe the rows of cocoa trees? Now, if you notice, there are first two rows of cocoa trees, then a row of larger, leafy trees, with bright red blossoms. They are placed there to shade the others. Here is one of the larger trees. It is called by the Spaniards *Madre del Cacão*, or "The mother of the cocoa," because the cocoa tree is reared under the protection of its shadow.

You would next look at the trees themselves. The cocoa trees are about twenty feet high. Some kinds reach to the height of thirty or even forty feet. The planter would, perhaps, point out to you the leaves. He would say, "the tree is covered with fruit, flowers, and leaves, all the year round." The leaves are, you see, large and oblong. I will pick you one of the flowers.



1. Complete flower; *a a* the petals; *b b* the false stamens.
2. The tube formed by the stamens cut open, showing the five true and five false stamens.
3. The ovary, showing the five stigmas and styles.

Here it is. Let us pull it to pieces. You observe, first, that it is small and of a pale red colour. There are five deep red sepals in the calyx. Now look at the five petals. What a curious shape they are! In their lower part they are broad, and form a sort of gutter; in the middle they are quite narrow; the points of all five are joined together. Do you see these five points rising above the petals? (See No. 1 in the Cut.) These are false stamens. We will pull off the petals, and get the stamens out. You see now that, besides the false stamens, there are five true ones; they have anthers, but they are shorter than the others. They all form together a tube round the pistil, and this we will cut open. (See No. 2 in the Cut.) Let us next look at the ovary and pistil. In these parts the cacão tree resembles the mallow plants. The ovary has five distinct carpels, each with a separate style and stigma.

The ovary is the part which the planter would feel most interested in. When ripe it becomes a large capsule or pod. It is for the sake of this pod that the tree is cultivated. I have brought you one to examine. (See Cut at the beginning of the lesson.) The outside is, you see, covered with little round projections. Inside are the seeds; sometimes there are as few as twenty, and sometimes as many as a hundred. The original partitions are obliterated, and the seeds are arranged in rows round a central column. They are imbedded

in a pulp, and before the capsule is ripe the soft seeds and pulp are very refreshing; it is said that they are often picked by travellers when they are weary. They are sometimes preserved in sugar, like the young green ginger; they are then nicer. When ripe they are of a flesh-colour; they are then dried and roasted, and they become brown.

I need not tell you much about the *uses* of this plant. In America it is considered as a necessary article of housekeeping. Most families keep it in the house for daily use. When the Spaniards first arrived on that continent, they found that it was extensively cultivated in Mexico. It was even used as money, six seeds being worth a halfpenny, and this use is still partially continued.

The seeds are eaten in various ways. Generally, after roasting they are ground into a paste, either with almonds, pepper, annotta, cinnamon, aniseed, orange-water, sugar, rose-water, vanilla, or other things. There are various ways of preparing it; sometimes it is used as a solid food; being ground and mixed with water it forms a kind of bread.

Cocoa and chocolate are used principally in America, France, and Spain, but now between two and three millions of pounds are used every year in England. It is largely used in ships, as a drink for sailors.

But I am forgetting that we are learning Botany. This plant, *Theobroma Cacao*, is the one most known to us in the

Order "Bromaceæ." The plants are mostly tropical, being found in the West Indies, tropical America, the north and south of Africa, and part of Asia. The bark of the *Guazuma* (a Mexican name) is used in clarifying sugar, and its pods are filled with a sweet and pleasant mucilage. Indeed, most of these plants contain mucilage, and in this they resemble Order 12, the *Malvaceæ*. The wood of the *Guazuma* is often used by coach-makers, and for casks. It also supplies medicine; a decoction of the inner bark is used by the negroes to cure "elephantiasis."

Another plant of the Order supplies us with the *Gum Tragacanth*, which differs slightly from Gum Arabic; it is used in calico-printing. The plant is a low prickly shrub, growing in the Levant.

You may now make a very short summary of the Order.

Order 13.—THE COCOA TREE AND OTHERS.

(*Parts.*) This Order is nearly related to the 12th Order, the Mallows. The flower of the cocoa tree has five *sepals*, five *petals*, five false and five true *stamens*, an *ovary* with five carpels, having five styles and stigmas. This description applies to most of the plants in the Order.

(*Place.*) They are found in most tropical countries—in America, north and south of Africa, and in Asia.

(*Varieties and Uses.*) The *Theobroma Cacao* supplies food; the *Guazuma* supplies wood, medicine, and a sweet mucilage; while from another plant we get the useful article Gum Tragacanth.

THE ENGLISH TRAVELLER.

SHROPSHIRE.

"MY DEAR CHILDREN,—

"I am still travelling northward, keeping on the borders of Wales.

"Did you ever hear of *Scrobbs-burg*? *Burg* is the Saxon for town, and *Scrobbs*, or *scrubs*, is the Saxon for shrubs. Thus, "*Scrubbesburg*" means "the town of shrubs," which name was given to it on account of the woods in the neighbourhood. In the course of 1,300 or 1,400 years, this name has been "softened down"—*Scrobbs* has become *Shrews*, and burgh or borough, *bury*. I am stopping at *SHREWSBURY*.

"There is a great deal of history belonging to these border counties. I have already passed over *Monmouthshire* and *Herefordshire*, so we will talk of Shropshire.

"This county, with some others, formed one of the kingdoms of the *Saxon Heptarchy*. Its Saxon name was *Myrcen-ric*, or "the land of the borderers;" this in time was changed into the Latin name *Mercia*; and was also called the *Marches of Wales*.

"The Saxons of *Mercia* did not live in peace. The Welsh princes were brave and strong, and continually made incursions, just as the *Picts* and *Scots* in the north invaded *Northumbria*. One of the *Mercian* kings, named *Offa*, determined to keep out the Welsh if

possible, and he built a *high rampart*, just as the *Romans* built the great *Northern Wall*. In some parts he dug a broad and deep ditch. The whole work was called *Offa's Dyke*. Very few traces of it remain now.

"When *ALFRED* was king of all England, *Scrubbesburg* was one of his principal cities.

"In the 11th century came *WILLIAM THE CONQUEROR*. He gave Shropshire and the surrounding districts to his cousin, *Robert de Montgomery*, with all the lands that he might conquer from the Welsh. *Scrobbsburg* then contained 252 houses; but, in accordance with the feudal system, *Robert* erected a large castle, and demolished 51 of the houses to clear away a sufficient space.

"In the contests of *STEPHEN* with *Matilda*, the daughter of *Henry I.*, for his crown, the king besieged *Shrewsbury*, and took it.

"In 1215, the last year of the reign of *KING JOHN*, the Welsh Prince *Llewellyn* took the town and castle without resistance.

"In the long reign of *Henry III.* the city was sacked by the Welsh, and the inhabitants put to the sword.

"In the reign of *EDWARD I.* *Llewellyn* was slain in battle; and Wales was conquered. At *Shrewsbury*, the Parliament condemned *David ap Llewellyn*,

to be hanged and quartered. Wales was then united to England as a *principality* for the king's eldest son.

"In the reign of HENRY IV. the celebrated Welshman OWEN GLENDWR, and the *Earl of Northumberland* and his son, *Hotspur Percy*, rebelled; they were defeated in a great battle near Shrewsbury.

"At Shrewsbury the odious RICHARD III. executed the Duke of Buckingham without a trial.

"When King HENRY VII. was Duke of Richmond, he was received by the people of Shrewsbury, many of whom went forth with him to the battle of *Bosworth Field*.

"In the reign of CHARLES I. the king and his generals assembled in this city. Soon after, the bloody battle of *Edgehill* was fought.

"Such are some of the many pieces of history connected with *Shrewsbury* and its county. You will not, therefore, wonder that this county, like the two I have lately visited, abounded in castles. Those of *Bridgnorth*, *Shrewsbury*, *Ellesmere*, *Ludlow*, and *Oswestry*, are some of the most important.

"But *Shrewsbury* as it is is still interesting. Yesterday was the market-day, and it was a truly busy time. Here were the Welsh ladies in their singular hats, sleepy old Welshmen, and other country people; they were selling and buying *flannel* from Wales, with thread, linen, and many other things.

"*Shrewsbury* has long been the principal mart for trade

between England and Wales. For this it is well fitted by its *position*. Being on a peninsula on the great river *Severn*, goods can be conveyed by the river. *The Shrewsbury and Birmingham Railway* also gives it means of communication with all parts of England.

"The other important towns of Shropshire are *Bridgnorth*, which is also on the *Severn*, and also has a trade in Welsh flannels; *Oswestry*, again, with a trade in Welsh flannels; *Ellesmere*, which is celebrated for the large lakes in its neighbourhood; and *Ludlow*, which is noted for its fine castle and woody scenery.

"But I do not intend to visit these towns. I have heard of a part of the county which is far more interesting. In the eastern part of the county, in the valley of the river *Severn*, is a part called *COALBROOK DALE*. Here are found not only beds of *coal*, but abundance of *iron ore*.

"You may remember that I spoke of the long line of iron furnaces of Wales which centre in *Merthyr Tydfil*; they are not so celebrated as those of *Coalbrook Dale*, as you will perceive by the following account:—

"THE IRON-WORKS OF COALBROOK DALE, on the banks of the *Severn*, are the largest in England. Here all the processes of making iron are begun and finished on one spot. This place is a winding glen between two immense hills, which break into various forms, being thickly covered, and forming beautiful streets of hanging-woods. The

noises of the numerous forges and mills, with all their vast machinery, the flames bursting from the furnaces of the smelting-houses, and the smoke of the lime-kilns, are altogether horribly sublime. The cast-iron bridge over the Severn, with its arch of 100 feet span, increases the romantic appearance. There is a spring of *fossil-tar*, or "petroleum," in the neighbourhood.

"This account was written many years ago, and since then another large bridge, with an arch of 130 feet span, has been erected. The Coalbrook Dale Iron Company have increased these extensive works immensely. An enormous demand for iron has been caused by the various railways. Not only are very large iron articles, such as bridges, &c., now manufactured here, but small and ornamental goods. I dare say you saw at the *Great Exhibition* the iron dome sent there by the Coalbrook Dale Company. It is said that the beauty and finish of their rolling-machinery gives them great advantages over the Welsh manufacturers.

"The coal-fields of Shropshire, and its iron-works, are connected with those of the

bordering county, Staffordshire. In this great district are some highly important *manufactures*, which you will hear more about soon. Shropshire alone has *china* manufactories, manufactures of nails, coarse linens, paper mills, dyeing and other works.

"I am,
"Your faithful friend,
"HENRY YOUNG."

SHROPSHIRE.

(Position.)—SHROPSHIRE is another county bordering on Wales; it is at the north of Herefordshire.

(Soil and Surface.)—The principal mineral products of the county are coal and iron. The iron works of Coalbrook Dale, and the manufacture of porcelain, connect this county with Staffordshire. As a border county it is noted for its many ancient castles, which have historical interest.

(Rivers and Towns.)—The principal river is the Severn, which affords ready means of transporting goods. On it are SHREWSBURY and BRIDGNORTH. The other towns of note are OSWESTRY, ELLESMERE, and LUDLOW.

WATER.

THE streams that by
Our huts may rise,
So cool, so clear,
How much we prize!
So fresh to cleanse,
And keep us neat;

And quench our thirst,
And dress our meat;
Our health must fail,
Our life must end,
Were we to lose,
So good a friend.

Praise HIM who gave it!

ARITHMETIC.

Lesson 1. ROMAN NUMERALS.

P. ADA, dear, I want you.

Ada. I am coming, papa.

P. Here is an apple for you ;
and here is another.

Ada. That makes two.

P. And here are three more.

Ada. They make five.

P. And here are seven more.

Ada. Please wait a minute,
papa, I can't count all those at
once. Five and one are six,
then seven, eight, nine, ten,
eleven, twelve. Thank you,
papa!

P. Stop! Don't run away;
here are six more. Now how
many have you?

Ada. I can't tell, I am sure.
I can't count farther than
twelve, because I haven't learned
arithmetic. I have got twelve
apples, and six more.

P. But you see you have
learned *something* of arithmetic,
for you can count twelve. Now
a "black man" couldn't do
that!

Ada. Not count twelve!

P. No, indeed. A negro
has five fingers on his hand,
and if he had as many apples
he would make you a word
which should mean five. If
he wanted to say a larger
number he would be obliged to
say five a great many times.

Ada. But suppose he wanted
to count up a *very* large num-
ber—to count all the people
that were in the streets of
London at the Duke of Wel-
lington's funeral? He would
have to hold up his hand a

great many times to make all
the fives.

P. If he wanted to express
such a number, he would
say "a great many"; or he
would hold up a handful of sand
from the desert. If a North
American Indian wished to tell
you of a great number, he would
point to the leaves of a tree.

Ada. Well, I don't call that
arithmetic, at all. It's of no
use to say a great many, unless
you say *how* many exactly.

P. But you cannot do much
more, so I think you had
better not remain like a negro
any longer. Don't you think
you should like to learn some
more arithmetic?

Ada. Yes, please; I should
like to count *all* these apples.
But will you tell me about
some more foreigners? Do
they all count in the same way
as negroes?

P. No; the negroes counted
by *fives*. The people who
lived in Mexico, before the
Spaniards conquered that
country, counted by *fours*; the
Chinese count by *twos*. The
children of Israel made use of
both their hands for arithmetic
—they counted by *tens*; the
Greeks followed this plan;
the Romans afterwards copied
them; then other nations
copied the Romans, and the
plan of counting by *tens* spread
over a large part of the world.

I might tell you a great deal
more about these Hebrews,

P. I will show you. See these ten strokes, divided into two parts—IIII IIII. Each part is a *five*; thus we say that *five* is half ten. The Romans, therefore, used to write *five* with *half* an X; thus, V.

Ada. Yes, the V is the top half. So that if a Roman girl had all these apples she would write their number in this way
X V III.

First the ten, then *five* more, then the *three* that are left; that

is the same as *ten* and *eight*. What do you call that number, papa? I cannot count it.

P. For *ten* and *eight* we say *eighteen*. You see that we join the names *ten eight* together, and turn them round the other way.

But you must learn to count, *Ada*. Ask your mamma to teach you to *count a hundred*. Perhaps, next Friday, I will show you how the Romans wrote *hundreds and thousands*.

——— LINES ADDRESSED TO A LITTLE BOY.

When babies have no teeth to bite,
And scarce can catch a crumb,
We see them—'tis a common sight,
Sucking the thumb.

But, when a child, like you, my love,
Can eat both cake and plum,
'Tis surely time to be above
Sucking the thumb.

Besides who'd like to spoil his face
By looking cross and glum?
Yet this may often be the case,
When sucking the thumb.

Had the Creator's providence
Decreed you deaf and dumb,
There would perhaps be less offence
In sucking your thumb.

But you who can your senses use,
And clever may become,
Can never make one good excuse,
For sucking your thumb.

Besides, I'm sure, the habit may
Be quickly overcome:—
So, keep yourself, this very day,
From sucking your thumb.

And then when many days are past,
'Twill easier become,
And you will be quite cured at last
Of sucking the thumb.

BELGIUM.

L. You promised us some questions, papa, on the history of France.

P. I did. But before I make them for you, let us talk of the two countries at the north of France, BELGIUM and HOLLAND.

Here is the map. 1,900 years ago, Belgium, and Holland, above it, were conquered by the Romans, and called by them *Belgic Gaul*. They were so called from the *Belgæ*, the tribe who then inhabited it. Hence the present name Belgium.

I dare say you have heard that France, as well as Belgium, was once a Roman province. Both countries were then called GAUL.

You may remember, too, that Rome, the great conqueror, was herself conquered. This happened in the fifth century.

In the sixth century a German tribe, similar to those which had conquered Rome, overran Gaul. These people were called Franks, and the name Gaul was in time changed into France. *Gallia Belgica*, or Belgium, as we will now call it, was included in the empire of the Franks.

The 7th, and the 8th, and 9th centuries passed away; and by that time Belgium was divided into independent provinces. In the 15th century these provinces belonged to the House of Burgundy, and they

were afterwards delivered up to SPAIN.

After the *Spaniards*, the next masters of Belgium were the *French*. In the year 1814 Napoleon Bonaparte was imprisoned by the allied powers of Europe in the island of Elba. The provinces of Belgium were then at liberty, without a master. The allied powers, however, united them, against their will, with the provinces of Holland. The two countries were then formed into an independent kingdom, called THE NETHERLANDS.

This union was not a happy one. The Catholic people of Belgium found that the Protestant people of Holland had more power than themselves. For sixteen years they struggled against the Dutch, and in the year 1830 they separated themselves. They then became an independent nation; and in the year 1831, they elected Prince Leopold of Saxe Coburg as the first king of the Belgians.

The Belgians could not safely do this without consulting the more powerful nations of Europe. There are in Europe five great nations, which are called the *five powers of Europe*; they are Great Britain, France, Austria, Russia, and Prussia. A treaty was made by King Leopold with these nations, by which it was settled that Belgium should

consist of the following provinces:—

S. Brabant,	W. Flanders,
Liege,	E. Flanders,
Namur,	Antwerp,
Hainault,	Part of Limburg,
	Luxemburg.

I think that you would now like to travel with me through each province.

W. I should, papa, very much.

P. But I have only time to give you an "outline" of the country.

If you were to travel through Belgium, you would be struck with the thickness of its population. There are no less than 4,000,000 people, being 350 to every square mile; this is a greater proportion of people than in any other country in Europe. The towns and villages are so close to each other, that when Philip II. of Spain passed through the country, he exclaimed, "*This is only one large town.*"

You would notice these towns very much if you passed outside them. You would say, "How strongly they are all fortified!" You would then, perhaps, be told that Belgium has no *natural* boundaries to protect her from her neighbours, so that the inhabitants of each town protect themselves.

Most of these towns are busy, bustling places. We will enter the principal one, and examine it.

The chief town of Belgium is BRUSSELS. It is the capital of the province of *South Brabant*.

A noble river, called the *Scheldt*, flows through Belgium and Holland; it has a tributary called the *Senne*; and on this tributary Brussels is situated. Brussels is, indeed, so called from the Flemish word *breecksel*, a marsh; for the town was built on a small island in the *Senne*, which was then only a marsh.

On entering Brussels, you would observe that there is still plenty of water. The *Senne*, in its progress through the city, branches into several streams, and forms many islands. These islands, the grand old palaces, and the ancient city gates, have a splendid appearance. You would admire, too, the eight large squares of the city, particularly the great square of the market-place; the fountains also are another object of interest. But perhaps the most beautiful parts are the delightful *walks* round the city. The city was once surrounded by a double wall and a ditch, but these the Emperor Joseph II. destroyed. The walls were then planted with trees, under which the inhabitants can walk every day.

Brussels is, however, particularly celebrated for its manufactures. It derives great riches from its gold and silver lace, carpets, and printing. It always has been noted as a rich manufacturing town.

Brussels was the headquarters of the army of Wellington just before the great battle of Waterloo is nine miles distant, in the same province, *South Brabant*.

SECOND WEEK. MORAL LESSON.

MONDAY.

CHARITY.

"Seeketh not her own."

P. THERE have been many happy men who have gone through this world, not "seeking their own."

Did you ever hear of the *missionaries*, who go to the ends of the earth—not to make themselves wealthy, but to teach the gospel of Jesus? They are happy—they do not seek their own.

Did you ever see the *Ragged-school teachers*, who try to save poor wretches from ignorance and vice? They are happy—they do not seek their own.

Did you ever hear of *John Howard*, who wandered from country to country, and from city to city, relieving those who were in prison? He was happy—he did not seek his own.

Did you ever hear of *Oberlin*, who civilised people that were almost savage? He was happy—he did not seek his own.

Did you ever hear of *Grace Darling*, who went forth on a stormy night to seek those who were wrecked, and to save their lives? She was happy—she did not seek her own.

L. And there was *Ruth*, papa, whom you read of in the Bible. When she left her

family, and her country, to go with her mother-in-law and help her, she was happy—she did not seek her own.

P. True; she was an example. Yet there are different people in this world. You may see some working hard daily, and their only thought is, "What shall I earn for *myself*?" They leave themselves little time to think of others. They are so busy that they cannot seek any one's good but their own.

I hope that neither you, Willie, nor Ion, nor Lucy, will live like this. If you do, you will not have CHARITY. Neither you nor other people can be happy unless you have some time when you do not "seek your own."

I will tell you a tale to show you how happy even poor people are, when they are "seeking not their own."

THE SICK CARPENTER.

Ten years ago—five o'clock in the morning—down a dark court—up three pair of stairs—up there was a narrow bedroom; the bed too was narrow, yet all was quite clean, and on

the bed there lay a tired-looking girl. No wonder that she was tired, for she did not go to bed until half-past eleven the night before. She was sleeping soundly when there came a heavy knock at the door with the words "five o'clock."

Poor thing! she would almost have given a whole penny to lie for another hour, but she could not afford it. A penny was just what she would earn during the hour if she got up, and she wanted the money very much.

With great reluctance the girl got out of bed into the cold air; she lit a small candle, and knocked at the door of her brother's bed-room, which was on the same floor. She returned to her room and dressed herself, but before leaving she knelt down and thanked her Heavenly Father for taking care of her during the night; she thanked Him for giving her strength to work; and she prayed to Him to take care of her during the day. Her brother was then ready, and they both groped their way together down the gloomy stairs of the old house, out of the heavy front door, into the open street. They walked cheerfully together through the fresh air of an autumn morning, until they reached a bookbinder's workshop. They were the first of the workpeople who had arrived, but the girl was trusted with the workshop key. They therefore entered, and going into different rooms, each set to work alone.

Now, would you like to know

who this girl and boy were? The girl Emma, and her brother John, were orphans. Before their father died, he had bound them as apprentices to a bookbinder, and had given them in charge to Mrs. Crop, the landlady of the house where they lived.

Their hours of business at the binder's were from eight in the morning until eight at night. During these hours they worked merrily, because they rejoiced to earn their own living. But though they had so much to do in the day, yet their happiest hours were those of the early morning from six till eight, and in the evening from eight till nine.

What made them work "overtime" as often as their master could find them work? Why was it that they wore such bright countenances? It was because they were not seeking their own.

In the house at the further corner of the court where they lived, there was a man who was a carpenter, and who had been a fellow-workman with their father. Emma and her brother knew him well. They had found out seven weeks ago that he was ill. They found that he had sold all his tools and clothes. During all this time they had been working early and late to help him, and they had felt a new joy that they had never known before.

I should like you to have seen them as they came home from work on the evening of the day which I described. "Good!" exclaimed Emma, as

she and her brother stood outside the bookbinder's door, counting their money, for it was Saturday evening. "We have earned 2s. 7d. by overtime. Two ounces of four-shilling mixed will be 6d.; a pound of sugar 3½d.; four eggs? yes, four! will be 3d.; a quarter of a pound of fresh—he likes the best fresh, 4d."

"That will make 1s. 4½d.," said her brother.

"Yes, and a quartern loaf, 6½d., will make 1s. 11d."

"Which will leave 8d.," said John. "Suppose we give him

6d. of that, to buy anything he may want in the week? That will leave us 2d. to spend for ourselves."

"Never mind the 2d.," said Emma, "we have our own wages and do not want any more. Suppose we give him all the 8d.?"

John agreed to this in a moment. Then they ran with great glee to the market to make all their purchases. This was soon done, and they set off directly with still greater glee to the house of their sick friend.

(Continued on page 33.)

THE STAR OF BETHLEHEM.

WHEN marshalled on the nightly plain,
The glittering host bestud the sky;
One star alone of all the train,
Can fix the sinner's wandering eye.

Hark! hark! to God the chorus breaks,
From every host, from every gem;
But one alone the Saviour speaks—
It is the Star of Bethlehem.

Once on the raging seas I rode,
The storm was loud, the night was dark,
The ocean yawned, and rudely blowed
The wind that tossed my foundering bark.

Deep horror then my vitals froze,
Death-struck, I ceased the tide to stem;
When, suddenly, a star arose,—
It was the Star of Bethlehem.

It was my guide, my light, my all;
It bade my dark forebodings cease;
And through the storm and danger's thrall
It led me to the port of peace.

Now safely moored—my perils o'er—
I'll sing, first in night's diadem,
For ever and for evermore,
The Star—the Star of Bethlehem.

H. K. WHITE.

THE JUSSIEUAN SYSTEM.

THALAMIFLORALS.

Order 14. THE LIME-TREES.

(Tiliaceæ).

P. COME with me, Lucy, and sit under the lime trees.

W. And I can and I will come too. I like the avenue of lime trees better than any part of the garden.

P. Here we are. Now let us see why these limes are such interesting objects.

W. I can give one reason, papa.

P. And so can I. Suppose that I begin. In the Dutch and German languages they are called Linden trees. The Swedish for Lime-tree is *Linn*. You have heard of Linnaeus?

W. Yes. You have taught us something of his *system*.

P. In the part of Sweden where the ancestors of Linnaeus had long lived, there grew a lime-tree of great magnitude. It is said (for *linn*, you remember, is the Swedish for lime) that the family name, *Linnaeus*, was derived from this tree. Now are not our lime-trees interesting?

W. Yes, very. And they are interesting, secondly, because of their beautiful colour. In the spring, the leaves are such a refreshing green.

Ion. And thirdly, they "arch over" so nicely, and make such beautiful avenues.

P. That is from the peculiar way in which the branches grow.

They look like the Gothic pillars and arches of a cathedral. The lime is used for avenues to the country-houses of the French, as well as the English gentry. About two centuries ago, the French, growing tired of the horse-chestnut, adopted this tree for ornamental plantations instead.

L. And the lime-tree is interesting because of its nice flowers.

P. Yes. The blossoms are delightfully fragrant; they also contain much bright yellow pollen.

L. Is that why there are always so many bees buzzing round them?

P. Yes. These trees are much haunted by bees. If a hive of bees be planted near lime-trees, they quickly find out when they are in flower. I have watched them coming home with their legs thick with pollen. This pollen is the "bee-bread" which they eat themselves, and store up for their young. At Kowno, in Lithuania (a province of Russia), there are large forests of lime-trees. The honey produced in these forests sells at more than double the price of any other. It is used almost exclusively in medicine.

W. That shows that the pollen of the lime-tree must be very good. Is there any other reason why it is interesting?

P. Yes. The order *Tiliaceæ* is related to the *Malvaceæ*, as

you will soon see. Like the mallow plant, the lime contains much mucilage. The sap is very sweet, and may be made into sugar. If fermented it will yield a pleasant wine.

The *nuts*, again, when roasted, have a pleasant flavour. They taste something like chocolate.

Again. The *wood* is smooth, light, and delicately white. It is most useful to the musical instrument maker; and the carvings of flowers, dead game, &c., which you see as ornaments in old English houses are made with it. It also makes excellent charcoal for gunpowder.

Lastly, the *bark* is useful. It is tough and strong, and may be separated into thin layers. The *bass* which the gardeners use to tie up flowers, baskets, cords, and *bass mats*, are also made from it.

W. So that seven parts of the Lime-tree are worth noticing; the sweet *flowers*, the bright *leaves*, the arched *branches*, the *wood*, the *mucilage*, the *sap*, and the *bark*. It is really a very interesting plant.

P. But the limes form a distinct order. In Botany, we call the lime *Tilia*; thus the order is called *Tiliaceæ*. It comprises the *European Lime*, the *Red-twigged Lime*, the *Broad-leaved Lime*, the *Black Lime*, the *White*, or *Silvery Lime*, and others.

You have already learned the distinctions of the *Malvaceæ*, and as this order is related to it, I will place their distinctions side by side that you may compare them. The *Bombaceæ*, and the *Bromaceæ*, which you

have already heard of, are also relations of the *Malvaceæ*.

THE MALLOW

(Malvaceæ).

are distinguished by having
(1.) *Ovary*, with many carpels, which are monospermous.

(2.) *Style and Stigmas*, same number as carpels.

Stamens, numerous, hypogynous, and united in one bundle.

Anthers of stamens, one-celled, bursting transversely.

Corolla, generally with 5 petals.

Calyx, same number of sepals as of petals.

THE
LIME-TREES
(Tiliaceæ).

are distinguished by having

(1.) *An Ovary*, with 4 to 10 carpels, generally monospermous.

(2.) *Style and stigmas*, same number as carpels.

Stamens, numerous, hypogynous, and not united in one bundle.

Anthers of stamens, two-celled, bursting longitudinally.

Corolla, with 4 or 5 petals.

Calyx, same number of sepals as of petals.

W. So that the only parts in the flowers of the Lime-tree, different from the Mallows are the stamens. They are not monadelphous, and they have two cells.

P. The *colour* of the flowers is also either yellow or yellowish. But you must remember that, to distinguish any order in the "Natural" system you must compare not only the flowers, but the other parts—the leaves, stalks, and juices.

There is a small order of plants, nearly related to the Lime-trees, called *Dipterocarpeæ*. The name is derived from three Greek words, *dis*, twice;

pteryx, a wing; and *karpas*, a fruit; because the two segments of the calyx are extended into long wings.

The order is remarkable because it contains the Camphor tree, of *Borneo* and *Sumatra*. The camphor is found in a large vacuum (about a foot and a half long) in the heart of the tree. The young trees contain only an oily substance, but if allowed to grow, the oil becomes camphor. The natives have no certain means of telling which tree will produce either the one or the other. When seeking for it they proceed in parties through the woods, with axes in their hands. With his axe, the Malay cuts into a tree until he reaches the heart. Hundreds of trees may be thus mutilated before one with camphor is found. When the camphor is seen, the tree is generally cut down. The lump of camphor which it yields is of the thickness of a man's arm, weighing about eleven pounds. Large-sized trees will yield double that quantity.

It is likely that our chief supply of camphor will be obtained from these trees. At present, it is procured from a kind of laurel.

Gum *Copal*, which is so useful as a varnish, is obtained from a tree belonging to this small order.

Another remarkable plant in the order is the *Tallow Tree*. It grows on the Malabar coast of India, and is termed the

Piney. It bears a pulpy fruit, and in this is a quantity of tallow, almost as firm as wax; it is superior to animal fat for making candles. In China, almost all the candles in the southern provinces are made from vegetable tallow; but this is procured from another tree. There were some vegetable tallow candles in the Great Exhibition. This tallow will one day, perhaps, be imported and used in England.

You may now make a short summary of these two orders.

Order 14. THE LIME-TREES.

(*Varieties.*) This order consists of various kinds of Lime-trees, such as the European; Broad-leaved; Black; and White, or Silvery Lime.

(*Parts.*) The distinctions of the order are much like those of the Mallows; except that the stamens are not monadelphous, and have two-celled anthers. The flowers, too, are generally yellowish.

(*Uses.*) The European Lime is useful for avenues, on account of its beautiful leaves and branches; its wood, bark, mucilage, sap, and flowers, are also useful.

There is an order, related to the above, named *Dipterocarpeæ*, which is remarkable because it contains the *Camphor Tree*, the *Indian Copal Tree*, and the *Tallow Tree*.

THE PROGRESS OF LEARNING, SCIENCE, AND INVENTIONS DURING THE 17TH CENTURY.

P. In the 17th century the following sovereigns reigned:

JAMES I., who died in 1625.

CHARLES I., who died in 1649.

CROMWELL, who died in 1658.

CHARLES II., who died in 1685.

JAMES II., who abdicated in 1688.

WILLIAM III., who died in 1702.

ANNE, who died in 1714.

You heard something of the social events during the reign of James I. In our history of the six succeeding sovereigns we talked principally of the *political* events. They chiefly consist in disputes for power between the king, the people, the parliament, and foreign nations.

But during all this time the people had other matters to attend to. Many persons seldom trouble their heads about the government, or politics; they pay what taxes they are told to pay; they obey whatever power is set over them; and they give their attention to matters which interest them more. Some men absorb themselves in learning more of God's truth from His Holy Word. Some write learned books. Others make discoveries in science or philosophy. Others invent useful arts. So we will not proceed with the history of George I. to-day. We will stop, and see what these *useful* people were doing during the period from 1625 to 1714. What progress did the English people make in the arts of civilisation?

Let us count up the divines and learned men first.

In the reign of *Charles I.* the Revs. W. CHILLINGWORTH and JOHN BAXTER, two celebrated divines, lived; also, Sir EDMUND COKE, a famous lawyer, and BEN JONSON, the famous dramatic writer. The celebrated Dutch painter, VAN DYKE, the German painter, RUBENS, and the Italian painter, GUIDO, also lived in this reign. Of JOHN HAMPDEN you have already heard.

In the reign of *Cromwell* the most celebrated divines were ARCHBISHOP USHER, famous for his work, "*Sacred Chronology*," which contains the date of every event in the Old and New Testament; and GEORGE FOX, a shoemaker, the founder of the religious sect called the Quakers; MILTON, the most sublime English poet; and INIGO JONES, the reviver of classic architecture, who built the banqueting-room at Whitehall, lived in this reign.

In the reign of *Charles II.* lived DR. ISAAC BARROW, a celebrated divine and mathematician; SAMUEL BUTLER, the author of "*Hudibras*," and OTWAY. THOMAS HOBBS, the philosopher; LORD CLARENDON, author of "*The History of the Rebellion*;" and IZAAK WALTON, author of "*The Complete Angler*," lived in this reign. HENRY JENKINS, a Yorkshire peasant, died in the reign of Charles II.

He is worthy of notice, because he was born in the reign of Henry VII. He lived during the times of nine different sovereigns, viz., Henry VII., Henry VIII., Edward VI., Mary, Elizabeth, James I., Charles I., Cromwell, and Charles II. His age at death was 169 years.

In the reign of *James II.* the most celebrated men were EDMUND WALLER, the poet, and JOHN BUNYAN, the tinker, who wrote "*The Pilgrim's Progress*."

In the reign of *William III.* lived three celebrated bishops, named BURNET, STILLINGFLEET, and TILLOTSON. ROBERT BOYLE, one of the five great English philosophers, also lived in this reign. He wrote many great scientific works, invented the air-pump, and was one of the founders of the Royal Society. The renowned JOHN LOCKE, another of the five English philosophers, and author of a work on "*The Human Understanding*;" the poet, DRYDEN; and the celebrated antiquary ELIAS ASHMOLE, who founded the *Ashmolean Museum*, at Oxford, were also ornaments of the reign of William III.

The reign of *Queen Anne* is more renowned for its learned men than any of those before mentioned. It has been called "*The Augustan Age*," for in those times lived the great Sir ISAAC NEWTON, STEELE, ADDISON, POPE, DEAN SWIFT, &c.

I will give you a few particulars respecting these men.

Sir ISAAC NEWTON was the greatest of England's natural

philosophers. He discovered the *gravitation* of the earth, invented reflecting *telescopes*, and established the modern system of *astronomy*. His great works were his "*Principia*," "*Arithmetica Universalis*," and papers communicating his discoveries in optics, &c.

Sir RICHARD STEELE was the publisher of a daily paper called *The Tatler*, which was taken in by all the reading public, and had a good effect on the habits of the people.

JOSEPH ADDISON was the chief contributor to *The Spectator*, a paper similar to *The Tatler*. These two papers had an immense sale for those times. Of the *Spectator* sometimes 20,000 numbers were sold in one day. Addison composed many good hymns and plays.

ALEXANDER POPE, was noted for his smooth, polished verses. The *Essay on Criticism*, *Essay on Man*, and *Translation of Homer*, were his principal works.

DEAN SWIFT is well known for his political satire called "*Gulliver's Travels*," and other witty works.

The other celebrated men were JOHN EVELYN, William III.'s gardener, famous for his "*Discourse of Forest Trees*," "*Memoires and Diary*," &c.; JOHN RAY, the great naturalist, one of the founders of the *natural system* of botany; PRIOR, the poet; CONGREVE, the writer of comedies; and GAY, whose fables are still known by many a school-boy.

We will talk of the inventions and other social events in our next lesson.

SONGS ABOUT ANIMALS.

No. 3.—THE SONG OF THE SWINE.

A famous fellow is the swine,
He lives a life of ease ;
He eats with zest, and takes his rest
When his fancy it may please ;
'Tis quite a sight to see him dine
With his fore legs in the trough,
And up to his eyes in luxuries,
At which dainty folks may scoff.

The Swine's a true philosopher
Of the Epicurean school ;
He eats, and drinks, but never thinks,
That's quite against his rule ;
He loves to wallow in the mire
Of sensual delight ;
"Enjoy the day," he seems to say,
"Full quickly cometh night."

A kindly feeder is the swine,
He eats all sorts of food ;
Fine flesh it makes, whate'er he takes,
Though largely mixed with mud ;
Through life he munching crunching goes,
There's nothing comes amiss,
Save the ring stout, run through his snout,—
He does not much like this !

Unthinking, grunting animal
Whose fate is to be cooked,
Called "pork" when dead, and "dairy-fed,"
Or "bacon dried and smoked !"
He's careless of his future lot,
Of spit, or salting-tub,
He lives to swill, and take his fill,
And in the earth to grub.

Beware of gluttony ! a sin
Which makes man like a pig,—
A bestial state, with staggering gait,
And body round and big :—
Remember life hath higher aims
Than just to live at ease,
Though drink and meat are very sweet
There are better things than these.

H. G. ADAMS.

ARITHMETIC.

Lesson 1. ROMAN NUMERALS.

Ada. I HAVE learned to count a hundred, papa; and I can write all the Roman numbers you taught me last week.

See,—I, II, III, IIII, V, VI, VII, VIII, VIII, X.

P. You are nearly right. But I can show you two more numbers, which the Romans made to save themselves trouble. In making number *four*, they first put down a *V* for five. They then put an *I* before it, to make it one *less*; thus, *IV*. Again; *nine* is one less than ten; the Romans, instead of making *five* and *four ones*, as you have done, would write *IX*, which means *one less* than ten.

Ada. I can understand that; because eleven is *one more* than ten, and I should write it so, *XI*,—by putting the one *after* the *X*.

P. True. Now do you think you can write from ten up to twenty, in Roman numbers?

Ada. Yes, I think I can. First, here is *ten*. *X=ten*.

Now I can easily add one, every time I want one more.

XI.	eleven
XII.	twelve
XIII.	thirteen
XIV.	fourteen
XV.	fifteen
XVI.	sixteen
XVII.	seventeen
XVIII.	eighteen
XIX.	nineteen
XX.	twenty

I could soon add up to *one* hundred. I should add ones to the twenty, until I made three tens, so—*XXX*. Then I should go on writing *three tens, one; three tens, two; three tens, three; three tens, four*; until I counted up to *four tens*, or *forty*. I should go on counting—*four tens, one*, and so on up to *five tens* or *fifty*.

P. But when you had counted up to *ten tens*, or a hundred, what a long row the ten *X's* would make!

Ada. Yes, unless the Romans had a short way of writing ten tens, just as they had of writing ten ones.

P. They had; the letter *C* used to stand for ten tens, or a hundred.

Ada. But suppose that I had a great orchard, and that I picked *ten hundred* apples from the trees in it, should I have to make ten *C's*, so,—*CCCCCCCCC*?

P. No. There is a short way of writing ten hundred, as well as ten tens, or ten ones; ten hundreds make a thousand, and that number was represented by the letter *M*.

Ada. I think I can say my lesson; and write it, too.

I will first *say* it.

Ten *ones* may be called *ten*.

Ten *tens* may be called a *hundred*.

Ten *hundreds* may be called a *thousand*.

Now, I will *write* it.

IIIIIIII may be written X.
 XXXXXXXXXX may be
 written C.

CCCCCCCCC may be written M.

P. I might teach you some other numbers, which the Romans made with letters; they not only made five ones with a V, but they made five tens with a L, and five hundreds with a D. But you need not learn *all* these numbers at present; I am only going to give you some very easy exercises.

Ada. Shall I fetch my slate, papa?

P. Yes; now write for me, three tens, and two.

Ada. Here they are, papa, XXXII, or *thirty-two*, as we say.

P. Now write for me, two tens and four.

Ada. Here, papa, XXIV; they are the same as *twenty-four*.

P. Now write down two hundred, three tens, and six.

Ada. I have done that. CCXXXVI.

P. That is the number; or *two hundred and thirty-six*, as it is called. You may now write the following exercise on your slate.

Exercise 1. ROMAN NUMERALS.

(a) Express in writing the quantities which the Roman numerals stand for: C, X, XL, IX, IV, VI, VII, XXXVI, MCXX, XIV, V, MCCXXIV, MDCIX, CCCXI, L, LX, LV, XL, XLI.

(b) Write, in Roman numerals, *three hundred and forty-six*; *four hundred and seventeen*; *forty-two*; *one thousand two hundred and forty-two*; *three thousand two hundred and thirty-six*; *four thousand one hundred and two*; *thirty-five*, and *eighty-four*.

THE PEOPLE'S ANTHEM.

LORD, from thy blessed throne,
 Sorrow look down upon!

God save the Poor!

Teach them true liberty—

Make them from tyrants free—

Let their homes happy be!

God save the Poor!

The arms of wicked men

Do THOU with might restrain—

God save the Poor!

Raise THOU their lowliness—

Succour THOU their distress—

Thou whom the meanest bless!

God save the Poor!

Give them staunch honesty—

Let their pride manly be—

God save the Poor!

Help them to hold the right;

Give them both truth and might,

LORD of all LIFE and LIGHT!

God save the Poor!

BELGIUM.

BRUSSELS is not the only great town of Belgium. Let us wander on, to ANTWERP.

By looking at the map you will see that this city is on the *Scheldt*, and not on its tributary, the *Senne*. *Antwerp* was once the pride of the Netherlands. When its commerce was at its height, it contained 200,000 inhabitants. But, if you notice the *Scheldt*, you will see that its mouth is in Holland; and that, if a ship had to sail up the river from the ocean, it must first *pass through Holland*.

The Dutch have always been jealous of the commerce of the Belgians; but their conduct towards Antwerp is one of the most striking instances of jealousy recorded in history. In the year 1585 the people of Antwerp were besieged by the Duke of Parma for more than a year. The citizens of Antwerp had sacrificed many lives and much commerce in helping the Dutch to fight for liberty; yet the Dutch merchants of AMSTERDAM did everything in their power to prevent them from receiving assistance. It was afterwards agreed, in an European treaty, that no large vessel should sail up to Antwerp. Such vessels were obliged to unload their cargo in *some port in Holland*, and send the merchandise to Antwerp in barges or small craft. The Dutch even constructed, at a vast expense, a number of forts

on the banks of the *Scheldt*, to prevent large vessels from going up. The French, however, obtained possession of Antwerp in 1794. They then dismantled all these fortresses, opened the navigation of the *Scheldt*, and declared Antwerp to be a free port.

You would, I am sure, say that Antwerp ought to be a free port, if you were to see what a noble city it is. The *Scheldt* is there 2,000 feet wide, and admits vessels of all sizes. It is connected by water with Mechlin, Louvain, Brussels, and Ghent. The city is surrounded by a large wall, having rows of trees on each side, with walks between.

Antwerp has also a fine arsenal, and a cathedral with the highest tower in Europe. In this cathedral is the masterpiece of the great Rubens, "*The Descent from the Cross*." The city is also the birthplace of the great painters, Teniers and Vandyke. The name Antwerp is derived from two Flemish words, meaning *at the wharf*.

Antwerp is situated in the province of Antwerp. If you travel into the province of *East Flanders*, you arrive at another great city. This city now has large cotton manufactures, but it has at all times been renowned for its *linen cloths*. It is said that the weavers were the mightiest guild of its corporation; they

often sent numerous armies into the field under their own banner. It is situated at the confluence of four rivers,—namely, the *Scheldt*, the *Lys*, the *Lieue*, and the *More*. From this circumstance it has long prospered, while the trade of other towns has declined. It is very large, and the rivers have divided it into twenty-six islands, which are connected by one hundred bridges. It is the birth-place of Charles V., Emperor of Germany, and John of Gaunt. The name of this great city is *Ghent*.

Let us next cross over to the town of *LIEGE*. Here the rich old bishops of Liege used to reside. They were certainly a strange race. The bishop of Liege had an income of about £150,000, and was able to maintain an army of 8,000 men without oppressing his subjects. But the face of things is much changed now. Liege is called *the Birmingham of Europe*, and the old "bishop's palace" presents itself surrounded by factory chimneys, foundries, railroads, wet and dry docks, mining-shafts, and steam-engines. Here, as in Birmingham, are extensive manufactures of cannon, small fire-arms, and other metal goods. In one establishment of iron-works sixteen engines and more than 2,000 workmen are employed.

The province of *West Flanders* is next worthy of notice. Here is *BRUGES*, the oldest town of Belgium.

We ought to have gone direct to Bruges from *Ghent*.

You would like very much to travel that way. The country is a fertile plain, resembling one great garden. It is like the market-gardens in the neighbourhood of London, between Hammersmith and Brentford. The city was once the most commercial city in this part of Europe. It was the principal *entrepôt* of the Hanseatic League.

Perhaps you wish to ask what is meant by an *entrepôt*, or "The Hanseatic League." I will tell you. The Hanseatic League was a union formed, in the middle ages, between the great commercial cities in Germany and the North of Europe. By this union these cities increased their commerce and means of defence. The towns admitted into the league were called *Hanse Towns*. We have, in the present day, a somewhat similar union of the towns on the Rhine; they are called *the Zollverein*.

Bruges was called the principal *entrepôt* of the Hanse towns, because it was the place where the goods of the other Towns were deposited while waiting to be sent to other parts.

Bruges is no longer what it was; yet it still has important manufactures. Six thousand people are employed in making lace alone. Its commerce too is considerable, partly on account of the numerous canals. The city itself has fifty-four bridges. The old-fashioned houses give the streets a most antique appearance; while the fine church of *Notre Dame*

renders the town still more picturesque. The name "Bruges" means *bridges*. Indeed its proper name is *Bruggen*, which is the Flemish name for bridges.

The province of West Flanders also contains OSTEND, the principal port of Belgium. It is at this town that passengers arrive from England. It has 10,500 inhabitants, and it is renowned for its memorable siege by the Spaniards, which lasted three years and a half, from 1601 to 1604. This siege cost the lives of 80,000 Spaniards and 50,000 Belgians.

We will not visit any more of these old towns. You have heard of BRUSSELS, ANTWERP, GHENT, LIEGE, BRUGES, and OSTEND. I might go on to tell you of *Louvain*, *Mechlin*, *Tournay*, *Mons*, *Namur*, *Verviers*, *Oudenarde*, *Malplaquet*, and *Ramilies*; all these places are interesting, because you have read of them in history.

But that remark brings me to another point. Why have you heard of these towns in history? It is because of the battles fought there. Those last mentioned are noted for the victories of the Duke of Marlborough.

You may remember three things about all these towns if you ever go to Belgium.

When you see their rivers, canals, and shipping, you may remember that they have been, and are still, some of the principal *commercial, manufacturing, and "money-making"* towns of Europe.

When you look upon the fortified walls, you may feel

sad. You may remember that nearly all these towns are famous for some great siege or battle. Belgium has been a truly unfortunate country. It has too often been the scene of contending armies of other nations. It has thus been called *the battle-field of Europe*.

You may observe that almost every old town contains a fine cathedral. When you admire these stately churches, you may also feel sad. As you see them rising above all other buildings, and standing out against the clear blue sky, you may remember that they are monuments of *superstition*. You may think how they were built with money paid by credulous people for useless masses to be said for their souls, or for useless pardons to save them from their sins. You may remember, too, with sadness, that the true light of God's countenance is seldom looked upon in these splendid places, but that His everlasting mercy and loving kindness is only seen "as through a glass, darkly." When you think of these things, you may also turn with gratitude to your own dear country, and thank God that you were born in a land where the Bible may be read by all.

Let us take one look of the country before we leave Belgium. I told you of the two great rivers, the *Maas* and the *Scheldt*. It is a great pity for the Belgians that these rivers flow through Holland. The commerce of the country has suffered much in consequence, for

it has constantly been hindered by the Dutch. Both the *Belgians* and the *Dutch* are commercial people, and have too long been jealous rivals, instead of friends.

Look at the country again. You not only notice the numerous towns, the people, and rivers, but the still numerous *canals* and *railroads*. Besides the 600 miles of river in this small country, there are 300 miles of canals. The railroads are more numerous, for its size, than in any other country except England.

Look at the country once more. The agriculture is in the highest state of perfection. *Flanders* has for centuries been noted for its excellent farming. See the fields of corn and flax, and the great potato crops. So successful are the farmers that, although the country is so crowded, they have corn enough for home and for export. It was from Belgium that the English people procured the clover, cabbage, lettuce, and gooseberry plants; also those beautiful flowers, the tulip, carnation, and wallflower. Potatoes are now one of the principal crops, but for these the Belgians have in their turn to thank the English.

Look at the country only once more. Shall we notice the forests of oak which are grown for the sake of their bark, and which supply charcoal for the iron works? No. There is something more important. Shall we notice the windmills, and the dykes and dams, and drains? No, we

shall see more of these in Holland. Let us look at these deep mines. See how the Belgians are digging out the *coal*. This is the highly important product; for do you not remember that France has very little coal? Look at the almost perpendicular mines around Mons and Namur; and others around Charleroi and Liege. Belgium is the richest in coal of any country except England, and being so near to France this coal is of great value.

But of Belgium we have had almost enough. You may make your memory lesson, and learn it.

BELGIUM.

(Name and Situation.) *BELGIUM* is so called from the *Belgae*, a tribe of the original inhabitants. It is situated between France and Holland.

(Rivers.) The principal rivers are the *SCHeldt* and the *MAAS*, and their tributaries.

(Soil and Products.) *Belgium* is noted for its excellent farming, and for its crops of corn, flax, hemp, hops, and potatoes. Its forests of oak and its coal mines are also of great value.

(Surface.) The numerous canals and railroads on the surface of Belgium, the dykes, and the *ams* are also remarkable.

(Towns.) But the most interesting features of Belgium are its ancient cities and towns. So thickly is the country populated, and so close together are the towns and villages, that the whole country is like "one great town."

These towns are famous for their fine cathedrals, picturesque and ancient buildings, their commerce, and their manufactures in woven goods and metals. The prin-

cipal towns are BRUSSELS, ANTWERP, GHENT, LIEGE, BRUGES, OSTEND, NAMUR, LOUVAIN, MECHELIN, TOURNAY, MONS, &c.

SONG OF THE MILL.

Whenever I look my window out,
Lo! there standeth the tall white mill,
Turning his four huge sweeps about,
As if he liked not to be still—
As if he would not idle be
For all the wealth that you could give,
But work with patient industry,
That hungry men might eat and live.
Whether it rain, or whether it shine,
Whether to work, or whether to play,
Human hearts and hands incline,
He heedeth not, but grinds away;
Whether the wind be east or west,
Whether from north or south it blows,
He turneth his head to suit it best,
And on with his *whirr whirr whirr* he goes.
Whirr whirr whirr! 'Tis a pleasant sound,
Although the voice be hoarse and gruff,
For it tells of hands for labour strong,
Of thankful hearts for food enough;
Of the dew and rain on the tender blade,
Of the sun that ripens the golden grain;
Of toils endured and efforts made,
Nor made, nor undergone in vain.
I've loved to hear it through the day,
When cares were pressing on my brain,
When down to take my rest I lay,
And when I woke at morn again;
The old familiar *whirr whirr whirr!*
Was ever pleasant unto me,
For it hath a *homely* character,
And it speaks of human sympathy.
The tall white mill! Long may it stand!
Long may its mighty sweeps go round,
And thousands like it through the land,
Whereby the foodful grain is ground!
May it thus ever rear its head,
Like a tame giant, loved by all,
Not grinding *bones* to make one's bread,
But wholesome corn for great and small.

H. G. ADAMS.

THIRD WEEK. MORAL LESSON.

MONDAY.

CHARITY.

"Seeketh not her own."

THE SICK CARPENTER. (*Continued.*)

I TOLD you of the kindness which Emma and her brother showed to the sick carpenter, on the Saturday night. Let us pass over the Sunday. We will look into his room, on the Monday morning.

The room where John Smith, the carpenter lived was, as you will perhaps suppose, not overcrowded with furniture. He had a chair, a bed, and a tea-chest, which served for a table. If you had been there on the Monday morning, you would have seen by the empty cup and saucer, and other things on the chest, that he had finished breakfast. He was sitting with his elbows on his knees, and his head on his hands, leaning over the fire, and thinking.

His thoughts were not all pleasant ones. When he thought of himself he remembered how selfish he had been—he remembered his kind wife, and his dear little son; he remembered how, before he was ill, he had been a violent drunken man, so that his wife had gone to her home in the country, and had taken the little child with her. Then he thought of Sarah, and her

brother, who had just left the room. He wondered, whether, if they knew how wicked he had been, they could still be kind to him. He counted up all the earnings they had brought to him during the past six weeks. He looked at the remains of his breakfast which they had prepared for him so carefully, and he thought how little he deserved such love. He remembered the verses which Emma had read to him from the Bible, yesterday; he thought of the good Samaritan who had poured oil into the poor man's wounds, and he remembered how much like good Samaritans this boy and girl seemed. Even the kind looks which they cast upon him had gone to his heart; they made him think that there must still be many good people in this world. Then he thought of himself, and began to weep. He shed many burning tears, and another attack of his illness seized him, so that his whole frame shook. He began to think whether his wife and child would not be as kind to him as Emma and her brother had been. That hope seemed to cheer him.

Oh what a comforting thing is *hope*! It took away a great load from that carpenter's heart. Do you see, Ion, what a kind look can do? The kind looks of that boy and girl brought more joy to the carpenter than very much money could have done.

Yes! he was forgetting his poverty and his illness; he was saying to himself, "I will try to be good like those kind children," when there came a loud knock at the door, and in bounced Mrs. Crop.

"Well, here I am, you see!" said Mrs. Crop. "Let me see—five weeks at one and sixpence are seven and sixpence; four shillings paid—that makes it three and sixpence, and eighteen pence this week—altogether that's—five shillings!"

"I am afraid, missus, you must wait a little longer," said the carpenter. "I have not got much to pay you. I am not strong yet."

"I tell you, once for all," said the landlady, "that I don't like to wait. If you can't pay for my room you have no business to be here. Why don't you go to the workhouse? Instead of that, you get your shilling a week from the parish, and you spend it in victuals—and—why, what is this?" she said, coming up to the old tea-chest, "this is the best fresh butter. If you can afford to buy fresh butter—"

"Indeed, I didn't buy it," said the carpenter.

"No, indeed, he didn't, ma'm," said a poor woman who

had come in from the next room with a half-finished bonnet in her hand. "It was given to him by a poor girl who knew his father."

"Then why didn't the girl give him some money to pay his rent?"

"I don't know, but I am sure, now, Mrs. Crop," said the poor woman, "that he will do all he can. You know I have been your tenant, off and on, for three years, and though I am only a bonnet-maker, I have always paid my rent. You might as well let it stand over for a week for my sake. I have got fourpence that I can spare, and he has got eightpence, so that will make one shilling. That will be something."

Mrs. Crop was silent for a minute. When she thought what a good tenant the bonnet-maker was, she did not like to be angry; she took the carpenter's eightpence, and the bonnet-maker's fourpence, but she said it wasn't fair to be treated so. "If he can't pay the rent," she said, "he ought to go to the workhouse. He knows he ought, and he has no business a-stopping here. Now I'll keep my word," she added; "if he has not got the money when I come next Monday he shall go—he shall! A man who can afford *fresh butter* has no right—" but without finishing the sentence she left the room in great anger.

W. Well, you can't say that she wasn't seeking her own, I am sure.

P. No. Mrs. Crop was a woman, who was determined

always to have what she thought was due to her. She was very fond of the words "fair" and "right." Although forty years old, she had not yet learned the words "mercy" and "charity." As she took an old leather bag out of her pocket, and put the eightpence and fourpence into it, she felt that she had got *her own*, though only a part of it; but the shilling did not make her happy.

I need not describe to you the trouble which Emma and her brother felt, when the sick carpenter told them of his landlady. If they had known that she was no other than their own landlady, Mrs. Crop, they would have begged mercy for him. They had always paid her their earnings regularly, and did not know anything about her hard dealings.

The rest of the week was an unfortunate one for them. Their master, the bookbinder, had not been able to find them extra work. When the Saturday night came, they had only earned a shilling during overtime.

As they were thinking over their difficulties, John suddenly said to his sister, "We can go into debt instead of him." If you spend sixpence to-night, to buy him some bread and butter, that will leave sixpence, and instead of paying Mrs. Crop all our wages, we will ask her to lend us three shillings out of it.

It is not right for young or old people to run into debt, but Emma and John were so delighted at the thought of helping John Smith, that they

could not think of anything else. Without telling him anything of their plan, they made haste home to Mrs. Crop, and begged of her to lend them the money.

"I think," said Mrs. Crop, "that it is a dangerous thing to lend money to young people. You often come home very late. I am afraid that you go to places of amusement, where you should not be. Haven't you been spending your money lately?"

"Yes," said Emma, "but we give it away. We give it to a poor man, whom we know."

"Give it?" said Mrs. Crop in wonder. She seemed quite unable to comprehend the idea. "You ought to take care of your money, you work hard enough to earn it. I don't think I can lend you money to give away."

"But, pray do! oh do!" said Emma, "you don't know how badly he wants it."

"Who is the man?"

"Oh, you don't know him. But father knew him very well. I wish you would come and see him. I am sure *you* would help him; you are so rich."

"I am sure *I* shouldn't," thought Mrs. Crop to herself, but she didn't like to say so out loud.

"Do come and see him," said Emma. "You would like to help him *very much indeed*—he'd be so thankful."

"Nonsense, girl!" said Mrs. Crop, looking rather confused. "I *never* go to see sick people."

She, however, consented to lend Emma the money, who gladly showed it to her brother.

"Perhaps we shall make up the five shillings," she said; and the three shillings were put away until the Monday.

On the Monday morning, again, at nine o'clock, John Smith was sitting in his room in great fear. Sarah had promised to see him, but she had gone to work early. He listened anxiously, hoping to hear her footsteps, but, to his dismay, his old enemy, Mrs. Crop came in.

"Good—"

"No; you needn't say good morning," said the landlady; "it is very *bad*. I see by your very looks that you have not got me any rent."

"But, missus," said the poor carpenter; "if you will only listen to me for a minute."

"No; I'll not listen to anything. I only want to know why you are stopping in my room when you don't pay any rent. Do you call that *just* and *honest*?"

At these words the poor bonnet-maker came again into the room with her husband.

"If you would let me say a word," remarked the bonnet-maker's husband—

"You'd better not say anything. I tell you I'll not be spoken to. I have only come to ask one question—Where is my money?"

"Here," said the bonnet-maker, coming forward, "is 1s. 6d. We have saved this for him. I hope you'll excuse him a little longer."

"You needn't hope anything of the sort," was the reply. "Eighteenpence is not five and

sixpence. Now, you know what a positive woman I am. You can't move me. When I have said a thing, I have said it. He has no business in my room; and, if he can't pay the rent, he must go to the work-house."

"But see how ill he is, ma'am. Do you notice—"

"I don't, and won't notice anything! If you and all the people in this house were to come down—if the whole world were to beg for him—I wouldn't let him off. No! I told you when I am fixed, I am fixed, and that's certain. *Nothing* can move me! I am as firm as a—"

"Oh, I am so *sorry* I am so late, Mr. Smith!" said Emma, rushing into the room just at this moment; "but John and I have earned a shilling this morning by working overtime, and here it is; and here's three shillings which my good landlady lent me—that makes four. Why, here is Mrs. Crop!" said Emma, turning round. "I am so glad! This, ma'am, is the poor man I told you of, whose landlady was going to send him to the work-house."

"Here, missus," said John Smith, coming towards her; "*here are the four shillings.*"

"And here," said the bonnet-maker, "is my eighteenpence; that will make five and sixpence."

But, to the surprise of all, Mrs. Crop held down her hands; she even put them behind her back; and she made a noise with her throat, as if she were

swallowing something. In short, she began to cry.

Yes! the woman who said that the whole world could not persuade her to go without her rent, now refused it. She muttered something about not wanting to be paid with her own money, but she dared not look Emma in the face. She left the room, saying she would call again another day.

W. And did she call again?

P. Yes; but not for her rent. She talked the matter over with Emma that evening. She heard how long she and her brother had waited on him, "not seeking their own," and thus learned her first lesson in charity. The very next day she copied Emma's example. She came again to

see John Smith, but not to send him away. She *took* him away to her own room and nursed him.

L. And what became of John Smith at last?

P. When he was nearly well Mrs. Crop sent into the country for his wife and little son. He too learned from Emma's charity—became a sober man, and a kind husband and father.

Now, shall I tell you what *you* may learn from Emma?

W. Yes, papa; please.

P. Learn that by *charity* you may not only do good, but may teach others.

Tell me how many people were made happy besides Emma and her brother, *because they did not seek their own?*

DOING GOOD.

"MOTHER, I wish that I knew how
To do some good to day,
For 'every one should do *some* good,'
I've heard my father say.

"And, mother, I have often tried,
But then I am so small,
And though I try, I never can
Do any good at all."

"Yes, Henry, you *can* do much good—
When you are kind and mild,
And love to do what you are told,
You are a useful child.

"I'll tell you when you did some good;
The day that I was ill,
You did not play or make a noise,
But kept the baby still.

"You took your little picture-book;
And taught him all you could,
And showed him pretty playthings too,—
Now that was doing good."

ANON.

THE JUSSIEUAN SYSTEM.

THALAMIFLORALS.

Order 15. CAMELLIAS.

Camellinceæ.

P. HERE is a CAMELLIA from the greenhouse.

W. What a beautiful red colour it has!

Ion. And here is a *white* one.

P. Yes; the Camellias vary through every shade and mixture of red and white. They are called by the gardener, *Camellia Japonica*, because they were brought from Japan. If a gardener were to count up for you all the different sorts that he knows, he would begin, Double white Camellia, Fringed white Camellia. Double striped. Double red, Blush ditto, Buff ditto, Variegated ditto, Red Pæony ditto, and so on, until you asked him to leave off.

But perhaps he would not take the trouble to mention the plant which I am most interested in. It is called by botanists, *Thea*, from the Chinese word, *Tcha*. In England we leave out the *h*, and spell it T-e-a.

There are two kinds of Tea-trees,—the *Thea viridis* and the *Thea Bohea*. It was once supposed that the former was the *Green-tea*, and the latter the *Black-tea* plant. It has lately been found, however, that either plant will yield *both* kinds of tea. Moreover, several very naughty-looking facts have been discovered,—how *artificial* green tea is made from

black by means of paint—even poisonous paint. But I am not going to talk about these things now. You have already had a full account of the tea-plant, and the preparation of tea, in “*Fireside Facts*.”*

Here is a short account of the order. We will take the *flower* of the tea-plant for description.

The *calyx* of the tea-plant has from five to seven sepals, unequal in size, sometimes overlapping each other.

The *corolla* has from five to nine petals, sometimes imbricated, sometimes joined together at the base.

The *stamens* are numerous— indefinite in number— sometimes joined at the base into one or more bundles.

The *ovary* has from three to six carpels. Each carpel has a separate style and stigma, and contains several ovules. When ripe, it forms a “capsule”; but this has only *three* carpels. Each of these has only one seed; the other carpels and ovules perish without being developed.

This description will apply to most of the order. The Camellias have larger leaves than the Tea-tree. They are famous for their beautiful foliage as well as flowers. Yet the leaves of some species have been used as tea.

The next order contains a

* *Fireside Facts*, pages 52—62.

plant which interests children quite as much as the Tea-plant.

Order 16. THE ORANGES.

Aurantiaceæ.

P. Orange blossoms are beautiful to see.

L. Yes, they are so white.

P. And they are also beautiful to smell. Indeed, in all the plants of this order the flowers are extremely fragrant. They are tropical plants. Here is a flower to examine:—



1.

2.



3.

1. Section of the pistil, showing the ovary, disk, and stamens. 2. Flower. 3. Section of the ripe fruit.

Let us begin with the calyx of the flower. I will merely write the description for you.

The *calyx* of the orange-blossom has the shape of a cup; five stamens; three sepals; and is rather deciduous.

The *corolla*—as many petals

as there are sepals; fleshy and white, with green dots; imbricated.

The *stamens*—twice the number of petals, or some multiple of that number—either separate or monadelphous—placed outside a fleshy disk. (See No. 1 in cut.)

The *pistil*—one style and stigma—a globular ovary, composed of several carpels, each having numerous ovules. As the ovary ripens, many of these ovules perish, and the carpels become filled with a sweet pulp; the divisions in an orange which we separate upon taking off the peel are the carpels. (See No. 3 in the cut.) The fruit, when ripe, is protected by a thick, spongy rind. This is remarkable for the large number of minute *oil-receptacles* on the surface. These prevent the evaporation of the watery juice within. Their *acridity* also serves as a protection from without, by warding off the attacks of insects.

The *leaves* are very fragrant. They are covered with small yellowish dots, which are receptacles for an essential oil. This oil causes the fragrant smell, though it is very acrid to the taste. The leaves at the junction of the blade and the petiole are jointed.

The oranges brought to England are picked when green. They ripen on their voyage. Although preserved by their thick rind, if not kept dry they will decompose. They are therefore packed in dry leaves. It is remarkable that the orange-trees from which

the green fruit is gathered bear more plentifully *every* year, while those from which the ripe fruit is picked afford plentiful crops only in *alternate* years. The trees of this order require two years to ripen their fruit. Thus a healthy tree shows every stage of production, from the flower-bud to the ripe fruit, at the same time.

The best oranges are brought from St. Michael's, where one tree has been known to produce

25,000 oranges in a season. Nearly 300,000,000 are imported into England every year, being about a dozen for each individual.

There are other cooling and refreshing fruits in this order; thus:—

The *Lemon*, with an acid pulp; the *Shaddock*, and the *Seville* orange, with a bitter pulp; the Limes, Citrons, Forbidden Fruit, and others, all of which are most abundant in the burning tropics.

A MOTHER'S LOVE.

HAST thou sounded the depths of yonder sea,
And counted the sands that under it be?
Hast thou measured the heights of the heavens above?
Then mayest thou mete out a mother's love.

Hast thou talked with the blessed of leading on
To the throne of God some wandering son?
Hast thou witnessed the angels' bright employ?
Then mayest thou speak of a mother's joy.

Evening and morn hast thou watched the bee
Go forth on her errands of industry?
The bee for herself hath gathered and toiled,
But the mother's cares are all for her child.

Hast thou gone with the traveller thought afar,
From pole to pole, from star to star?
Thou hast—but on ocean, earth, or sea,
The heart of a mother has gone with thee.

There is not a grand inspiring thought,
There is not a truth by wisdom taught,
There is not a feeling, pure and high,
That may not be read in a mother's eye.

And ever since earth began, that look
Has been to the wise an open book,
To win them back, from the love they prize,
To the holier love that edifies.

There are teachings on earth, and sky, and air
The heavens the glory of God declare!
But louder than voice beneath, above,
He is heard to speak through a Mother's Love.

EMILY TAYLOR.

THE ENGLISH TRAVELLER.

STAFFORDSHIRE.

"MY DEAR CHILDREN,—

"Have you ever heard of the *Staffordshire Potteries*? When I entered Staffordshire, I immediately made for the pottery district.

"On arriving there I took with me a guide, a man who wore a close skull-cap. I knew by his cap that he was one of the workmen in the potteries.

"As we approached the pottery works, I remarked that I had seen a great many coal-mines on my way.

"Yes, sir," he replied, "the coal-fields of Staffordshire are very remarkable. There are coal-fields which supply fuel for the pottery works in the north. The coal is bought at 6s. or 8s. per ton. In the south of the county are the great iron manufactures, and there there is an immense supply; so much that the coal is too cheap, and is often wasted.

"We have good clays, sir, and marl, which are used in making pots and pans. But here are the potteries!

"The pottery district, begins here, sir, at *NEWCASTLE-UNDER-LYNE*. It extends more than ten miles, as far as the village of *Burslem*. In the district are *Burslem*, *Tunstall*, *Hanley*, *Shelton*, *Etruria*, *Stoke*, *Fenton*, *Lane-End*, and other smaller places: they are all connected together. The inhabitants of these towns are nearly 80,000; they nearly

all depend, in some way or another, on pottery.

"You may almost travel in a straight line through all these places; for they seem to form one long street. On each side are long rows of cottages, belonging to the workmen. Here and there are large mansions, where the masters live. Here, sir, is my master's bank."

"What do you mean by his bank?"

"We mean all his pottery works. Do you see what a number of hovels he has?"

"Do you mean by 'hovels' those large dark-coloured buildings like sugar-loaves?"

"Yes; inside those hovels are the ovens, where all the 'ware' is baked. Look at the canals, too, sir, how many there are in all parts!"

"Yes," I said, "and barges on them, and heaps of flint by the side, and marl, and clays, and kilns, and many more things. All the men seem to wear skull-caps, like yours."

"Yes, sir, that is the workmen's regular dress. I dare say you have heard the name of *Wedgwood*? I should like to show you Mr. Wedgwood's bank at *Tury*."

"*Etruria* you mean," I said.

"Yes, sir."

"I would rather," I said, "that you should tell me what is done with all those things that I see lying about."

"Very well, sir. First, those canals and barges. The barges are employed to bring the flints from Gravesend, and other parts."

"Gravesend is a very long way from here," I said.

"Yes; but the flints there are very good. They are brought chiefly by the *Grand Trunk Canal*, and others. When they arrive we calcine them in one of the kilns; that is to say, we burn them until they are white like chalk. We then take them to a flint-mill, where they are crushed into powder. This powder is beaten up in water with a fine clay, which we procure from Dorsetshire."

"Yes," I said, "I have heard of the Dorsetshire clays."

"The water, and clay, and ground flints, at length form a thick smooth fluid, of the thickness of cream. This is called *slip*. After some of the water has been evaporated from the slip, it becomes about as thick as clay, and then it is made into cups, plates, basins, dishes, and other such articles."

"I wish you would tell me how these are made," I said.

"I don't think I could make you understand well by *telling* you, sir. You must come and see the men at work. One of their principal machines is a wheel, called the *potter's wheel*—a very ancient invention."

"After the articles are made, sir, they are put into drum-shaped cases, called *seggars*. In these they are taken to the ovens and baked. When the articles are taken out they are dry and crisp, like a biscuit: they are then called *biscuit ware*."

"After the baking the patterns are put on. If you go to the factory you may see this done. Suppose that one of the girls has to place the pattern on a dish. She will take a piece of *transfer-paper* with the pattern printed on it. She will turn the front, or printed side of the paper downward, and fit it on to the dish. She will then rub the back of the paper. After a time she will wet it, pull it off, and will then find that the pattern has left the paper and is fastened on to the dish. Sometimes the pattern is afterwards touched up with a brush; sometimes the whole pattern is done by hand; the gilt is generally put on with a brush, and is burnt in."

"I suppose that you put the fine glaze on the dish *after* it is printed?"

"Yes, the glaze preserves the pattern. It is made with a preparation of salt. Did you ever hear, sir, how we first found out that salt makes good glazing?"

"I don't think I have."

"It is said, sir, that it was discovered by accident. A servant was boiling some salt and water, and she left her earthen pot on the fire while she went out. When she came back the salt had boiled over, and covered the sides of the pot. When the boiling liquid was cold it formed a hard shining glaze, which would not wash off at all. This accident led to the idea of glazing other pottery in a similar manner."

"I might tell you a great deal more about our potteries, sir, of all the different kinds

that we make; you would be surprised at their variety. You would like to hear about Mr. Wedgwood and his beautiful vases, and other specimens of china."

"But," I said, "I have no time to see or hear of these things now. What other remarkable place have you in Staffordshire?"

"The southern part of the county, sir, is as remarkable as the north. If you were to visit the four towns *Wolverhampton*, *Walsall*, *Dudley*, and *Birmingham* which is in *Warwickshire*, you would find yourself in the great *iron* district. The sight by night is very remarkable. As you travel you will be lighted for miles by the glaring red flames of hundreds of furnaces. In the day time, if you visit these towns, you will find thousands of men, besides women and children, at work. They are employed in making guns, gas-tubes, chains, locks, keys, spades, shovels, hinges, screws, files, edge-tools, buckles, stirrup-irons, bridle-bits, machinery, and many other things. The number of *nailers*, in particular, would surprise you."

"I wish you would give me a list of your principal towns," I said.

"I will, sir.

"First, there is the capital, *STAFFORD*; it is not connected with any manufactures, so it is not a very important place.

"*LICHFIELD* is an old cathedral town. This town and *Coventry* form a bishop's see. It was the birth-place of *Dr. Johnson*, and of *David Garrick*.

"*BURTON* is famous for its *ale*.

"*NEWCASTLE-UNDER-LYNE* is the great pottery town. Here the round skull-shaped hats, and shoes for the workmen are made.

"In the south is the principal *iron* town, *WOLVERHAMPTON*; it is particularly famous for its locks and keys, and for its fine railway station.

"*WALSALL* and *DUDLEY* are also famous for their nail-making and iron-works."

"And have you many rivers in this county?"

"Not many, sir; only a small piece of the river *Trent* and the river *Dove* are worth mentioning. The *Trent* only is navigable; and yet, for all that, sir, perhaps there is no midland county with better means of communication than *Staffordshire*."

"How is that?" I said.

"It is because of our famous canals. First, there is the *Grand Trunk Canal*; then—"

"No, don't repeat them all," I said.

"Very well, sir. It would take some time; but I should tell you that we owe them all to the *mineral wealth* of our county. We shouldn't have had such canals if it hadn't been for the clay and potteries, the iron, and the coal which is in nearly all parts of the county."

"Thank you," I said, "I must leave you now. I am going to dine, and to write a letter to some children." And this letter, you see, I have written.

"Your faithful friend,

"HENRY YOUNG.

ARITHMETIC.

Lesson 2.—NUMERATION AND ADDITION.

Ada. I HAVE learned my Roman numbers, but they are not the figures that Willie uses to do his sums with.

P. No, that is because he has a better set of numerals to use. Suppose that a Roman had thirty-five apples in one hand, and twenty-six in another, and forty-eight in a bag. If he wanted to see how many apples he had altogether, he would mix the three lots of apples into one; then he would count them all together.

Ada. Yes, I could do that.

P. But you would find that if you wrote the three numbers on your slate, and tried to join them into one, it would be very difficult. Here they are on the slate.

XXXV apples

XXVI apples

XLVIII apples

If Willie wanted to join those three quantities of apples into one, he would "add them up," as we say. But he would take a long time to do so with these Roman numerals.

Ada. Are you going to tell me to-day what sort of numbers Willie uses?

P. Yes; the marks that Willie makes on his slate are very ancient ones. It is supposed, now, that they were first used in *Egypt*, thousands of years ago.

But the people of Europe got them from the *Arabs*; thus they are called "Arabic" numerals.

Ada. Please show them to me.

P. I will. For one apple, we write this figure, 1, which is something like that of the Romans. For two apples you would write this figure, 2; for three apples, 3; for four apples, 4; for five apples, 5. But I will arrange the different numbers for you, and will show you the figures used to represent them:

apples	we write
For .	1
for ..	2
for ...	3
for	4
for	5
for	6
for	7
for	8
for	9

Ada. Why are these numbers better than the Roman ones?

P. You shall see how convenient they are. If you wanted to write *three ones*, instead of making III, you put an I with three under it.

Ada. So, I suppose, $\frac{I}{3}$; and for IIII, I should write $\frac{I}{4}$; or, for nine, instead of nine strokes, I should write $\frac{I}{9}$.

P. That is right. The art of writing numbers either with Arabic, or Roman numerals, may be called NUMERATION. You cannot learn Numeration

thoroughly until you know and feel the value of every figure that you make.

You will learn the value of your figures by using them. I mean, therefore, that you shall increase your knowledge of numeration *as you want it*. To-day you shall begin the first rule in Arithmetic. It is called **ADDITION.**

ADDITION.

P. Here, Ada, are 3 single apples—three *ones* as we say. Here are two more; and here is one more, in your lap. How many have you altogether?

Ada. Six, papa.

P. The number six is right. Thus you have made three smaller numbers into one large one. That is what we mean by *Addition*—joining small numbers together to make larger ones.

You shall now add these numbers together on the slate.

Ada. But what is the use of my doing that when I can do it "out of my own head"?

P. By writing the numbers you will more easily remember them. You will soon have to add up very large numbers. Then you will be glad of the slate.

I will write your sum for you.

	<i>I</i>
.	1 apple
..	2 apples
...	3 apples
—	—
.....	6 apples
—	—

Here is another sum:—

	<i>I</i>
..	2 apples
...	3 apples
....	4 apples
—	—
.....	9 apples
—	—

You may now perform the following exercise.

Exercise 2. NUMERATION AND ADDITION.

(a) *Express in figures the following quantities of apples:—seven, four, three, six, five, one, and eight.*

(b) *Write the numbers of apples which the following figures represent: 6, 4, 3, 1, 5, 7, 2, 9.*

(c) *Add together the numbers in the following sums:*

	<i>I</i>		<i>I</i>
.	1 pear 11		2 sticks
....	4 pears 11		2 sticks
....	4 pears 111		3 sticks
	1		1 stick
—	—	—	—

..... 9 pears lllllll 8 sticks

<i>I</i>	<i>I</i>	<i>I</i>	<i>I</i>	<i>I</i>
1	3	2	1	3
4	2	1	4	4
3	3	3	2	2
	1	2	1	1
		1	1	
—	—	—	—	—
—	—	—	—	—

Lesson 3.—NUMERATION AND ADDITION. (Continued.)

Ada. I have done all those sums, papa, except the last. Its numbers when added together make *ten*, and you have

not shown me what figure to make for ten. I cannot write any higher number than *nine*. Shall I write the ten in this way?

X

1

P. That is nearly correct; but suppose that by chance the X over the 1 were rubbed out, no one could tell whether the 1 meant 1 *ten*, or 1 *one*.

Ada. Then, what must I do?

P. Whenever you write any number that stands for *tens*, you also write down whether there are any *ones* besides. You would write 1 *ten* in this way—

X I

1 0

Ada. That means "*one ten, no ones*."

P. Yes. Here are two quantities of apples. Take notice how I write their number with the Arabic numerals.

..... = 13
..... = 10

Ada. I understand that. In the first row there are one ten, and three ones over. In the second row there are *one ten*, and *nought ones* over. Now I can tell that each of those ones stands for a *ten* without putting the X over it, because each has another figure after it, to show how many *ones* there are beside.

And do you always, when you write a ten, put another figure after it to show how many ones there are?

P. Yes. I have shown you how to write nine apples. We will now write ten, twenty, thirty, forty, and fifty apples, and so on.

46

Apples.

..... = 10
..... = 20
..... = 30
..... = 40
..... = 50
..... = 60
..... = 70
..... = 80
..... = 90

P. You must read this table in this way. One row of ten apples is written 10. Two rows of ten apples are written 20. Three rows of ten apples are written 30. Now, will you write down on your slate *twenty-five*.

Ada. Here it is, papa—20 5 apples! First the *twenty*, and then the *five*.

P. Ah, I am so sorry! You have not been thinking. Let us put the Roman numerals over the Arabic ones, and see how they will read.

XI, I

20 5

Those figures make *two tens, no ones, and five ones*. Why do you say *no ones* when there are *five ones* to be put after the ten?

Ada. I see the mistake. Is this right, papa, XI, I?

P. Yes. As it was written before, the 0 stood for *no tens*, and the 2 for *two hundred*.

Thus it was CXI;
205;

two hundred and five, but you will understand this better in our next lesson. Now write on your slate *forty-six*.

Ada. Here it is, 46.

P. Now write *fifty-two*.

Ada. Here it is, 52.

P. You can write numbers which contain both *tens* and *ones*. Let me see you add them together. I will suppose that you have forty-four apples, and twenty-two, and thirty one. Suppose that you mixed all these apples, you would then join these three smaller numbers together, and make them into one large number.

Ada. Yes; that is just what I should do.

P. Now, if you want to tell exactly how much this large number will be, it is better to do so on the slate. I will write the numbers for you.

XI
44
22
31
—
97

You see that they make *ninety-seven*. I will tell you how I did this. I first added up all the *ones* and found that they made 7. Then I added up all the *tens* and found that there were 9.

Ada. That is *nine* tens, *seven* ones; or *ninety-seven*, as we say. That is very easy. If you will give me some for an exercise I think I can soon do them.

P. Very well, I will.

Exercise 3.—NUMERATION AND ADDITION.

(a) Express in figures the following quantities of pencils:—

Twenty-five—seventy-nine—fifty-three—eighty-eight—sixty-six—thirty-seven.

(b) Write the numbers of apples represented by the following figures:—24, 37, 92, 45, 53, 88, 99, 71, 51.

(c) Add together the numbers in the following sums:—

XI	XI	XI	XI
31	70	11	64
42	7	20	12
6	21	7	11
—	—	—	—
—	—	—	—
32	22	7	68
24	10	90	50
13	47	2	21
—	—	—	—
—	—	—	—
32	53	20	3
4	10	2	62
63	36	77	24
—	—	—	—
—	—	—	—

(d) Jane had twenty-four books; Mary had thirty-three; and Tom had forty-one. How many had they altogether?

Uncle John gave me thirty-seven lozenges, and gave twenty-two to my little brother, and kept ten for himself. How many had he at first.

A poor man went out one morning. He had only two pennies in his pocket, but he borrowed three pennies of a friend; he then earned twenty-one more, and before he went home he got three more by begging. How many pennies were inside that man's pocket as he went home?

O FOR A HEART TO PRAISE MY GOD!

Ver. 1. O for a heart to praise my God, A heart from sin set free! A
 Ver. 3. Thy nature, gracious Lord, impart; Come quickly from a - bove; Write

O for a heart to praise my God, A heart from sin set free! A
 Thy nature, gracious Lord, impart; Come quickly from a - bove; Write

heart that's sprinkled with the blood So free - ly shed for me! Ver. 2. A
 thy new name up - on my heart, Thy new best name of Love.

heart that's sprinkled with the blood So free - ly shed for me! A
 thy new name up - on my heart, Thy new best name of Love.

heart resigned, sub - mis-sive, meek My dear Re-deem - er's throne; Where

heart resigned, sub - mis-sive, meek, My dear Re-deem - er's throne; Where

on - ly Christ is heard to speak, Where Je - sus reigns a - lone.

on - ly Christ is heard to speak, Where Je - sus reigns a - lone.

FOURTH WEEK. BOTANY.

MONDAY.

THE JUSSIEUAN SYSTEM.

THALAMIFLORALS.

Order 17. GRAPE VINES.

Ampelideæ.

P. The Greek word *ampelos* means a vine, and *eidos* a form. Thus, when you see the botanical name *Ampelideæ*, you may know that it means "plants of the form of a grape-vine."

Here is a branch of a vine. Let us look about for some particulars to distinguish it from the preceding orders.

Ion. Here is a "particular." Look at its *tendrils*.

W. But a *pea* has tendrils, and so have the *tare*, and other plants.

P. True; but we can find a distinction in these tendrils. *These organs differ in almost every tribe of plants that possesses them.* Thus, you remember that the *pea* has "pinnate" leaves; that is, distinct leaflets grow from each side of a mid-rib. Now the tendril of the *pea* is a *prolongation of this mid-rib*. In some plants the tendrils are prolongations of the *tips of the petals*. In the vine the tendrils grow from the *barren flower-stalks*.

L. Now shall we look for another distinction?

P. Yes; or I will show you one. You remember that a bunch of currant-blossoms, or of berberry-blossoms, is called a *raceme*. But we call the bunch of grapes by a different name. We say that they form a *panicle*. In the *raceme* the stalks proceed at once from the stem; but in the *panicle* short stalks grow from the central stem, and others again grow from them; they are more like the branches of a tree.

Ion. Yes; I have often noticed that difference. You told us, once, that an ear of oats is a *panicle*. (See pages 229, 230, vol. iv.)

Ion. That makes two distinctions:—

(1) *The tendrils grow from barren flowerstalks.*

(2) *The blossoms are arranged in a panicle.*

P. And, 3rdly, if you look at these branches closely, you will see swellings at the parts from which the leaves grow. These points, you may remember, are called *nodes*. They are marked in the vines almost as strongly as in the grasses. You may now find out a fourth distinction. Here is a flower which you may examine:—



BLOSSOM OF GRAPE
OPENING.

a. Calyx; b. Corolla,
the petals detached at
the bottom, but united
at the top; c. Stamens;
d. Glands.

Perhaps I had better write
the description for you.

The *calyx* is small, and looks
like an expansion of the recep-
tacle—it is almost undivided.

The *petals* are 5 in number;
when the flower is young they are
separate at the base, but they are
united at the point; as the stamens
grow these petals are carried up-
wards, away from the sepal, as
you see in the drawing.

The *stamens* are five in number.

(*Glands*.) There is a whorl of
glands on the disk, between the
stamens and petals (see *d* in the
cut.) These are the rudiments of
another whorl of stamens which
have not been developed.

The *ovary* is two-celled. The
pistil has not any style, but only a
stigma, which is placed on the
ovary. When the ovary ripens
and becomes a grape, the parti-
tion of the two cells can scarcely
be discovered: the four seeds in
the pulp are hard and bitter.
Sometimes only two seeds, or one,
can be found.

W. I think I can remember
that description, papa. Are
there any other kinds of trees
beside the vine in this order?

P. Yes; I will first men-
tion the varieties of the vine.

Their difference of character is
not strongly marked.

The *Fox Grape* of America is
a very bad kind. It is noted
for its vile indescribable taste,
which is like the smell of a fox,
and cannot be removed by cul-
tivation.

In the *River Grape* the berries
are small and acid, but the
flowers have a delicious odour.

The *Black Sweet-water* is one
of the English varieties. It is
a small grape, suited for grow-
ing out of doors on walls.

One of the most celebrated
kinds is the *Black Corinth*,
which is brought from the
Ionian Isles, in the Mediter-
ranean Sea, and from Pale-
stine. These are small, black,
and without seeds. They are
dried and sold in England as
"grocers' currants."

But I told you that amongst
the sweet grapes there is no
remarkable difference. In the
Luxembourg Collection, pub-
lished in 1802, the grapes are
classified under six different
sorts, viz. :—

1st. Black oval fruits . .	37 sorts.
2nd. Black round fruits . .	98 "
3rd. White oval fruits . .	44 "
4th. White round fruits . .	73 "
5th. Violet oval fruits . .	5 "
6th. Violet round fruits . .	10 "

Total . . . 267 sorts.

Besides these varieties of the
vine, there are the genera *Cis-
sus*, and *Ampelopsis*. Most of
them are creepers. One called
the *Virginian Creeper* is very
familiar. It differs from the
vine, because the leaves are
divided into five distinct seg-
ments.

Ion. Now, papa, will you tell us the *place* and the *uses* of this order?

P. Of the *uses of wine* I need hardly speak—how wine may be used and abused, you all know. You may read on this subject in full, in “*Fireside Facts*.”*

Wine has been made even from a decoction of the leaves and young shoots of the vine. In warmer climates grapes are eaten with bread, either when fresh-gathered or dried.

The vine is useful in *medicine*. It supplies (1) *verjuice*, used as the juice of lemons; (2) it supplies *tartar*; (3) it supplies vinegar, used as a “condiment” with food; (4) its juice is used for extracting the virtues of other medicines; (5) also for counteracting vegetable poisons. (6) *Wine* itself, is used as a medicine; it is given in typhus fever, putrid sore throat, nervous disorders, and even in the plague. (7) If we were to talk of its *use* as a beverage, I should have to tell you of some kinds which are beneficial, and others which are most hurtful. I should have to begin with the days of Noah, who planted a vineyard, and drank of the wine, even to intoxication.

Ion. I have thought of an *eighth* use. The leaves have a very pretty shape, and sometimes they are beautifully variegated with red, yellow, and brown. So (8) they are used for *garnishing* dishes of fruit.

P. That is true; and 9thly, I might tell you of the uses of

the *wood*, but will now point out on the map the *place* which the vine occupies on the earth.

The principal district of the globe in which the vine is cultivated is from the 21st degree of north latitude up to the 50th; a breadth of about 2000 miles. Now, let us mark its length. You begin on the western shores of Portugal, and travel eastward, across France, and Spain, Switzerland, Italy, Greece, Turkey, Asia Minor (particular in Palestine), Persia, and India up to the very north of that great country. Vines are now also cultivated in the Western Hemisphere, both in the N. and S. latitudes.

You may now take the pointer in your hand, and again mark out the region of the vine.

L. And can we not produce wine in England?

P. We can, but it is not worth while to do so. The grapes produced are not fine enough. Even in France, or Spain, there is much difference of quality in the fruit, according to the climate. In the southern parts, the grapes are too sweet and juicy; they are best suited for drying as raisins. In the north, again, the juice is apt to be harsh and austere.

W. And I suppose that that is the case in England, too?

P. Yes. When cultivated out of doors, they do not contain enough sugar. But in the year 1763, an experiment was made by the Duke of Norfolk, who lived in Arundel Castle, Sussex, which is the *South* of England. During that year, the Duke

* *Fireside Facts*, page 157—161.

procured sixty pipes of wine from one of his vineyards. Even now, on the south coast of Devon, small quantities of wine are made from the vineyards.

L. How I should like to see the vineyards in *France* and *Spain*! I think they must look very beautiful.

P. I am afraid you would be disappointed. In the mountains around Malaga, in Spain, when the vines cover the mountain sides, no doubt they must be a pretty sight; in Italy also, where they grow principally in trellis-work, they are very pretty; but I do not think you would admire them in France. A few years ago, I was travelling there, by railway, through some fields of vines. As we passed through them, I could not for some time persuade myself that the stunted looking plants which I saw were vines. They were trained separately, and in rows, upon poles. Few of these were higher than a boy, about three or four feet. They reminded me somewhat of a field of *peas*, or *French-beans*. It was a long time before I could take courage to ask the French-woman in a white cap, who sat opposite to me, "whether those things were vines;" I was afraid she would laugh at me and say that they were something else.

I will add a few words more on the growth of these plants. In warm climates, the vine will reach to a considerable age. Pliny speaks of one that lasted 600 years. Another writer, speaks of vines in *Burgundy*, 400 years old. Many vines in England are above 100 years old. The famous vine at *Hampton Court*, covers a surface of 1694 square feet. It seldom bears less than 2000 clusters every season; and in 1816, there were 2240 clusters, averaging nearly one pound each.

It is said, that vineyards improve in quality until they are 50 years old. After that age, I suppose they keep up one steady rate of produce. For there are vineyards in France and Italy in the same condition as they were 300 years ago.

Now for a last word, as to quantities. In England, we import annually ten millions of gallons of wine, much of which is rubbish.

Of raisins, the annual import may be reckoned at ten thousand tons, and of grocers' currants about the same quantity.

More than ten years ago, the annual "duty" on wine was 2,000,000*l.*; on raisins, 135,000*l.*; and on grapes, 190,000*l.*

How little of ourselves we know
Before the heart a grief has felt!
The lessons that we learn of woe
May brace the mind, as well as melt.

EARL OF CARLISLE.

THE JUSSIEUAN SYSTEM.

THALAMIFLORALS.

Order 18. THE CRANESBILLS.

(Geraniaceæ.)

P. The flowers which we

call Geraniums, are not really such. They belong to the genus *Pelargonium*, which is an "ally" of this order.

Here is one of the eighteenth Order, the Wood Geranium.



GERANIUM SYLVATICUM.

The real Geraniums may be found growing wild in almost all country places. They are commonly known by the name "Cranesbill." There is another genus, an "ally," which is called the "Storkebill." We had better get to the question of this *bill* at once.

The pistil of the true geranium consists of five carpels, which are *clustered round an axis*. This axis is formed by a part of the disk which projects upwards through their centre.

When the petals and stamens of the flower have fallen off, however, this axis becomes very long, and is strikingly like the bill of a crane or stork. Shall I explain to you how it becomes so?

L. Yes, do, papa, please.

P. In most plants, when the flower dies, the styles of the pistil shrink up, and fall off also. In this plant, however, the styles still *continue to grow* and harden as fast as the carpels. In doing so they grow

round the central axis, and adhere together. Thus they have the form of a bill, such as you now see.



BEAK OF THE TRUE GERANIUM.

The long beak formed by the styles growing round the axis; the carpels are still clustered together at the base, and are surrounded by the calyx.

But I have something more curious to show you. The manner in which the carpels are emptied of their seeds is most remarkable. Where do you observe that they are placed?

- *Ion*. They are at the base of the beak.

P. And they are emptied by being jerked from the bottom to the top. In time the seeds, carpels, and pistils begin to dry, but the pistils shorten in drying. As they become shorter than the axis to which they are fastened, they must separate from it, either at their points or at the base. Now, they adhere so firmly at their points that they cannot separate there. They, therefore, separate at the other end; and, as they are united to the carpels, they actually tear these carpels out of their sockets, and cause them to spring up around the point of the beak in this manner.

Do you observe how each pistil, with a carpel at its end,

curves towards the top of the style? By this means the carpels are turned upside down, and the seed drops out.

W. How many seeds are there in each carpel?

P. Only one.

L. I should like to see the seeds emptied. Can I?

P. Yes; if off.

you will gather one of the common British geraniums (*cranesbills*) before the dew is off, and put it in the sun to dry, the heat of the sun will cause first one and then another pistil to detach from the carpels with a snapping sound, while the jerk will scatter the seeds.

W. Now, papa, will you give us the description of this order, so that we may know how to distinguish it?

P. Yes; you know that the ovary has five carpels, each containing one seed. You also know that it has five pistils, which grow round a central axis. It has ten stamens, distinctly arranged in two rows; the outer row is shorter than the inner one. In some plants of the order (the *cranesbills*, for instance) the outer rows is without anthers.

Ion. Now for the petals, papa.



Carpels borne upwards to the point of the beak, by the shrunk pistils; one has fallen

P. The petals, like the carpels, are five in number.

L. That is half the number of the stamens.

P. These petals are pretty because their *veins* are unusually prominent; they thus have a streaked or pencilled appearance. These veins are air-vessels, and look very beautiful when seen through the microscope.

The *calyx* also has *five* sepals. These spread asunder when the flower is open; but when the petals fall off they contract again. They then gather round the young and tender carpels, and protect them (*see the second cut in the lesson*).

You may also know these plants by distinctions in their *stems* and *flower-stalks*. If you examine any kind of geranium, you will find that the stems swell at the nodes, whence the leaves arise; they thus resemble the plants of the previous order, the Vines.

Again, the flower-stalks commonly grow from *one centre*, and thus form an umbel, such as you see in the carrot, hemlock, and others.

W. You showed us an umbel in one of our former lessons. (*See Vol. iii. page 229, No. 7.*)

P. There are many *varieties* of these flowers. Besides the *Wood Geranium*, there are the *Round-leaved Geranium*, *Herb Robert*, and others. Some of these plants are useful. The *Herb Robert* has *medicinal* qualities. The root of an American species is called "*The Alum Root*," from having very *astringent* properties. The stem of

another foreign species burns like a torch, and gives out an agreeable smell.

I might go on to point out to you the difference between these plants and the *Pelargoniums*, which we call *geraniums*. These showy flowers were brought from the *Cape of Good Hope*. You may yourself take one, and compare it with a true geranium; and write down the points in which they are not alike.

W. Papa; we have not made any *summary* of our lessons for some time. Shall I write all the particulars you have told us?

P. Not yet. We shall soon reach the last order of the "*THALAMIFLORALS*." We will then make the summaries of the last eight orders at one time. They will form a good long memory-lesson.

Before we leave off, I may as well talk to you of another small order, which is *allied* to this one. Here is a *NASTURTIIUM*.

Ion. That is not much unlike a geranium.

P. No; I should tell you first that this flower also is wrongly named. The true "*Nasturtia*" are the *Cresses*; this plant belongs to the order *TROPEOLEÆ*. It is, however, so like the garden-*ress* in its taste, smell, and other properties, that the same insects feed on both plants.

The *nasturtium*, as it is called, is cultivated in England not only for its showy flower but for its unripe carpels.

These are so pungent that they are often pickled, and used like capers in making sauce for boiled mutton.

L. Will you point out to us, papa, *why* it differs from the geranium?

P. Yes. In the first place its ovary has *three* carpels instead of five. Like those of the geraniums, they adhere round a central axis, and each contains a single seed. The stamens are eight in number, but, unlike those of all other thalamiflorals, they are *not* hypogynous; they adhere to the calyx, and are, therefore, *perigynous*. The *petals* of these flowers are irregular; three being smaller than the rest. The sepals are, however, more remarkable still, for one is pro-

vided with a long distinct *spur*; this spur is subject to great varieties of form. All the members of the order are natives of *tropical* countries.

The next time you pick a nasturtium from the garden, you may remember these three particulars:

1st. That it belongs to the order *TROPEOLEÆ*, and is not properly named a nasturtium. (For this name belongs to the tribe of *Garden Cress*, in the order of cruciform plants.)

2ndly. That it is a native of *tropical* climates; and

3rdly. That it differs from the geraniaceæ in the number of carpels in its ovary, in its stamens, petals, and sepals.

THOUGHTS ON NEW YEAR'S DAY.

Now the old year has passed away,

And a new one just begun,

Let me from this very day,

Try all former faults to shun:

First I am to anger prone,

Therefore I must careful be

To avoid occasions known,

When bad temper tempteth me.

I must strive from this day hence,

Not to give or take offence.

Next, I fear I'm idle, too,

And am rather quickly tired,

Not much liking work to do,—

At least the work from me required;

I must try to conquer this,

Though it cost no little pain,

Striving not to do amiss,

Or, erring, not to err again;

I must think upon the bee,

And learn the task of industry.

I must watch, and work, and pray,

To keep the vows I've made to-day

THE PROGRESS OF LEARNING, INVENTIONS, AND
SCIENCE, DURING THE 17TH CENTURY.

P. In our last history lesson, you heard of the *divines* and *learned men* who lived in the 17th century.

Ion. And you said that you would, to-day, count up the *inventions* and *improvements in the arts and sciences* which were then made.

P. I will do so now.

The reign of CHARLES I. is remarkable for the *establishment of the first post-office*.

W. But did not people write letters before that time, papa?

or, if they did, how did they send them?

P. There were at that time men called "letter carriers," whose business it was to convey letters from place to place. Indeed, the profession of a letter-carrier had been established long before. Such men were certainly employed in the time of Henry VIII. It is believed that there were letter-carriers even in the time of Edward III.

L. What alterations were made when the post-office was established?

P. Before then the public paid £7,000 per annum for the support of these letter-carriers. But, on the new footing the post-office was made to *yield a profit*. By carrying many letters at the same time, and by starting at regular intervals, the postmasters saved the public the expense of paying them £7,000 a year, and gained £10,000 per annum. These

improvements were chiefly caused by the long parliament during the reign of Charles I., and the Commonwealth.

During the Commonwealth the privilege of *franking* letters was first allowed to members of parliament.

Ion. I never heard of a "franked" letter. What does that word mean, papa?

P. You have seen franked letters. Though you are not a member of parliament, I have seen you frank many a letter.

Ion. When, papa?

P. When you have put a *postage stamp* on it. By so doing you cause it to *go free* of any charge for postage.

You ought to have remembered the meaning of the word "frank," for, the other day I told you, in our geography lesson, that France was anciently called Gaul, and that its name was changed to "France" when it became the empire of the *Franks*. I said that the word Franks means "free people," and that France means "free country."

W. I remember that, papa. So a franked letter means a free letter. The next time we have an election I will not take the trouble to buy any postage stamps. I will go to the committee-room of the gentleman who is elected member of parliament, and I will say to him, "Please, will you frank all these letters?" How will he do it?

P. He will *not* do it at all. Formerly, he would have franked your letter by writing his name on the corner, but that privilege has been abolished for some years. Indeed, the members of parliament would not care to retain it, now that postage is so cheap.

You know that before the establishment of the penny postage, letters would cost 1s. and 2s. 6d. for postage, or more. In the time of Charles I., and Cromwell, the postage, no doubt, was even more expensive. It was right, therefore, that the letters of members of parliament should go free, when they wrote on public business. In a book called *Mrs. Markham's History of England*, there is a copy of the direction of a letter written by a nobleman of the court of Henry VIII. Its odd character would surprise the postman who knocks at our door. Here it is—

"To the right honourable, and very good lord, the EARL OF SHREWSBURY, president of the King's Majesty's Council in the north parts.

"Haste for thy life, post—haste, haste, haste. For thy life, post, haste."

The reason given for thus hurrying the post was, *"that the posts be so slow."* Thus you see that the posts are better as well as cheaper in these days.

L. They are like the steel-pens which Mr. Young tells us of in his account of Birmingham.

P. You may make the same rule in reference to many other articles. But let us talk of other matters.

You may remember that the first newspaper was published in the reign of Queen Elizabeth, after the defeat of the Spanish Armada. It is supposed that newspapers must afterwards have been discontinued for some time, for the first date of their publication is said to be during the reign of Charles I., in the year 1642.

You may also remember that in this reign *public-houses were first licensed*. The Act of Parliament says—"Whoever sells ale without a license, except in fairs, shall forfeit twenty shillings."

In this reign also, *barometers* were invented, and the *manufacture of linen* was established in Ireland. *Covent Garden Market* was built by the Duke of Bedford, and the celebrated medicine, *Epsom Salts*, was discovered and brought into use. These salts were procured by evaporation from a mineral spring near Epsom, in Surrey.

During the Commonwealth the *air-pump* and *air-guns* were invented, and the present banking system was adopted. Before the civil war, those who had much money used to deposit it in the Mint (which was then in the Tower of London), but when the war broke out, the merchants employed *goldsmiths* to take care of their money; they thus became "bankers."

These events are sufficient for you to remember to-day. Next week we will talk of other social events which occurred during the seventeenth century.

MENTAL ARITHMETIC.

P. Now, Miss Ada, we are going to have some *mental arithmetic*.

Ada. What is that, papa?

P. You told me the other day that you could "do your addition out of your own head," and I am going to let you do so. You must not suppose that you are to work *all* your arithmetic on the slate, for you will not like to carry a slate with you during all your life-time. So, for every three lessons in *slate*-arithmetic, you shall have one, or two, in *mental arithmetic*.

Ada. I shall like that, papa. Please give me a hard question to begin with.

P. Very well. Three pins and one pin are how many pins?

Ada. *Four*. Please give me something "harder" than that.

P. Very well. How many are four and two marbles.

Ada. *Six*. That is too easy again.

P. Then, as you seem to wish for some *hard* work, will you answer all the questions in the following exercise. You must not look at the answers, but keep your hand on the answer of each question until you have answered it.

Exercise 3.

MENTAL ARITHMETIC.

Addition of Units.

1. How many are three and two pigs? Ans. 5.

2. If you run up *four* stairs, and then *two* more, how many stairs have you ascended? Ans. 6.

3. Mary had three apples, and John had three, how many had they together? Ans. 6.

4. How much are three, and three, and two? Ans. 8.

5. If you have 6d., and your aunt gives you 2d., how many pence will you then have? Ans. 8.

6. Two boys had 2d. each, how much money had they? Ans. 4d.

7. Three boys had twopence each, how much had they? Ans. 6d.

8. Two boys and one girl had twopence each, how much had they? Ans. 6d.

9. Four children had twopence each, how much had they altogether? Ans. 8d.

10. A boy, and a girl, and a baby had twopence each. Their papa gave it to them; and then he had only twopence left for himself; how much money had he at first? Ans. 8d.

11. Two books cost threepence each, how much was paid for them? Ans. 6d.

12. Three books cost threepence each, how much was paid for them? Ans. 9d.

13. How many legs have three canary-birds? Ans. 6.

14. There were two dishes; one contained five apples, and the other four. How many apples were there? Ans. 9.

15. How many eyes have five boys and two girls? Ans. 14.

16. How many toes have a class of four boys? Ans. 20.

17. How many ears have six horses? Ans. 12.

18. How many feet have a cow, a calf, and a boy? Ans. 10.

19. How many feet have three boys, a robin, and a wren? Ans. 10.

20. How many feet have an eel, a sprat, and a bird? Ans. 2.

21. How many pence are 6, and 2, and 4 more? Ans. 12.

22. A boy met three people, and a boarding-school of five young ladies, with two teachers to take care of them. Then he met one man, and then an omnibus, which contained four passengers, and the driver, and conductor. How many people did he meet?

Ans. 17.

23. There was an old woman who sold "sweet-stuff." After she had opened her shop, she took 6d. in the first hour; in the next hour she took 4d.; in the next 8d.; and in the next 7d. How many pennies had she then received?

Ans. 25.

24. A shoemaker knocked 7 nails into one side of a shoe, 4 in the other side, 3 in the heel, and 2 in the toe. How many nails did he put in? Ans. 16.

25. Add together 5, and 3, and 2, and 4, and 5, and 1, and 6.

Ans. 26.

P. Ada, will you add together 23 and 23?

Ada. I can't do that, papa. What a long time it will take to count 23 after the first 23! I shall forget how many I have counted before I have done.

P. You need not do it by adding only one at a time. 23 makes 2 tens 3; so you may first add the tens together, and then add the ones. I will do

it for you. 2 tens and 2 tens are 4 tens; and 3 ones and 3 ones are 6 ones; which make altogether 4 tens 6 ones, or 46.

Ada. That is something like the way in which we add on the slate, except that we added up all the ones first, and the tens afterwards.

P. Will you take notice, then, that we shall proceed on a different plan with our mental arithmetic? We shall add up the large quantities first, and the smaller ones afterwards. Thus, when you have to add together such numbers as these—

<i>C</i>	<i>X</i>	<i>I</i>
3	2	4
3	2	4

You will first add together the hundreds, then the tens, and then the ones.

Now tell me how much are 32 apples and 32 apples.

Ada. 30 and 30 are sixty, and 2 and 2 are four. So that 32 and 32 are 64.

P. Now you may perform the following exercise. When you see a mark like this + after a number, it means that you are to add the next number to it. It is called the sign of addition.

Exercise 4.

MENTAL ARITHMETIC.

(Addition of Tens and Units.)

26. 34+34	27. 24+24
41+41	43+43
32+32	22+22
23+23	33+33
31+31	25+25
44+44	35+35

28. 31 soldiers met 31 soldiers, and they all went out for a walk.

How many soldiers were there altogether? Ans. 62.

29. There are 44 boys in the charity school, and 34 girls. How many children are there in all? Ans. 78.

30. A sportsman killed 26 partridges, and 23 pheasants, and as he was carrying them home a friend gave him three woodcocks. How many birds had he in all. Ans. 52.

31. There are 36 panes of glass in our parlour windows, and 34 panes in the windows of the drawing-room. How many panes of glass are there in all? Ans. 70.

32. There are 22 pages in Ellen's book, but Tom's has 6 pages more than hers, how many pages are there in the two books? Ans. 50.

33. I picked 24 apples from one tree, 24 from another, and to these I added 2, 6, 4, 5, 5, and 0 apples. How many apples had I then? Ans. 70.

34. Add together 41 sheep, 32 sheep, 24 sheep, and the dog, and the shepherd. Ans. 99.

35. There are 24 houses in our street, 64 in the square, and 12 in the terrace. How many are there altogether? Ans. 100.

THE SKY LARK.

BIRD of the wilderness,
Blithesome and cumberless,
Sweet be thy matin o'er moorland and lea!
Emblem of happiness!
Blessed is thy dwelling place!
O to abide in the desert with thee!

Wild is thy lay and loud,
Far in the downy cloud!
Love gives it energy, love gave it birth.
Where, on thy dewy wing,
Where art thou journeying?
Thy lay is in heaven, thy love is on earth.

O'er fell and fountain sheen,
O'er moor and mountain green,
O'er the red streamer that heralds the day;
Over the cloudlet dim,
Over the rainbow's rim,
Musical cherub, hie, hie thee away!

Then when the gloaming comes,
Low in the heather blooms,
Sweet will thy welcome and bed of love be!
Emblem of happiness!
Blessed is thy dwelling place!
O to abide in the desert with thee!

Hogg.

HOLLAND.

P. Let us look at Holland.

Imagine yourselves on a very high place, looking down upon this country. Do you see that noble river, the Rhine, flowing through Holland? And the Maas, another river, which we noticed in Belgium? This river, in Holland, is called *the Maas*; in Belgium, *the Meuse*; and in France, *the Meuse*. As it flows through parts of each country, each nation think themselves at liberty to spell its name as they please. But look at that River Rhine more particularly. Now that it is in Holland, instead of being *one* river, it is—one, two, three, four—at least four, if not *five*, distinct rivers.

What have these rivers to do with Holland? A great deal. Cast your eye over the map of the world. Look at Egypt, and observe the "delta" formed by the mouth of the Nile. This consists of wastes of sand, and mud, which is brought down towards the sea, and deposited by the Nile. As the mud and sand accumulates, it forms dry land. Look at the rapid river Rhone, in France, rushing southward like a mad thing into the Mediterranean Sea. With the force of its swift waters it has carried down so much earth towards the sea, that it has pushed the southern coast of France *nine miles* further out than it was 1800 years ago.

Now you may almost answer

the question, "What is Holland?" It is little more than a *delta*, formed by mud, which the Rhine and other rivers have deposited. This the industrious Dutch have perseveringly rescued from the water, and drained and cultivated. But for their labours it would again be covered by the waves of the sea, and reduced to the state of mud and sand-bank. Hear what old Andrew Marvel says of the Dutch:—

"What by the water's slow alluvion fell,
With shipwrecked cockle and
With mussel-shell,
This indigested vomit of the sea
Fell to the Dutch by just propriety.

Glad then as miners who have
Found the ore,
They with much labour fished
The land to shore,
And dived in desperately for
Each piece
Of earth, as if't had been of
Ambergris,
Collecting anxiously small loads
Of clay,
Less than what building-swallows
Bear away."

But how did they manage to keep away the water? Hear old Andrew Marvel again:—

"Next did they rivet with gigantic
Piles,
Right through the centre, their
New-catched miles,
And to the stake a struggling
Country bound,
Where barking waves still bait
The forced ground."

If you don't understand the poet's jokes about "binding the country to the stake," I must tell you that they kept out the water by building *dykes*. These dykes are immense mounds, or banks, built with stakes of wood, clay, and stone. They are, in fact, great *walls* built higher than the sea; for in some places the land is actually lower than the water. There are dykes, too, along the banks of some of the rivers; for the *bed*, or bottom, of some rivers is actually higher than the country around it.

The dykes are usually thirty feet high, and seventy feet broad at the base. The Dutch have been at infinite expense in making them, and the annual cost of keeping them up is very great. Many of them are flanked with immense blocks of Norwegian granite. In some parts the land is protected, as in Belgium, by natural sand-hills, called downs. To prevent the loose sand from blowing over the country, this tract is planted with reeds. Their roots bind the particles of sand together. Indeed, in Belgium, the roots and the decayed leaves themselves, have formed a vegetable soil. On this soil plantations now grow.

But we have not yet done with these dykes. Would you suppose that the Dutch would themselves destroy them? Yet such is the case. In order to free Holland from Spanish tyranny, the Dutch opened their sluice-gates and cut their dykes. They afterwards did so to deliver themselves from the

French. Thus you see how dear *liberty* is to a nation. The fields which they had rescued with such labour they exposed to ruin. They accounted this desperate resource as a glorious sacrifice. They brought upon themselves immediate beggary, and an enormous expense to repair the mischief. The people of low, level countries thus have means of defence, as well as those of the fastnesses and hills. The Dutch fought as bravely for their liberty as the mountaineers of Switzerland, Scotland, or Wales.

Really, the name of the country is a very fit one, or rather its *names*, which I will tell you. Holland is derived from a German word, which means *Hole-land*, or *Hollow-land*. The word *Nether-lands*, which is applied to Holland and Belgium, means "lower lands;" while we sometimes call them

The Low Countries.

We had better not travel into the towns yet. Look at the *general appearance* of the country. It is almost perfectly flat. It is exactly suited for cutting canals in, and plenty of canals there are. Do you observe, too, the scores of windmills so hard at work? They are pumping up water from the marshes. Do you observe, too, the storks wandering near the canals and marshes? They are seeking for frogs, their favourite food.

Few railroads seem to be necessary. Nearly all the commercial produce is conveyed at a very small expense along the canals into the interior of

Germany. The goods are placed in boats, called *treck-schuyts*, or track-boats. These are drawn along the water, by men at the rate of four miles an hour, just as in our country the horses drag the heavy coal-barges.

It is of no use to try and number these canals or describe them. I will only tell you something of their cost. The *Grand Dutch Canal*, near Amsterdam, cost £1,000,000; it is 50½ miles long, and is wide enough to allow two frigates to

pass one another. It is said that the canals and other water-works between the *Dollart Zee* and the *River Scheldt* must have cost in all £300,000,000 sterling. In so small a country they form astonishing monuments of human industry.

At present the great *Lake of Haerlem* is being drained by steam-engines of 500 and 300 horse-power. When the work is finished about 20,000 acres of land, now under water, will be rendered serviceable to man.

THE LAND WHICH NO MORTAL MAY KNOW.

THOUGH earth has full many a beautiful spot,
As the poet and painter might show;
Yet more lovely and beautiful, holy and bright,
To the hopes of the heart and the spirit's glad sight,
Is the land which no mortal may know!

There the crystalline stream, bursting forth from the throne,
Flows on, and for ever will flow;
Its waves as they roll are with melody rife,
And its waters are sparkling with beauty and life,
In the land which no mortal may know!

And there on its margin with leaves ever green,
With its fruit healing sickness and woe,
The fair tree of life in its glory and pride
Is fed by that deep inexhaustible tide
Of the land which no mortal may know!

There too are the lost whom we lov'd on this earth,
With whose memories our bosoms yet glow;
Their reliques we gave to the place of the dead,
But their glorified spirits before us have fled
To the land which no mortal may know!

Oh! who but must pine in this dark vale of tears,
From its clouds and its shadows to go,
To walk in the light of the glory above,
And to share in the peace and the joy and the love
Of the land which no mortal may know!

BERNARD BARTON.

FIFTH WEEK. MORAL LESSON.

MONDAY.

CHARITY.

"Is not easily provoked, thinketh no evil."

W. I will not play at draughts with Ion any more.

P. Why not, Willie?

W. Because he beats me so often.

P. Then play at chess.

W. Now, you're laughing at me, papa. You know that Ion beats me at chess. It's too bad to laugh when I am so vexed. I don't think that Ion plays fairly.

P. Oh, Willie, what are you talking about? You surely don't mean what you say about your brother?

W. Well, I think he cannot have played fairly in the last two games. And he didn't seem at all sorry when I said I wouldn't play with him again. I don't think that I shall speak to him for two days.

P. Then I don't think, Willie, that you have learned enough of charity. If you will look in the New Testament about charity, you may read, after the words, "*seeketh not her own*," that she is *not easily provoked*, and *thinketh no evil*. Suppose, now, that, instead of being provoked, and thinking evil of Ion, you listen to an anecdote which I once heard. It will show you how to be beaten at chess.

THE GAME AT CHESS.

A certain poor clergyman lived in a farm-house in the county of Norfolk. His wife lived there too, and so did his six children. The clergyman had to get money enough every year to buy food and clothes for his wife and children. So he used to preach on Sundays, and on week-days he used to teach. His scholars did not pay him very much money; for altogether he did not earn more than £80 a year, and that was not nearly enough to keep him and his family in comfort.

One day when the clergyman looked out of the window, he saw that "it was pouring with rain," as we say. Down came the rain without stopping, and, as he looked, there came also two travellers, who *did* stop. They were the Duke de Nivernois and his servant, but the clergyman did not know who they were. They knocked at his door, and asked for admission.

"Come in and dry yourself," said the clergyman to the duke, as soon as he had opened the door. The duke was very glad to do so. He sat by the fireside and changed his wet boots and stockings for a pair of old worsted socks, and slippers.

While he talked with his host he observed a chess-board hanging up; and as he was very fond of chess, he asked the clergyman whether he could play.

"Yes," replied the clergyman, "I can play tolerably; but it is difficult, in this part of the country, to find any one to play with."

"Then, I am your man," replied the duke.

"With all my heart," answered the minister; "and if you'll stay and take pot-luck, I'll try if I can beat you."

The duke looked out of the window, and saw the weather was still rainy, so he remained. But he was very unfortunate in his play; the clergyman won nearly every game. The duke was not, however, a man who was "easily provoked." Instead of fretting at his misfortunes, he was pleased to meet with one who could afford him so much amusement at his favourite game. He made more inquiries concerning the family affairs of his host; then making a memorandum of his name and address, he thanked him, and bade him good-bye.

Some months passed away. The clergyman had, perhaps, almost forgotten his visitor, and was still struggling to support his family with £80 a year, when a footman in laced livery

rode up to his door, and presented the following note:—

"THE DUKE OF NIVERNON'S compliments wait on the Rev. Mr. —; and as a remembrancer for the good drubbing he received from him at chess, and the hospitality he showed him on a late occasion, begs that he will accept of the living of — (worth £400 a year), and wait on His Grace the Duke of Newcastle on Friday next, to thank him for the same."

W. How glad the clergyman must have felt when he read the note! He would receive every year five times as much money as before.

P. The honest man was much astonished. For some time he thought that the letter was only a joke; but his wife persuaded him to go to town, and wait upon the Duke of Newcastle. There he was delighted to find the contents of his visitor's note to be all true.

And that is all, Willie. Now you know how to treat anybody who may beat you at chess.

W. Yes, and I can make my "moral lesson" myself. When Ion beats me at draughts, I am not to be easily provoked, nor to think evil of him, but I am to give him something.

P. Or if you have nothing to give him, you may love him for being so clever; then you will have CHARITY.

WHEN the rough winds
From north or east,
Blow hard and cold,
And rain-drops freeze,

Then round hail falls,
And flakes of snow,
All sent for good
To man we know.

Praise HIM who made them!

THE JUSSIEUAN SYSTEM.

THALAMIFLORALS.

Order 19. BALSAMS.

Balsamineæ.

P. HERE is a *Balsam* for you to examine. You may begin with whichever part may please you best.

L. We will begin with the *calyx*. It is remarkable because one of the sepals is "spurred." It is like the petals of the columbine, only it is a little more pointed.

W. I will count the petals of the corolla; there seem to be only two.

P. There are really four, but they are arranged in pairs; the petals in each pair adhere to each other, and seem to be only one. How many *stamens* are there?

L. There are five, *papa*.

P. True; and you may see that they are arranged *regularly* round the pistil. *There ought, therefore, to be five petals.* Thus we see that the two double petals are four single ones, and that the fifth petal is not developed. But the most remarkable part of this flower is the *ovary*.

Ion. I will examine it, *papa*. It has five carpels. I do not see any pistil growing from them.

L. Here is the stigma of the pistil, growing on the top of the carpels; but it does not seem to have any style.

P. No, it has not; it is there-

fore said to be *sessile*. The word "sessile" means, without stalks. I dare say you remember some other flowers which have pistils without styles.

Ion. Yes; the *Poppy* and the *Water Lily*. Each has a stellate stigma on the top of its capsule.

P. You may often see in gardens a balsam called the *Touch-me-not* (*Noli-me-tangere*), which is worth noticing. Its ovary has a peculiarity, which is a principal distinction of the order. When the seeds are ripe, the carpels suddenly separate from each other, and curl inwards with an elastic spring; the seeds are thus scattered to some distance.

L. Then it is like the *Cranesbills* which we heard of in our last lesson.

P. Yes. I should have told you at first that the Balsams, like the *Nasturtiums*, are related to the 18th Order. They are alike in two particulars: first, *they have five distinct carpels*; secondly, *these carpels separate from each other with a spring*.

W. And, thirdly, if the Balsam had another petal, it would be like the *Cranesbill*; that has five petals.

P. You may remember, lastly, of these Balsams, that they are known by their elegant appearance and beautiful flowers. Their elegance is partly owing to their pretty

leaves, which are *lanceolate* and *serrated*. (Vol. iv. pages 150 and 151.)

I have not yet said anything of the *place* of these flowers. They are found in all four quarters of the world, and grow best in damp, shady places.

The Nasturtiums and Balsams are not the only allies of the Cranesbills. There is a plant called the *Wood Sorrel*, which, with several others, forms another small order. Let us see why they and the Cranesbills are alike.

THE WOOD SORREL, &c.

(*Oxalideæ*.)

I dare say that you have picked the Wood Sorrel leaves in the woods and fields?

W. I have. The boys at boarding-school used to eat them with bread-and-butter, because they have a rather sour taste.

P. Yes. The botanical name of the plant is *Oxalis*, which is derived from the Greek word *oxys*, acid. The acid is named *Oxalic acid*, after the plant, and is much used in the different arts and manufactures. If you take a section of the leaf, or leafstalk, and place it under a microscope, you will see long, needle-like crystals lying among the tissues. These little crystals contain the oxalic acid.

Ion. Please tell me how the acid is procured from the leaves.

P. The leaves are simply pressed, and the crystals are expressed in the juice. The

juice is then allowed to evaporate, and is set in a cool place. After all the fluid has evaporated the acid crystals remain, and look just like Epsom salts.

L. Yes. Epsom salts are crystals. Do people ever mistake them for Epsom salts?

P. Yes; they have been given to sick persons by mistake, but with the most dreadful consequences, for they are a violent poison.

L. Then what is the use of these crystals?

P. I said that they are used in the arts and manufactures. Such people as the calico-printer and the dyer use them. We use them to remove the stains of ink, iron-moulds, &c. The calico-printer would call these crystals *Salt of Sorrel*; but if you wished to buy some at the chemist's, you would ask for *Salt of Lemons*; this, however, is not a correct name.

Ion. I wonder why it is called by such a name.

P. Because the acid is so much like the juice of lemons. But I believe that you can seldom procure the genuine article in this country.

Ion. I suppose that the dyers and calico-printers use all the genuine Salt of Sorrel, and the chemists cannot get any to sell?

P. That may be partly the reason; but even the quantity which we obtain from the Wood Sorrel and other plants is not sufficient for their use. Twenty pounds of fresh leaves yield only six pounds of juice, and from this juice not so much as three ounces of the acid can be

procured. It has been discovered, however, that pure oxalic acid may be obtained by the action of *nitric acid* on sugar; it is now, therefore, generally made in that way, except in places where the plant is very abundant indeed.

L. Has the Wood Sorrel any other uses, papa?

P. Yes; its acid taste renders it useful in *salads*. It also has antiscorbutic properties, like the scurvy-grass and other plants which we have talked of. Again, it is used to form a cooling drink in cases of fever; and the leaves and petals are made into a "conserve," by beating them with three times their weight of sugar and orange-peel; and they have even been used, in the form of a poultice, as a remedy for ulcers.

But you have heard enough of the *uses* of these plants. Their *place* and *parts* may be noticed. They are found principally in the warm, temperate regions of the earth. There are several varieties in America; and at the Cape of Good Hope there is one yellow-flowered species with leaves like those of the lupin. It is called the *Lupin-leaved Wood Sorrel*.

The parts of these flowers show that they are allies of the Cranesbills and Balsams. If you examine the flower of a Wood Sorrel, you will find that both the *calyx* and *corolla* are divided into five parts; that each has ten *stamens*, arranged in two rows, the outer row being the longest; and that the ovary has five *carpels*. It is also like the former-mentioned orders, because it has a similar elastic power for scattering its seeds.

W. Then why is not the Wood Sorrel placed in the same order with the *Geraniaceae* (Cranesbills)?

P. Because, as you might suppose, it differs in some particulars. Its qualities and uses are, you see, different. Again, in its parts you will find that the *stamens* are "monadelphous"; that the *carpels* are not clustered round a central axis; and that their *pistils*, instead of forming one column, are distinct. There is also a minute difference in their *seeds*, while their *leaves* are compound. Such are the distinctions of the Wood Sorrel and its companions. Next week we will make a summary of its history, with that of several other orders.

HUMANITY.

Poor donkey! how sadly his master does treat him!
How he lays on his stick to belabour and beat him!
Stop! stop! naughty man, you ought not to do so;
If mercy you'd seek, you must mercy bestow:
And since mercy you need, first then show it to others;
In the work of creation all creatures are brothers.

THE PROGRESS OF LEARNING, INVENTIONS, AND
SCIENCE, DURING THE 17TH CENTURY.

L. LAST week, papa, you talked to us about the *post-office*.

W. Yes; we heard of the improvements made in the times of the Commonwealth, and of other things. I suppose that to-day you will talk about the times of Charles II.?

P. You are right. The post-office is a very good thing; now hear of a very bad thing! The *standing army* of England was first permanently embodied in Charles II.'s reign. Since the Commonwealth, the post-office has increased, and is now a great good; the standing army also has increased, and is now a great evil. The running posts of our days are like the blood which flows rapidly through the veins, and gives life to the whole system; the *standing army* in our days is like an immoveable dead-weight in the stomach, which oppresses the entire bodily frame.

W. I know what you mean, papa. You are thinking of the heavy taxes which the people pay to support the standing army?

P. Yes. This standing army is supposed to be necessary for the *defence* of the nation. Although there is no war of importance, it is now kept up on the supposition that there may be one.

W. Is it very expensive to keep up a standing army?

P. You shall hear. The cost

of war is in itself bad enough for the nation to bear. You learned in the history of William III. that the National Debt which was then begun now amounts to EIGHT HUNDRED MILLIONS OF POUNDS! This sum is so large that you cannot, by trying, get any idea of it. Yet, do you know that since the last great fight with Bonaparte, the British nation has paid even a larger sum for war expenses? Since the battle of Waterloo, in the year 1815, the people of Great Britain have paid out of their earnings and property "the perfectly bewildering amount of ONE THOUSAND TWO HUNDRED AND FIFTY MILLIONS OF POUNDS."*

Ion. Have they paid all that to support the standing army?

P. Not all; a great part has been paid for *past wars*, as interest of the national debt; and part has also been paid for wars in India and Africa. You shall see, however, what is the cost of the army and navy, and ordnance, for *one year only*. Last year the charge to the nation for those three departments, and for the Caffre war, was £16,500,000. Besides this, £600,000 has lately been voted for the navy, and £350,000 for a fresh body of armed men termed "the militia."

* See the "Herald of Peace," for January, 1853.

W. That seems a giant sum of money. I wish I could form an idea of it, to feel how large it is.

P. I will try to help you. You know what an agricultural labourer is; he is not one who *destroys*, but one who *tills* the soil that it may *produce* the good fruits which God has sent for us. Now, it is said that there are 600,000 labourers in this kingdom, who, with their families, number nearly two millions and a half of people. All these, however, do not receive for their worthy toils more than £15,000,000 in a year, which you see is less than the war expenses.

Ion. Then, I suppose, there is an immense number of soldiers now? But will not the standing army be made smaller soon, when the soldiers are not wanted?

P. The evil instead of decreasing seems to be increasing. In the year 1835 the number of armed men was nearly 146,000; now in 1852 it is nearly 273,000. Thus in 17 years of peace, it has increased nearly 127,000. The new militia which is now forming, is to number about 80,000 men, which will make an increase of 207,000 armed men since the year 1835. You may also remember that these 273,000 men do not produce anything for their country. The country, therefore, loses all that they might earn each year, if they were labourers.

W. I begin to see, now, that a standing army is an "evil." To lose the labour of so many men who go for soldiers and sailors

is very bad; and to pay them for the *defence* of our country as much as is paid for agricultural labour is worse; and then to know that in times of *peace* the cost of this "defence" is increasing, is worst of all. I hope that the cost will not increase when I become a man, for I don't mean to pay. I mean to keep all the money that I earn, and to say that I will defend myself; that is the cheapest way.

P. But you *must* pay for the standing army, however large it may be, whether you like it or not. I have not time now to tell you why, for we were talking about the reign of Charles II., and you were to hear how this standing army began.

W. But just one word, papa, before you go back to your history. Do you mean to say that when I am a man I shall have to pay interest for the expenses of the wars which were carried on before I was born?

P. Yes; you will be taxed to pay the interest of the national debt.

W. But I did not agree to the expenses which caused the national debt. Why should I pay towards the interest of it?

P. It is a hard case certainly, for I too have to pay towards it. Yet, while such is the law of the country, and I live here, it is my duty to obey. But you have not yet heard how this standing army began.

Ion. I remember in the history of Henry VII.'s reign that he began a standing army. A "body guard," consisting of fifty yeomen, was appointed to attend him.

P. True, but the first large military force was *permanently* established by Charles II. When he was restored, the army of the Puritans still existed, and numbered 60,000 men. Such an army was not of much use to Charles; neither he nor his ministers had much faith in them as their defenders, for they had been their enemies.

Ion. Then what did the king do?

P. He determined to get rid of them, and to substitute a set of men whom he could better rely upon. His parliament helped him. They remembered how the long parliament had been kept in awe by some of these soldiers, under Cromwell; so by proceeding cautiously, by paying great attention to them, by flattering them for their loyalty and discipline, and by giving them money, Charles's parliament won their confidence. Then by paying them all the arrears of wages that were due to them, regiment after regiment was induced to disband, without discontent.

W. Then why did the king and parliament raise a new standing army?

P. It was principally the act of Charles. You know that like his father he wished to govern as "absolutely" as possible. He therefore required "guards" for his defence. In the year 1660, General Monk's regiment had been raised at *Coldstream*, a town of Scotland, in the county of Berwick, and to these men were added two more regiments; thus were

formed the *COLDSTREAM FOOT-GUARDS*.

Secondly. In 1661, a regiment was raised consisting principally of gentlemen of fortune who had either fought in the civil war, or were the sons of those who had fought; these were called the *LIFE GUARDS*.

Thirdly. In the same year a regiment wearing *blue* regimentals was formed. As their commander, Aubrey, was Earl of Oxford, they were called the *OXFORD BLUES*.

Besides these, the *1ST ROYAL SCOTS* were brought over from France; the *QUEEN'S* regiment was raised in 1661, and the *OLD BUFFS* in 1665; they were so called, because their accoutrements were composed of buffalo leather. In 1678 the regiment of *SCOTCH FUSILIERS* was formed, (they were so called because they carried the *fusil*, which was invented in France,) and in the year 1680 the *KING'S OWN* regiment was raised. All these regiments, with such pretty names, numbered at first about 5,000 men, but in the reign of James II., the force was increased to 30,000.

L. But I wonder that Charles's parliament should allow so many soldiers, or give money to support them, when they remembered the fate of the long parliament.

P. They never did sanction the enrolment of these regiments, neither would they vote any money to maintain them. The soldiers were paid by Charles.

Ion. Then why did James

II. so increase their numbers when he had to pay them himself?

L. I can tell you, Ion. Do you not remember that he wished to introduce the Catholic religion against the will of his people, and that he depended on these soldiers to support him?

Ion. Oh, yes. And I remember how he tried whether the regiments would be faithful to him or not, and found that after all he could not depend upon them.

P. That is true. Thus, the first time the standing army was tried, it proved faithful to the cause of *the people*. But such is not generally the case. Many nations by supporting a standing army have become its slaves; they have made a rod for themselves. You may see

this in the history of most revolutions. At the present day, in France, the people are the slaves of the standing army which they support. But I am sure we have talked long enough on this subject.

L. Yes, I will sum up its history. Nearly two hundred years ago, Charles II. raised a standing army of 5,000 men; now, we have a standing army of 273,000 men.

W. And we will all agree that it will be a good thing when we can do without standing armies. Is that right?

P. Quite. May that time soon come!—Unfortunately the event we have been talking of has little to do with the learning, science, or inventions of the seventeenth century. But I promise you we will keep to our subject in our next lesson.

BE CONTENT.

If others are wealthy while we are but poor,

We still may be happy as they;

For moderate desires, not immoderate store,

Best keep discontentment away.

The noblest and richest have troubles to bear

Amid their possessions untold;

Of suffering and sorrow they all have their share,

In spite of their titles and gold.

Our sleep is as sound and our food is as sweet

As any which they can enjoy,

And time never passes so pleasant and fleet

As when spent in useful employ.

If duty be done, 'tis a far greater thing

Than riches or honours to gain:

With this even a cottage will happiness bring;

Without it a palace were vain.

Rhymes Worth Remembering.

THE ENGLISH TRAVELLER.

WARWICKSHIRE.

"MY DEAR CHILDREN,
 "You may learn the following notes before reading my lesson on Warwickshire:—

STAFFORDSHIRE.

(Boundaries.)—STAFFORDSHIRE is bounded on the east by DERBYSHIRE and WARWICKSHIRE; on the west by CHESHIRE and SHROPSHIRE; and on the south by SHROPSHIRE.

(Soil.)—The soil is remarkable principally for its mineral wealth, such as coal, iron, and clay.

(Rivers.)—Its rivers are scarcely worth mentioning. The principal are the DOVE and the TRENT. Its canals and railways are the principal means of conveying goods.

(Towns.)—The principal towns in the north are those of the "Potteries," such as NEWCASTLE-UNDER-LYNE and others. Those in the south are celebrated for their iron-works, such as WOLVERHAMPTON, and WALSALL. The capital, STAFFORD, is not the most important town of the county.

"Warwickshire is situated almost in the centre of England. It contains four large towns, named Birmingham, Coventry, Warwick, and Stratford-on-Avon.

"Let us talk about BIRMINGHAM. If you had been there in the times of Queen Elizabeth you would have found

it to be a 'good market-town.' The best part was the High-street, which was a quarter of a mile long. It was then inhabited by 'smiths that used to make knives, and all manner of cutting-tools; and many lorrimer's that make bits, and a great many nailors.'

"How is it that, at so very early a date, Birmingham had manufactures in iron?

"If you have read my letter on Staffordshire, you will be able to answer this question. First, you will see on the map that the town is very near to the iron mines of that county. Secondly, it is in the northern division of Warwickshire, which was once nearly covered with forest. This forest supplied wood, which was used to make charcoal for smelting the iron ore. Since the invention of the steam-engine coal has been used as fuel instead. So when you have heard of the wonderful metal manufactures in Birmingham, which I am now going to write about, if any one should ask you, 'Why is the town of Birmingham situated in the north-western part of Warwickshire?' or 'Why has it so many manufactures in metal?' you may answer them, 'Because it was near the Forest of Arden, and the iron-mines of Staffordshire.'

"Birmingham continued to be 'a good market-town' long after the time of Queen Elizabeth.

In the reign of Charles II. its prosperity was increased by the *Five Mile Act*, and other acts of a like nature. The Five Mile Act required all clergymen, and other persons, to take what was called 'The Oath of Passive Obedience,' and to submit to other things which many did not approve of. Those who refused to do so were no longer allowed to preach, or to be tutors or schoolmasters; neither were they allowed to live within five miles of any city or corporate town. They were thus banished into the small towns and obscure villages. Birmingham was not then a 'corporate' town; some of the clergy, and men of industry and capital, therefore, settled here, and increased the manufactures.

"Another fortunate circumstance for Birmingham occurred in Charles II.'s reign. On his restoration he introduced the fashion of wearing metal ornaments, which he had learned during his banishment in France. The English people soon became fond of them, and Birmingham took the lead in their manufacture.

"It was late in the afternoon when I arrived at *Birmingham*. At first I was not struck with the town as being more "busy" than any other. But perhaps it was because I arrived in the evening. The road from the railway to the house of the friend who had invited me to see him was also a rather quiet one. But in the morning, my friend and I took a walk in the suburbs, to see the town in the distance.

"It was some time before we reached the fields, and then, indeed, Birmingham looked like a great manufacturing town. The great piles of buildings, the clustering roofs, and rows of short chimneys, the longer rows of windows, the crowds of tall factory chimneys, and the clouds of black smoke which they vomited forth, told of the work that was going on. The noise of the great machines, which moved with a heavy thundering motion, and seemed to shake the buildings which contained them; the clanking noise of hammers and anvils; the roar and ruddy light of the furnaces; the barges and canals; the railways and the puffing of their engines, all seemed to speak to us, and to say, 'See how busy we are!'

"And what are they making in all these different factories?" I said.

"A greater variety of articles than I can count," said my friend.

"In our town we make nails, screws, buttons, buckles, knives and forks, steel-pens, swords, cannon, guns, tea-trays, and all kinds of japanned goods, umbrellas, gas-fittings, jewellery, plated goods, and immense quantities of hardware."

"What is hardware?"

"Iron pots and pans, sauce-pans, and other such articles. Besides these smaller manufactures, we make large iron bridges for railways and rivers, steam-engines, all kinds of machinery; iron rails, for railways; and iron pillars, arches, and girders, for as many Crystal Palaces as you please."

"And glass, too? I suppose."

"Yes, I had forgotten. We have splendid glass manufactories. Our principal manufactures are those of *Messrs. Osler and Sons*, and the *Birmingham Plate Glass Factory*.

"I think that, on the whole, this is the most wonderful manufactory in England. When our principal manufactures were in pencil-cases, boxes, chains, thimbles, snuff-boxes, bodkins, and steel toys, besides the other small articles, which I mentioned before, Birmingham was called 'the toy-shop of Europe.' This name was given to it by the great orator Burke, but it is not so suitable a name as it formerly was."

"I wish you would describe some of these manufactures," I said.

"I wish you had time to come and see them," replied my friend. "I might talk all day, and you would not learn as much as you would in an hour in one of the factories."

"But I cannot do that," I said; "so let me hear you talk."

"Well then, I think you would like the iron-manufactories, if you could go and see them. Great improvements have been made in this manufacture by means of *casting* in moulds. You know how minute and delicate are the chimney ornaments which are cast; what beautiful ornaments you have on your fenders and fire-stoves. You know how beautifully some of them are bronzed, and, no doubt, you have seen our castings in bronze of different animals, and men in armour

on horseback. I dare say you have heard of Mr. Watt, who invented the steam-engine, and of Mr. Boulton, his partner. Messrs. Boulton and Watt introduced most of the improvements in the *style* of casting.

"Then, the iron *foundries* would please you. You would be much astonished to see the large castings made for arches, and girders for iron roofs, domes, &c. But you surely don't wish me to talk about all our manufactures?"

"Yes, I do," I said. "Go on until you are tired."

"Very well. I should like you to see our manufactures in brass and pewter, and other *all-ys*, in Britannia-metal, Albata plate, and so on. Some of these articles are cast; but others are *stamped with a die*, just as we stamp wax with a seal. With dies we make beautiful ornaments of scroll, and foliage; we ornament plated spoons, knives, and forks in this way.

"Our *gun* manufactures are most extensive. From the year 1804 till two or three years after the fall of Bonaparte—you remember that he fell in 1815—we supplied five millions of fire arms. We have what is called "a proof-house" for all guns that are made. It was established by Act of Parliament."

"What is a proof-house?"

"A house where all guns are put to the proof. You know that if the barrel of a gun or pistol be unsound, it may burst, and kill the person who fires. But before any guns or pistols

are sent out for use, they are loaded at this proof-house with a much heavier charge of powder than they will generally bear. Many hundreds are loaded and fired at the same time. Those which sustain the explosion are stamped. If any man counterfeit this stamp, and stamp guns that have not been tried, he is guilty of felony, and is liable to a very heavy fine.

"That is quite right, for I suppose that if a barrel burst it is almost sure to injure the person who is holding it."

"Yes, and to injure itself too. If you were to go to the proving-house, you would be much struck at the strange shape and contortions of the burst barrels."

"We stamp other articles besides guns. In our *silver manufactures*, all articles which are heavier than 5 dwts. are taken to the "Assay-Office," which is established in the town. Some time ago we used 3,000 ounces of silver per week; whether we use more now, or less, I can hardly say."

"Our *japanned articles*, and goods of *papier-maché*, were improved by two manufacturers, named, John Taylor and Baskerville. The designs on the papier-maché goods are most elegant. Many good painters have begun their course by painting such articles."

"In yonder factory there is a very great manufacture of very small articles."

"What are they?"

"*Steel pens*. Thirty years

ago, or more, these articles were scarcely known or used. The manufacture was first established here in 1821. Our principal steel-pen maker is Mr. *Joseph Gillot*. About twenty years ago he used every year more than forty tons of fine sheet steel. Each ton yielded nearly 10,000 gross of pens."

"That," I said, "is equal to 400,000 gross."

"Yes, and if you suppose that all the other manufacturers made together only as many as this one man, the total would be 800,000 gross."

"They would amount," I said, "to nearly 120,000,000 pens per year. One hundred and twenty millions is an enormous number!"

"Yes, and besides the pen-making in Birmingham, there are similar manufactures in Sheffield and other places. What number of pens are made here now, I should not like to guess."

"The *cheapness* of these pens has been one cause of their sale," I remarked.

"Yes, indeed, the prices have changed since their invention. When they first came into use, they were sold at a *shilling* a piece—12s. a dozen, which makes £7 4s. the gross. Now, good steel pens may be bought at 1s. per gross, and inferior ones at 7d., or even 5d., including the box."

"Shall I tell you about our other manufactures? I have not yet mentioned nearly half."

"Thank you, no," I said; "it would take too long a time. Let us return to the town."

ARITHMETIC.

Lesson 5.—NUMERATION AND ADDITION (*continued*).

P. Now, Miss Ada, I'm going to teach you to *carry your tens*.

Ada. How many are there to carry?

P. That depends upon circumstances. You shall soon see what I mean. Let us work this sum.

$$\begin{array}{r} X\ I \\ 2\ 4 \\ 3\ 5 \\ 2\ 8 \\ \hline \end{array}$$

Ada. Here it is, papa; I have done it.

$$\begin{array}{r} X\ I \\ 2\ 4 \\ 3\ 5 \\ 2\ 8 \\ \hline 7\ 17 \\ \hline \end{array}$$

It comes to 7 tens, 17 ones.

P. Suppose you had 7 shillings and 17 pence in your pocket. You would say that the 17 pence were awkward and heavy to carry about.

Ada. Yes. I should soon go to a shop and change twelve of the pennies for a shilling. Then I should have 5 pennies left. I should have altogether 8 shillings and 5 pennies.

P. True. And it is just as "awkward" when you are working a sum to have too many ones. 17 is too large a number to put down under the row of ones. You had better change some into a ten, just as

you would change pence into a shilling.

Ada. I can do that. 17 is one ten, and seven ones over.

P. Then you should not put the *ten* of the 17 under the ones. You put down the 7 under the ones, and add the one ten to the tens in the next line.

Ada. That is easy. Then the 1 ten, and the 2 tens, and the 3, and the 2 added together make 8 tens. So the sum comes to 8 tens 7 ones.

P. That is right. And this plan of changing ones into tens, and adding them to those in the next line, is called *carrying the tens*. You see it is not at all hard to do. Let us put the sum down both ways.

$$\begin{array}{r} X\ I \\ 2\ 4 \\ 3\ 5 \\ 2\ 8 \\ \hline 7\ 17 \\ \hline \end{array} \quad \begin{array}{r} X\ I \\ 2\ 4 \\ 3\ 5 \\ 2\ 8 \\ \hline 8\ 7 \\ \hline \end{array}$$

Suppose now that I had not learned to change ones into tens, and that some apples were given me in three different lots, some tied up in parcels of tens and some in ones. I should write them down in this way—

$$\begin{array}{r} X\ I \\ \text{First lot} \quad . \quad 2\ 17 \\ \text{Second lot} \quad . \quad 1\ 43 \\ \text{Third lot} \quad . \quad 2\ 34 \\ \hline \end{array}$$

Ada. That seems a foolish way. With each lot of apples you should change the ones into tens before you write them on the slate. I will write them properly for you.

<i>X I</i>
3 7
5 3
5 4
—

13 1

There! I have added them up for you too!

P. That is correct. You may now have an exercise.

Exercise 5.—NUMERATION AND ADDITION OF TENS AND ONES.

(a) *Add together the numbers in the following sums :—*

<i>X I</i>	<i>X I</i>	<i>X I</i>	<i>X I</i>
4 2	3 7	2 4	3 9
3 6	4 3	3 6	2 5
2 8	2 8	4 7	4 8
1 9	3 1	3 6	3 8
—	—	—	—

— — — —

3 8	2 5	3 9	4 3
4 8	2 5	1	2 4
2 9	2 5	2 2	3 5
3 6	2 5	2 8	2 6
—	—	—	—

— — — —

(b) *Correct the errors made in writing the following sums, and then add them up.*

<i>X I</i>	<i>X I</i>	<i>X I</i>
2 19	3 43	3 47
3 48	2 69	2 82
2 56	4 36	5 73
—	—	—
—	—	—

<i>X I</i>	<i>X I</i>	<i>X I</i>
5 50	4 36	3 30
2 80	5 71	7 10
7 30	6 62	8 10
—	—	—
—	—	—

(c) Twenty-five horses, seventeen cows, and ninety-nine sheep, were standing round a pond. How many animals were there?

My aunt sent me three lots of apples from the country. In the first lot were three parcels of ten apples, and fourteen odd ones; in the second lot were 4 tens and 36 single apples; and in the third lot there were two parcels of ten apples, and 25 ones. Will you write these three lots of apples on your slate and add them together? You may first write them in the wrong way, and afterwards you may write them properly.

One man paid me £17; another paid me £82; another brought me 2 ten-pound notes, and 14 sovereigns; and a lady paid me 4 ten-pound notes, 2 five-pound notes, and 13 sovereigns. How much money did I receive?

Lesson 6.—NUMERATION AND ADDITION (continued.)

P. To-day you may take another step in your arithmetic. You may learn to change tens into hundreds. What is the answer to the last sum? How many pounds did I receive?

Ada. Nineteen tens, 6 ones.

P. True. You wrote it on your slate in this manner $\begin{matrix} X & I \\ 19 & 6 \end{matrix}$. Now

these 19 tens make one parcel of 10 tens, and 9 tens over. Suppose the ten tens to be really tied together in one large parcel, what would you call such a parcel?

Ada. I should call it ten-ty, because we call a parcel of 8 tens eigh-ty; and nine tens nine-ty.

P. But we give a different name to a parcel of ten tens. Such a number is called a hun-

dred. Thus 19 tens make 1 hundred and 9 tens.

Ada. What letter do you place over any figure to show that it represents hundreds?

P. The letter C, which is the first letter of the Latin word *centum*, a hundred. Thus we should write 19 tens, 6 ones in this way:—

$\begin{matrix} C & X & I \\ 1 & 9 & 6 \end{matrix}$

Before you work any sums with tens, to be changed into hundreds, you may learn the following table:—

	C	X	I
10 tens are one hundred (written)	1	0	0
11 tens are one hundred, and one ten (written)	1	1	0
12 tens are one hundred, and two tens (written)	1	2	0
13 tens are one hundred, and three tens (written)	1	3	0
14 tens are one hundred, and four tens (written)	1	4	0
15 tens are one hundred, and five tens (written)	1	5	0
16 tens are one hundred, and six tens (written)	1	6	0
17 tens are one hundred, and seven tens (written)	1	7	0
18 tens are one hundred, and eight tens (written)	1	8	0
19 tens are one hundred, and nine tens (written)	1	9	0
20 tens are 2 ten-tens, or two hundred (written)	2	0	0
30 tens are 3 ten-tens, or 3 hundred (written)	3	0	0
40 tens are 4 ten-tens, or 4 hundred (written)	4	0	0
50 tens are 5 ten-tens, or 5 hundred (written)	5	0	0
60 tens are 6 ten-tens, or 6 hundred (written)	6	0	0
70 tens are 7 ten-tens, or 7 hundred (written)	7	0	0
80 tens are 8 ten-tens, or 8 hundred (written)	8	0	0
90 tens are 9 ten-tens, or 9 hundred (written)	9	0	0

Exercise 6.

NUMERATION AND ADDITION.

(Hundreds, Tens, and Units.)

(a) Write in figures the following quantities:—One hundred and twenty oranges—two hundred and thirty oranges—three hundred and fifty oranges—five hundred and sixty pears—nine hundred and ten balls.

(b) Write in figures the following quantities:—Two hundred and sixty-four sticks—one hun-

dred and ninety-five pens—three hundred and fifty-one sheep—eight hundred and seventy-three pigs.

(c) Write in figures the following quantities:—One hundred and one boys—two hundred and four girls—nine hundred and nine trees—four hundred and six animals.

(Exercise 6 continued on page 92.)

SIXTH WEEK. MORAL LESSON.

MONDAY.

CHARITY.

"Rejoiceth not in iniquity."

WHEN I was a boy I used to roam in *Highgate woods*.

And so did Ernest Randall.

W. Do you mean *Mr. Ernest Randall*, who comes to see us sometimes?

P. Yes; the gentleman who lives in the great white house at the end of our lane. He is a rich man now, but when I was a boy he was rather poor, and we called him Ernest. I am going to tell you a tale about him.

ERNEST'S ENEMY.

Sometimes when Ernest and I came home from school together, we used to go through the woods.

"Come on," I said, one day, as I jumped over the stile, "let us take the right-hand path. It is a great deal shorter, and pleasanter too."

"I'd rather go the other way," said Ernest; "for if we don't we shall be almost sure to meet young Jennings."

"Young Jennings" was the son of a cow-keeper, and was the worst boy in our neighbourhood; I did not wish to meet him, so we took the left-hand path in the wood.

"Why don't *you* like him?" I said to Ernest, as we walked on.

"Because," said Ernest, "he is my enemy. You know how badly he behaves to some of our schoolfellows; but he has treated me worst of all, I do think. Don't you remember when we bought some milk of him, how he took my sixpence and would not give me the change? And just because I told his father, and he made him return me the money, he set his ugly dog, Snap, to bite me; see what a hole she made in my trousers! But it's of no use to tell you all the tricks he has played upon me lately; it only makes me feel angry to talk about him."

"I wonder," I said, "that you don't punish him. You might easily give him a good thrashing, for you are much stronger than he is. I should be glad to see you do it."

"Don't say that," said Ernest, turning round suddenly; "don't say such a thing. I should be very sorry to fight, and you ought to be very sorry to see me. You should never be glad to see another person do wrong"

At that time I had not thought much about right and wrong; and as we talked over the matter together, I told Ernest that I thought he was a coward.

But, though Ernest tried to avoid quarrelling with young Jennings, the bad boy only became more insolent. He insulted Ernest whenever he met him. In time, he became known by all the boys in our school as *Ernest's enemy*, and he even seemed proud of the title. He was rather small for his age, and he thought it a fine thing that he and his little dog should be able to annoy such a big boy as Ernest.

"Everybody says that you ought to thrash him," said one of Ernest's schoolfellows, as we were again walking together through the woods, and were talking about young Jennings.

"And I say so, too," said Ernest's sister, who was walking with us.

"And so do I," said a boy whose name was Edmund White.

"And so do I," said Edmund White's sister.

"To be sure," added another boy, "it's all very well to say it is wrong to strike him, but perhaps you are afraid, and"—

"And here," interrupted Edmund, "*here he comes*, with his ugly companion, Snap!"

There was no question about it. His reddish-brown coloured smockfrock could be seen in the distance, between the green leaves; and his milk-can rattled as he came down the steep narrow path.

"Here he is! Ah, you are caught now!" shouted Fred White, almost with joy, as Jennings came up. So, seizing Snap by the collar, he called to Ernest to give the boy the thrashing he deserved.

"*Yah, yah! wah, wa-wa-wah,*" barked Snap, as well as he could; and Jennings, seeing he was without any help, tried to run away.

But he tried in vain; he was stopped by Ernest's companions, who gathered round him. They held him fast, and brought him up to Ernest; the cowardly Jennings was so frightened that he began to cry.

"Here he is, Ernest," said Edmund, as he pushed the boy towards him. "I think you ought to punish him well. Think how he set his dog upon you!"

"No," said Ernest; "I have forgotten that long ago. I don't want to hurt him."

"But I say he deserves to be hurt," said another boy. "You are a coward. You are afraid of him."

"I am afraid to do wrong, certainly," said Ernest. "*Do you think, because he hurt me, that I am obliged to hurt him?* I should be ashamed to do such a thing."

Ernest would not be persuaded to punish his enemy. "I tell you," he said again, "that it is wrong to strike the boy; and if my enemy likes to do wrong, that is no reason why I should; my mother taught me so." So "young Jennings" was set at liberty.

But even after this kindness

young Jennings did not mend his ways. He was whipped for throwing stones at some ducks; he was also punished for attempting to steal, and at last Ernest's schoolfellows heard that young Jennings had been stealing, and was in prison.

"Now," said Edmund White to his companions, "I think Ernest will be glad. He will see that Jennings is punished without having the trouble to punish him himself." Some of the boys, however, thought that Ernest would not be pleased. There were nine of them in the schoolroom: six said that he would be glad, and the other three that he would not. One of them, therefore, ran into the playground to fetch him.

"I have some good news for you," said Edmund to him, as he entered. "Do you know that young Jennings is in prison?"

"Where did you learn that?" said Ernest.

"I heard it from his own father," replied Edmund. "Aren't you glad?"

Ernest did not answer directly, and his companions waited and looked at one another, as much as to say,

"I wonder what he will say?"

"I am sure you need not be so long answering," said one boy. "You don't mean to say that he ought not to be punished?"

"No," said Ernest. "Yet I am sorry for him: for, you see, he has become a thief."

At this answer the boys looked at one another once more, but they did not laugh. They could not help feeling that Ernest had a better spirit than they had.

When they argued the case with him, he taught them that *it is wrong to rejoice even when an enemy does wrong*. Instead of being glad that young Jennings was punished, two or three of them agreed with Ernest, that they would try and get admission into the prison, and would go together to visit him.

W. I think, papa, that Ernest taught his friends a very good lesson.

P. Yes; and it is a good one for you and all other boys to learn. Do you wish to have the spirit of Charity, as Ernest had? Then learn, as he did, that *CHARITY rejoiceth not in iniquity*. I may perhaps tell you more about "young Jennings" next week.

THE LABOURER.

I MURMUR not to dig the soil,
For I have heard it read,
That man by industry and toil,
Must eat his daily bread.

The lark awakes me with his song,
That hails the morning gray,
And when I mourn for human wrong,
I think of God and pray.—BOWLES.

THE JUSSIEUAN SYSTEM.

THALAMIFLORALS.

Order 20. THE RUE PLANTS.
(*Rutaceæ*.)

P. HERE is a piece of the old-fashioned herb, *Rue*. Smell it!

W. It has a strong smell, which is rather nasty, too. I would rather not smell it again.

P. Perhaps you would like to taste it?

W. Thank you, no—I would rather not.

Ion. I will taste it, papa. I don't think that the taste is very bad. It bites my tongue a little; it is rather hot and bitter; it would be useful to mix with onions, to make "stuffing."

P. The BALSAMS were distinguished principally by their elegant appearance, the *SORRELS* by their acid taste, while the chief distinction of the *RUES* is found in their strong smell.

This nauseous smell arises from the quantity of oil in the leaves. Just rub one with your fingers, and then smell it.

L. My finger is as odorous as the leaf. Why is that?

P. If you examine the leaf you will see a number of half-transparent dots beneath the cuticle, like the dots in an orange-leaf. These are little cavities containing the oil from which the smell proceeds.

One plant in this order contains so much oil, that in warm weather the air around it is inflammable.

L. Why is that?

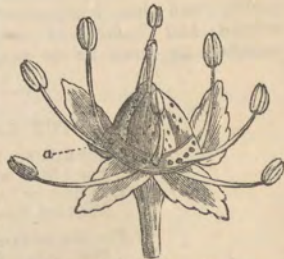
P. The littleflower stalks of the plant are covered with minute rusty-red glands. The heat of the weather causes the oily substance in these glands to be diffused through the air as vapour. In a dark place this oily vapour may be set on fire, and it will then be easily seen.

L. Is not this plant called the *Fraxinella*?

P. That is its name. It is so called from *Fraxinus*, the Ash, because it has similar leaves. The scent which its oil gives forth is a very pleasant one; it is something like that of lemon-peel; the flower, too, is very beautiful.

W. That reminds me, papa, that you have not described to us the flower of the *Rue* plant. Shall we examine its parts?

P. Yes, you will see that this flower is very different from those of Orders 18 and



GARDEN RUE, (magnified).

a. The fleshy ring from which the stamens arise

19. Its parts are not arranged in fives, but in fours. Tell me, first, how many petals it has.

L. There are *four*.

P. I will pull them off, that you may examine the other parts better. Here is the flower without its petals.

W. Its calyx has *four* sepals; it has *twice four*, or eight stamens, and its ovary has *four* carpels.

P. You may notice, too, that the pistil has only one style. Around the ovary you may also see a fleshy ring, from which the stamens grow. (*See a, in the cut.*)

Ion. I notice, papa, that the stamens spread out from each other very much.

P. They do, but they are not always in that position. Like the stamens of the barberry, they often move forward to the pistil. Linnaeus observed that the rue moved one of its stamens to the pistil every day. Another botanist examined the flower of the *Narrow-leaved Rue*; he found many of the stamens holding their anthers over the stigma, while those which did not, were spread out, and lying back on the petals. You remember that the stamens of the barberry spring forward when touched; but when the stamens of the rue were touched with a quill, it was found that they were not irritable. You may see that they are strong and stout; they cannot, therefore, be *forced* out of their places without breaking.

L. What are the uses of Rue, papa?

P. It was formerly much used in medicine; it was thought to be useful in preventing putrefaction and contagion. Its ancient name was *herb of grace*, or *herb-grace*. In Sussex, it is to this day called *ave-grace*. It is now seldom used, except by village doctresses.

This order, Rutaceæ, is the last of the Thalamiflorals which I shall mention. It contains seven *tribes*, of which the Rue tribe is the first. In the rue tribe there are many *varieties*, such as the Syrian Rue, the pinnate-leaved Rue, the large-bracted, the narrow-leaved, the long-leaved, the mountain, the strong-scented, the samphire-leaved, and the white-flowered Rues. The garden rue, however, is a good representative of these varieties, and of the other tribes in the order.

L. Now, papa, shall we make our summary?

P. Yes, we will make summaries of the last six orders; beginning with order 15.

Order 15. THE CAMELLIAS.

(*Varieties.*) This order contains several varieties of the Camellia, and the well-known plant called the Tea-tree. The two principal varieties of tea are *Thea viridis*, and *Thea Bohea*.

(*Parts.*) The flower of the Tea-plant may represent the whole order. It has from five to seven unequal *sepals*; from five to nine *petals*; numerous *stamens*, arranged in one or more bundles; and from three to six *carpels* in the ovary.

(*Uses.*) The uses of the tea-plant are well known; the beauti-

ful flowers of the Camellias are used in nosegays, and the leaves of some species have been used as tea.

Order 16. THE ORANGES.

(*Parts.*) The Orange-blossom is beautifully white and fragrant. Its *calyx* has three or five sepals, and is rather deciduous; the *petals* are of the same number as the sepals, white, with green dots, and imbricated; the stamens are equal in number with the petals, or twice, or some multiple of the number; the *ovary* is globular, and has many carpels, which, when ripe, are filled with a sweet pulp and juice, and are protected by a thick rind; the *pistil* has one style and stigma. The *leaves* of the plant are covered with small yellowish dots, containing an essential oil, which gives forth a fragrant smell.

(*Place, varieties, and uses.*) The plants of this order grow in tropical and warm temperate climates. The principal varieties are the Seville orange, lemon, lime, shaddock, citron, and forbidden fruit; they all contain a sweet or acid pulp, which is useful because it is cooling and refreshing.

Order 17. GRAPE VINTS.

(*Parts.*) These plants are generally "twiggy" or climbing shrubs, with peduncles (flowerstalks), which often change into tendrils. The branches are tumid at the nodes, and the *leaves* are much divided. The *flowers* in this order are mostly arranged in panicles; are small and insignificant, and of a greenish colour. The *calyx* is small and undivided; the *petals* and stamens are each five in number, and the *ovary* is two-celled.

(*Varieties and place.*) The *Common Grape* is the only tribe in this order which bears fine

fruit; of this plant there are nearly 300 varieties. The *Fox-grape* of America, and the *River-grape*, are of little use; but a small grape, called the *Black Corinth*, is used when dried, under the name of "Grocer's currants." The Virginian creeper, and others, form a tribe of this order. These plants grow in the Old World, principally between the 21st and 50th degrees north latitude.

(*Uses.*) The juice of the grape yields wine, vinegar, and medicine, while its ornamental leaves are used for garnishing dishes of fruit, &c.

Order 18. THE CRANESBILLS.

(*Parts.*) These flowers, which are properly called "Geraniums," are distinguished by their peculiar *receptacle*. It grows up between the carpels, and forms a long axis, round which the styles of the carpels cluster. The flower has five carpels, which are monospermous; ten stamens, arranged in *two rows* of five each; and five petals, which are remarkable for their beautiful veins.

(*Varieties and uses.*) The Wood Geranium, Round-leaved Geranium, the Herb Robert, and others, are varieties of the plants which we call Cranesbills. The flowers commonly called "Geraniums" belong to the genus *Pelargonium*, which is an ally of this order. The uses of the order are not very remarkable.

There is a small order named *Tropæolææ*, which is another ally of the Cranesbills; it contains the well-known plant the Nasturtium.

Order 19. THE BALSAMS.

(*Parts.*) The Balsams are also allied to the 20th order. The flower has five *sepals*, one of which is spurred; only four *petals*, as

one appears to be wanting; and ten *stamens*. The *ovary* has five carpels, but the *pistil* has no style, the *stigma* being "sessile," and "stellate." The carpels of these flowers, like those of the Cranesbills, suddenly separate from each other with a spring. The flowers are distinguished by their beauty, and by their elegant appearance, which is owing to their lanceolate and serrated leaves.

THE WOOD SORREL, &c.

The wood-sorrel and others may be classed with the balsams, as allies of the 18th order. These plants owe their importance to their containing *oxalic acid*, which is much used in the arts. They are also useful in salads, and as medicine.

Order 20. RUE PLANTS.

(Qualities and Parts.) The plants of this order are remarkable

for their strong fetid smell; they also have a biting and bitter taste. Their parts, unlike those of the preceding orders, are arranged in *fours*. The flower has four *sepals*, four *petals*, eight *stamens*, and four *carpels*; the styles of these carpels are united into one. The carpels are surrounded by a fleshy ring, from which the *stamens* grow.

(Varieties.) There are seven *tribes* in this order, and in the *Rue* tribe there are several varieties. In one tribe there is a flower called the *Fracinella*, which emits a fragrant oil in such quantities that in hot weather the air around it becomes inflammable.

(Uses.) The Rue was anciently much used as a medicine, and is still thus used in the country. It was called the *Herb of Grace*, and was supposed to prevent contagion, or putrefaction.

MY MOTHER.

OFTEN into folly straying,
O my mother! how I've grieved her!
Often heard her for me praying,
Till the gushing tears relieved her,
And she gently rose and smiled,
Whispering, "God will keep my child."

She was youthful then, and sprightly,
Fondly on my father leaning,
Sweet she spoke,—her eyes shone brightly,
And her words were full of meaning;
Now—an Autumn leaf decayed,—
I, perhaps, have made it fade.

But, whatever ills betide thee,
Mother, in them all I share;
In thy sickness watch beside thee,
And beside thee kneel in prayer.
Best of mothers! on my breast,
Lean thy head, and sink to rest.

THE PROGRESS OF LEARNING, SCIENCE, AND
INVENTIONS DURING THE 17TH CENTURY.

P. We did not learn much of the *progress* of the people from our talk about the standing army.

W. No, papa. Did the people make any progress at all in Charles II.'s reign?

P. Not much, perhaps. The king himself was such an idle fellow. This you have already heard. You have also heard how the people made progress in *cleanliness*.

L. When did they do so?

P. After the great fire of London, which I described to you. The dreadful plague of the year before would not have been so bad, if the City had been cleaner; but the streets were very dirty, narrow, and close. On this account London had often been visited by this terrible scourge. This time it began in the filthy suburb of *St. Giles*.

The fire of London, therefore, though it was a great calamity, by the providence of God became a blessing. At that time there lived the great and good man Sir Christopher Wren. He rebuilt the city with great judgment; instead of narrow, crooked, and dirty streets he made wide, straight, and clean ones. Instead of the old wooden houses, he built houses of brick and stone; pitch was no longer used for the roofs, or straw for the floors; and since the fire, the plague has

scarcely been known in London.

The rebuilding of London by Sir Christopher Wren is, then, one of the great social events of Charles II.'s reign. There were also important changes in the costume as well as in the dwellings of the people. In the times of the Puritans, plain, unornamented dresses were worn; but the people now followed the example of the gay Charles, and went to the other extreme.

L. Ah! he learned his ideas of dress in France. Mr. Young, last week, in his letter on Birmingham, said that Charles introduced *metal buttons* from France.

P. He also introduced the wearing of ribbons, and feathers, and shoulder-knots, like those worn in France. French fashions became as much "the rage" as they are now.

L. And did he not introduce *wigs*?

P. Yes. Long flowing wigs, with curls of false hair, were worn. At first they were so long that they covered the head and shoulders, and hung halfway down the body. Judges and barristers now first wore them. People did not give up these wigs until the middle of last century.

Charles also introduced a change in the *neck-dress*. Do you not remember seeing in

pictures the great ruffs which were worn round the neck in the time of Charles I.?

L. I remember them. Long capes were also worn.

P. These lace capes and ruffs were, of course, given up in the times of the Puritans. Charles II. introduced the *cravats*, which were worn round the throat, and tied in a great bunch under the chin.

W. Was anything else introduced?

P. Yes; *glass coaches* (coaches with glass windows) were introduced from Belgium. *Magic lanterns* were invented by a German; he derived the hint from Roger Bacon (who lived 400 years before him). Sir Thomas Loom introduced the first *loom* into England; Anthony Brewer introduced the art of *dyeing*; and Christian Huygens, a Dutchman, invented *pendulums*. Lastly, the splendid Gobelin tapestry of France was invented.

W. Gobelin tapestry is *very* splendid. I shall never forget the specimens we saw at the Great Exhibition. But why is it called *Gobelin*?

P. Because the brilliant scarlet colour which is so much admired in these works was invented by a dyer named Giles Gobelin.

I think we must also remember that the *plate-glass manufacture* was established in London by the Duke of Buckingham, who introduced it from Italy. Another important event was the acquisition of Bombay by the English. It was ceded to Charles II. by the Portuguese

as a marriage-dowry for their princess, the *Infanta Catharine*.

L. What do you mean by "*Infanta*"?

P. The eldest daughter of the King of Portugal or of Spain is called the "*Infanta*," just as the King of France's eldest son was called the "*dauphin*."

The most remarkable social event in the reign of JAMES II. was the beginning of the *silk-trade* in Spitalfields. You have already heard how this manufacture was introduced by Protestant French refugees.

L. Yes; you told us that they fled from France when Louis XIV. revoked the edict of Nantes, which had protected the Protestants from persecution.

P. In the reign of WILLIAM III., the *national debt* was, you may remember, begun. The latter part of the 17th century was also remarkable for the taxes which were laid on articles of food and every-day consumption. For instance, in the reign of James II. a duty was laid upon *coals*, to pay for the expense of finishing St. PAUL'S CATHEDRAL.

W. How much did the cathedral cost, papa?

P. It cost the nation a million of money, and was thirty-five years in building. Sir Christopher Wren just lived to see the completion of his work. He died in 1723, the year in which it was finished, aged 91.

We will talk next week of the new kind of taxes on articles of consumption.

THE ENGLISH TRAVELLER.

WARWICKSHIRE.

"MY DEAR CHILDREN,—

"I would like to tell you of all I saw in the great town of Birmingham. You would like to see the magnificent Town Hall, which is nearly 170 feet long; it is built on the model of the temple of Jupiter Stator at Rome. It contains a fine organ, which is said to be the most powerful in Europe. It is used at the great *musical festivals* and public meetings which are often held in the hall. The *Market Hall*, in the High Street, is also a fine building. The *News Room* is another handsome structure; so also are those of the *Libraries*, the *Society of Arts*, the *Theatre*, and the *Banking Companies*. The *Free Grammar School* is a beautiful Gothic building, and is one of the finest of the kind in England. The *Blue Coat School* is also worthy of notice.

"After leaving the great town of Birmingham, I visited Coventry.

"COVENTRY is an ancient place. It is very picturesque and old-fashioned—by some it is called "ugly." It is noted for its manufactures of *silk*, *ribbons*, and *watches*. Its watches are not celebrated, but its ribbons are very famous. I dare say you saw the fine assortment which was sent from this town to the Great Exhibition.

"Coventry may be remembered, also, because it abounds

with charitable institutions. In this respect it is something like Bedford, a town of which you will hear soon. Coventry and Lichfield were until lately united into one bishoprick.

"WARWICK is the capital of the county, but it is neither so large nor so important as Birmingham. It is beautifully situated on the river Avon. It is on a rocky eminence, which is crowned with a fine castle. This castle is still inhabited by the Earls of Warwick. It is one of the finest specimens of the castles in which the old barons of the feudal system lived. It would form a good companion to the old castle of Arundel, which, you may remember, is in Sussex.

"STRATFORD-ON-AVON is, as you see by its name, on the same river as Warwick. It is noted as the birthplace of the great poet *Shakspeare*. The old house in which he was born is a great curiosity. It was lately sold by auction, but the public would not let it be destroyed. They took so strong an interest in it that it was purchased by subscription. The town is a clean airy place, and it has a good trade in corn.

"The soil of Warwickshire is worth noticing. The county is divided into two parts by the river Avon. The district north of the Avon is sometimes called the *Woodlands*. Anciently it

was entirely covered by the great Forest of Arden. Great numbers of the trees were cut down to make charcoal for the iron-smelting works in the neighbourhood; but this part of the county is still wild and rugged. There are wild heaths and moors. The Forest of Arden is still a large place; it abounds in oak trees, which are useful for building ships for the British navy.

"The part of the county south of the Avon is called the *Feldon*. It is very fertile, producing much corn and flax.

"In the early history of this county there is much that is interesting. In the *Feldon* are the ruins of that splendid old place *KENILWORTH CASTLE*. It is rendered famous by the magnificent entertainments which *Dudley, Earl of Leicester*, the favourite of Queen Elizabeth, gave to his royal mistress. You may read of Leicester and Elizabeth in the story of '*Kenilworth*,' by Sir Walter Scott.

"This county was also the scene of the exploits of the famous *Guy, Earl of Warwick*, whom you have also heard of in history. It was here, too, that the battle of *Edgehill* was fought; it was the first pitched battle in the civil war between Charles I. and his Parliament.

"These are the principal par-

ticulars of the county of Warwick. I send you also my notes for a memory-lesson, and remain, dear children,

"Your faithful friend,

"HENRY YOUNG."

WARWICKSHIRE.

(Shape and Boundaries.)—*This county is irregularly oval in shape; it is bounded on the north by STAFFORDSHIRE, on the south by OXFORDSHIRE, on the east by LEICESTERSHIRE, and on the west by WORCESTERSHIRE and STAFFORDSHIRE.*

(Soil and Surface.)—*The soil of Warwickshire is divided into two parts by the river Avon. The district at the north is rugged and woody, and contains "the Forest of Arden." The southern district is fertile, yielding corn and flax. KENILWORTH CASTLE, EDGEHILL, and other places in this county, have an historical interest.*

(Rivers and Towns.)—*The principal rivers are the AVON and the TAME. The principal towns are BIRMINGHAM, noted for its various manufactures in metal; COVENTRY, with manufactures in ribbons, silks, and watches; WARWICK, a place of great antiquity, with a most ancient baronial castle; and STRATFORD-ON-AVON, the birthplace of the great poet Shakspeare.*

The small birds brown,
That top the hedge,
Or house-top on,
Seem least to please;
Yet when we know

The case is thus,
That H_e, whose care
These birds do share,
Cares more for us,
We prize e'en these.

ARITHMETIC.

EXERCISE 6.—(Continued.)

(d) Write the numbers of apples expressed by the following figures:—120, 460, 530, 760, 590, and 740—361, 569, 721, 432, and 644—609, 703, 204, 406, 302.

(e) Add together the numbers in the following sums:—

C X I	C X I	C X I
1 3 4	2 4 6	3 1 4
4 2	1 3	1 4 6
3 0 1	3 4	3 7
1 2	4 8 8	2 8 9

2 0 0	4 3 1	3 4 6
7	1 0 0	2 8
1 0 9	4 0	7 0 9
4 6 8	2 1 0	2 0
7 0	8 6 7	1 0 4
3 1 4	3 0 8	2 8 0
4 7	6	4 1 2

(f) Correct the errors made in writing the following sums:—

	M	C	X	I
10 hundred is one thousand; written	1	0	0	0
11 hundred is one thousand one hundred; written	1	1	0	0
12 hundred is one thousand two hundred; written	1	2	0	0
13 hundred is one thousand three hundred; written	1	3	0	0
14 hundred is one thousand four hundred; written	1	4	0	0

and so on; you can complete this table yourself.

Exercise 7.—NUMERATION AND ADDITION.				
(Ones, Tens, Hundreds, and Thousands.)	1,426	2,461	7,342	8,694
	7,690	4,520	7,406	8,509
	8,046	5,019	2,004	3,006
	2,060	3,050	2,100	9,400

(a) Read the following numbers:—

(b) Write in figures the following quantities:—Two thou-

sand, one hundred and seven; seven thousand, two hundred and ten; five thousand, four hundred; seven thousand and six; three thousand and ten.

(c) *Add together the following numbers:—*

<i>M</i>	<i>C</i>	<i>X</i>	<i>I</i>	<i>M</i>	<i>C</i>	<i>X</i>	<i>I</i>
4	1	0	6	1	3	0	7
2	0	4	3	6	7	1	0
1	9	0	0	3	0	0	9
		2			4	1	4
		3	2			6	0
1	0	0	1		6	6	0

(d) *Correct the mistakes in the mode of writing the following sums:—*

<i>M</i>	<i>C</i>	<i>X</i>	<i>I</i>	<i>M</i>	<i>C</i>	<i>X</i>	<i>I</i>
1	4	2	1	3	4	1	0
		3	9	2	4	2	0
4	3	6	4	3	1	4	1
3	8	3	8	6	3	6	2
4	5	6	3	7	3	1	1
	2	4	6	2	8	2	8

(e) A fruiterer bought six chests of oranges. In the first chest there were 468 oranges; in the second 679; in the third 1,804; in the fourth 2,001; in the fifth 610; and in the sixth 3,107. How many oranges were there in all the chests?

A merchant received £1,461 on Monday; £2,417 on Tuesday; £3,027 on Wednesday; and £5,412 on Thursday. He received on the Friday and Saturday as much as he had received during the first four days. How much money had he at the end of the week?

A gentleman planted on his property 6,304 fir trees, 509 oaks, 2,124 lime trees, 4,018 apple trees, and 111 cherry trees. How many trees were planted in all?

Lesson 8.

NUMERATION AND ADDITION.

(Continued.)

P. The next steps in your lessons on numeration are not difficult. Let us read the following figures:—

<i>M</i>	<i>C</i>	<i>X</i>	<i>I</i>
1	3	2	1

When we count this line of figures we call that at the end of the line the first figure; the figure behind that is called the second figure; and so on.

Ada. I call that "counting backwards."

P. I daresay you have noticed by this time how much depends upon the *place* of each figure. The first figures only represent so many *ones*, those in the second place represent *tens*, and those in the third place *hundreds*. The figure in the fourth place represents a *thousand*, or, as we should say, *one thousand*. All this you know very well; but here is a line of *six* figures:—

3	1	4	3	2	1
---	---	---	---	---	---

Those in the fifth place are again worth *ten* times as much as those in the fourth place.

Ada. Then they stand for *tens of thousands*.

P. That is right. And those in the sixth place are worth *ten* times those in the fifth place.

Ada. So that the figure 3 in the sixth place stands for three *ten-ten* thousands; or, I had

better say, three *hundred thousand*, which is the same thing.

P. That is correct. Let me write the last number for you, with the letters above the figures, to show how much each stands for:—

M
C X I | C X I
3 1 4 | 3 4 2

Thus you have ones, tens, and hundreds, repeated twice. The first three figures are *ones*, *tens*, and *hundreds* of *ONES*; the second three figures are *ones*, *tens*, and *hundreds* of *THOUSANDS*.

Ada. I think I can understand that, papa.

P. Let us notice, again, that the value of each figure depends on its *place*. Then you will be quite sure that you understand.

The figures 1, 2, 3, 4, 5, 6, if taken separately, do not represent a very large number. Altogether they do not stand for more than *twenty-one*. But if they are taken together, according to their places, they represent *one hundred and twenty-three thousand four hundred and fifty-six*.

Ada. I will write them once more:—

Hundred thousands.	Ten thousands.	One thousands.	Hundreds.	Tens.	Ones.
1	2	3	4	5	6

Or I will write it in the way you showed me at first,

by placing only the *letters* above the figures:—

M
C X I C X I
1 2 3 4 5 6*

But will you tell me what I should do if I had a great many *hundreds of thousands*? Suppose that instead of 1 hundred thousand I had 17 hundred thousand, then I could make a parcel of *ten* hundred thousand. What should I call such a large parcel?

P. There is a name for such a large number, but you need not learn it at present. I do not intend to exercise you in larger numbers than hundreds of thousands, until you have learned perfectly the first four rules of arithmetic.†

* It may be observed that the habit of Latinizing terms which, frequently, might be as well expressed in English, is sometimes a great obstruction in teaching. In the present instance the initials of the words ones, tens, and hundreds, answer the purpose for young children much better than C X I, because they more readily suggest the amounts which they represent. The numbers may, therefore, be written thus:—

Th.

H T O H T O
1 2 3 , 4 5 6

The CXI. might be (if wanted) substituted afterwards.

† The author would here remark that he has frequently given himself a great deal of unnecessary trouble in trying to teach young children the notation of numbers which they cannot possibly realize. He would venture to advise that beginners should not be trusted with larger numbers than hundreds, until they well understand the principle of addition, and of carrying the tens. They will soon want the word "thousand" to express their tens of hundreds. With a little direction they will then almost in-

Exercise 8.—NUMERATION AND ADDITION.—(Continued.)

(a) Read the following numbers:—

M
CXI CXI
4 1 2, 3 4 6
1, 2 0 0
4 0, 1 0 6
3 1, 0 0 2
1 0 0, 0 0 4
1 0 2, 0 3 0

203,450—100,046—30,175—
1,204—88,888—990,999—3,003

(b) Write in figures the following amounts:—Three hundred and twelve thousand one hundred and eleven—eighty-six thousand and two—nine hundred and nine thousand and ninety nine—four hundred and forty thousand seven hundred and seventy.

(c) Add together the follow-

tively arrange these thousands in parcels of tens and hundreds, as they did before with the "ones." The *ball-frame* (now so well known), in which there are ten rows of tens; strokes or dots on a slate, as in the previous lessons; shells, pencils, or other *objects*, should be employed to make the processes palpable to the little ones.

It may be repeated, that to render arithmetic useful and interesting to children, it is most important that they should, from the beginning, feel the *reality* of the operations they perform, which they will not do if allowed to make calculations with numbers of which they cannot form a conception. The author has met with many children to whom, by constantly working beyond that point, arithmetic has become a mechanical, dry, dead thing, so that he has found it almost impossible to induce a *lively* interest in the modes of working; or the feeling that there is any real connection between the figures and "the reading" in the questions given.

ing numbers, and ask your teacher to set you more of the same kind, if necessary:—

M	M
CXI CXI	CXI CXI
173,201	26
47,630	260,000
100,000	26,000
47,829	260,260
560,444	99,888
73,073	889,998
186,186	747,747
777,777	800,182

(d) Answer the following questions, and more of the same kind, if necessary.

In a large island there lived thirty-four thousand and sixty-seven men; fifty-two thousand seven hundred and twenty-four women; and one hundred and seventeen thousand and eleven children. Besides these, the number of horses and asses was nine hundred and ninety-five thousand two hundred and twelve; and the number of sheep and oxen was seven hundred and seven thousand five hundred and forty. How many inhabitants and animals were there altogether?

Add together the following quantities of apples. Lot 1.—Forty thousand and forty. Lot 2.—One hundred and twenty thousand five hundred and seventy-five. Lot 3.—Three hundred thousand and six. Lot 4.—Twenty thousand and fifty-nine. Lot 5.—Five hundred and eight thousand five hundred and ten. Lot 6.—Nine hundred and seventy-two thousand seven hundred and seventy-five.

LOVE GOD WITH ALL YOUR SOUL AND STRENGTH.

MENDELSSOHN.

Love God with all your soul and strength, With all your heart and mind; And

Love God with all your soul and strength, With all your heart and mind; And

Fine.

love your neighbour as your-self; Be faith-ful, just, and kind. Deal

love your neighbour as your-self; Be faith-ful, just, and kind. Deal

with an - o - ther as you'd have An - o - ther deal with you; What

with an - o - ther as you'd have An - o - ther deal with you; What

Da Capo.

you're un-wil-ling to re-ceive, Be sure you nev-er do.

you're un-wil-ling to re-ceive, Be sure you nev-er do.

SEVENTH WEEK. MORAL LESSON.

MONDAY.

CHARITY.

"Rejoiceth in the truth."

ERNEST'S ENEMY. (Continued.)

P. Do you remember that "Young Jennings" was thrown into prison?

W. Yes; and that Ernest and his companions said they would go and visit him.

P. And they did so. It was Ernest's mother who gained admission into the prison for the boys. It was she who had taught Ernest charity. When he asked her, "What shall I say to young Jennings?" she asked if he really felt sorry for him.

"Yes, to be sure, I do," said Ernest. I should like to help him.

"Then tell him so," said his mother. "And tell him that he might always be happy if he would do right."

After Ernest and his companions had visited John Jennings, he was tried and sent to "the House of Correction" for two months. But soon after his return from prison it was found that he was an altered lad; his neighbours could not account for his change, and to the surprise of all of them he grew up a hard-working, sober man.

About twelve years after his

imprisonment another event happened in Jennings's life.

In the county of Surrey, near the banks of the river Thames, there stood John Jennings's cottage. It was the last cottage of an old-fashioned row; and, like all the others in the row, it had a very large garden. Indeed, the neighbourhood abounded in market-gardeners, and John Jennings himself was a market-gardener.

One Saturday evening you might have seen a pleasant sight in that cottage. Mrs. Jennings, for John really had a wife, had come home from market where she had been buying the dinner for the Sunday; and had put all the children to bed. John felt that he was, indeed, a man now, for he had three real children, and a horse and cart, and a dog, and two pigs, and some cocks and hens, and he had been thinking for some time of buying a cow. Only ten days ago he had said to his wife that, if they had a cow, they might have a board painted, with "NEW MILK" printed on it, and this might be hung outside the door. "You see,

Jane," he said to her, "we have a hard matter to make both ends meet; we might, perhaps, sell a good deal of milk here, and we should then sell a good many more new laid eggs, too."

Now, one thing that made John look happy on this evening was that he had just bought the cow; and his little children had been promised that they should see her on the morrow morning, before breakfast. Another cause for joy was the pleasant thoughts about these his children, to whom he had just said good-night. Lastly, another thing that pleased him was that he was talking over by-gone days to a friend whom he had not seen for many years.

"Ah, Michael," he said to his friend; "it was a great change that came over me when I left that prison! You were almost as bad as I was when we stole those eggs, but everybody blamed *me*. You see I had a bad character, and no one pitied me. Indeed, I had no hope of myself; I had been told so often that I was bad, that I could not believe anything else. I almost intended to be bad always."

"Then how was it that you changed so?"

"It was all owing to one kind word! A kind word came upon me just when I least expected it, and it shook me so that it seemed to turn me right round. It seemed to shake out of me all the old bad thoughts, and the old dead feeling of despair; and it turned my face another way. It turned my thoughts

towards good things; and, though I was in prison, it filled me with *hope*."

"I never heard of that before, friend," said the stranger. "I shouldn't have supposed that a kind expression would have done so much good. Do you remember who it was that was so kind to you?"

"Remember?" said Jennings in surprise. "Do you think I shall ever forget him? It was a boy named ERNEST RANDALL. I had treated him very badly, and was called his enemy. He had often been kind to me, but I was too hard-hearted to feel."

"The day after I was sent to prison, I was sitting in my cell, in great despair, when Ernest and four of his school-fellows entered. I shrunk into the corner of my room, ashamed, for I dare not look in *his* face! I saw by the smile of triumph on the face of one boy, and by the mocking manner of another, named Edmund, that they had come to laugh at me. Oh, how I trembled! Like a guilty coward, I had lost all courage; the thought of all Ernest's past kindness then rushed upon me; it seemed to strike me down, and to say, 'You deserve to be laughed at now;' I saw Ernest coming towards me, and thought he would give me a kick; I felt inclined to lie there, and be kicked, when he took me by the hand. 'Poor Jennings,' he said, 'why don't you do right?' He did not say any more; but stood over me in silence. The other boys were still, as if they did not like to speak; but all the time my conscience asked

me the question over and over again, 'Why don't you do right?'

"We scarcely spoke many words, for I was busy with the question which Ernest had put. It was almost the first time that I had thought about doing right, and, while I was still thinking, he bade me good-bye, saying, 'Oh! if you would only do right, *you might always be happy.*'"

"The thought which Ernest gave me in that prison remained with me. While still in prison, while I was brought up for trial, while I was in the house of correction, I would not listen to all that was said against me; I was filled with my new thought, '*You may always be happy.*'"

"And now you *are* always happy, I suppose," said the stranger.

"Nearly always," answered Jennings; "what with my wife and children, and business, and garden, and horse and cow, I have nearly everything that I want. I only wish that I could

see Mr. RANDALL, and thank him for what he has done to me."

"What is that noise?" said Mrs. Jennings, as she came from putting the children to bed.—"*Come in!*" and as she spoke the postman lifted the latch, and entered with a letter.

"I wish I could read writing," said Jennings, when he opened the letter. "Here is a printed bill, I can read this,—LOT 4. SEVEN SIX-ROOMED HOUSES. It looks like an auctioneer's bill."

"So it is," said the stranger; "and the letter says that you are to stick this bill outside your house, for all this row of cottages are to be sold."

I need not tell you whether Jennings and his wife were surprised at this letter. It made them very uneasy; for they thought to themselves, suppose the person who buys the land should pull our houses down!

"Then," said Jennings, "we might be almost ruined."

TO A FLY.

BUSY, curious, thirsty fly,
Drink with me, and drink as I;
Freely welcome to my cup,
Couldst thou sip, and sip it up.
Make the most of life you may,
Life is short, and wears away.
Both alike are mine and thine,
Hastening quick to their decline:
Thine's a summer, mine no more,
Though repeated to threescore;
Threescore summers, when they're gone,
Will appear as short as one.

OLDYS.

THE JUSSIEUAN SYSTEM

THALAMIFLORALS.

RECAPITULATION.

P. You have now heard of the principal Orders of the Thalamiflorals. I dare say you have noticed that these may be arranged in different divisions. For instance, some have numerous stamens—more than 20.

L. Yes. The *buttercups* have.

W. And so have the *poppies*, and the *water-lilies*.

Ion. But the *fumitories* have not; they have *six* stamens, and so have the *barberries*.

W. The *cruciform plants*, too, have six stamens, and the *violets* have five.

L. Then, again, the *cistus plants* have more than twenty, and the *mallows*, and the *lime trees*.

W. While the *chickweeds* and the *flax plants* have less than twenty.

P. You thus see that the various orders of Thalamiflorals may be arranged in two divisions: those with more, and those with less than 20 stamens.

Again; you may have noticed that not all the plants we have seen have *stipules* to their leaves. Amongst those with more than 20 stamens, the *poppies* have no stipules.

W. But the *mallows* have more than 20 stamens, and they have stipules.

P. And amongst those with less than 20 stamens are the *violets* and *geraniums*; they have stipules.

Ion. And then the *cruciform plants*, and the *flax plants*, have less than 20 stamens, and they have no stipules. So we may divide each division into subdivisions, I suppose.

P. Yes. The difference in the orders which we have been studying may be clearly seen in the following table which I have copied for you from Dr. Carpenter's work on Vegetable Physiology. Let us read it. (See the table on next page.)

Now, shall I tell you how to use this table?

W. Yes, papa, please.

P. This table is intended to help you, when you find any *British* plant, to tell which order in the natural system it belongs to.

For example. Suppose that you and I were walking through a lane, and were to pick a piece of the *common chickweed*. We should examine its leaves, and when we saw the net-work of veins, and its flowers arranged in *fives*, what should we say of it?

W. We should say that it is an *Exogen*, because you said that the parts of *Exogens* are arranged either in twos or in fives, while those of *Endogens* are arranged in threes.

P. That is right. There would be no doubt then of the *chickweed* being an *Exogen*.

We should next see which of the *sub-classes* it belonged to. If we pulled off the sepals and petals from one of the flowers,

CLASS EXOGENS.

Sub-class.—THALAMIFLORALS.

(Flowers with calyx and corolla, the latter composed of distinct petals. The stamens, as well as petals and carpels, grow from the disk, except when sometimes adhering to the sides of the ovary.)

1st Division.

WITH MORE THAN TWENTY STAMENS.

Sub-division 1.—Having leaves without stipules.

- a* Carpels distinct . . . RANUNCULACEÆ, Order 1.
b Carpels united . . . PAPAVERACEÆ, Order 4.

Sub-division 2.—Having leaves with stipules.

- a* Calyx imbricated . . . CISTACEÆ, Order 7.
b Calyx valvate.—

- Stamens monadelphous . . . MALVACEÆ, Order 12.
 Stamens distinct . . . TILIACEÆ, Order 14.

- With ovary partly inferior . . . NYMPHEACEÆ, Order 3.

2nd Division.

WITH LESS THAN TWENTY STAMENS.

Sub-division 1.—Having leaves without stipules.

- a* Carpels distinct; anthers with valves . . . BERBERIDEÆ, Order 2.
b Carpels consolidated.
 Placentæ parietal, *stamens* tetradynamous . . . CRUCIFERÆ, Order 6.
 Placentæ in axis, *stamens* not tetradynamous . . .
 { *Styles distinct*; capsule one-celled . . . CARYOPHYLLÆÆ, Order 10.
 { *Styles distinct*; capsule many-celled . . . LINACEÆ, Order 11.
 { *Styles united*; leaves dotted . . . RUTACEÆ, Order 20.

Sub-division 2.—Having leaves with stipules, and the carpels consolidated.

- a* *Placentæ* parietal.
 { Leaves unfolded from spiral coil . . . DROSERACEÆ, Order 3.
 { Leaves unfolded straight . . . VIOLACEÆ, Order 8.
b *Placentæ* in axis.
 { Fruit with beak . . . GERANIACEÆ, Order 18.
 { Fruit without beak . . .
 { Stamens monadelphous . . . OXALIDEÆ, Order 19.
 { Stamens opposite petals . . . AMPELIDEÆ, Order 17.

we should find that the stamens remained attached to the receptacle.

W. Then we should say that they are *hypogynous*, and that the flower is a "Thalamifloral."

P. We should next see which *division* of the Thalamiflorals it belongs to. We should find, perhaps, that it has ten stamens.

Ion. Then we should place it in the *second division*.

P. On looking at its leaves we should see at once that they have no stipules.

L. Then we should say that it belonged to the *sub-division* 1 in that division.

P. On examining the ovary we should see that the carpels are not separate, like those of a buttercup, but are consolidated. Then we should know that it belonged to one of the four orders with consolidated carpels.

We should next look *inside* the ovary to notice the placenta which the seeds are joined to.

W. How would you do that, papa?

P. I should cut it across. We should then see that the placenta is not parietal, but *central* (or *in axis*, as I have written in the table).

L. Then we should know that it belongs to one of the last three orders in that division. How would you tell which of the three it belongs to?

P. We should know that it is not one of the Rues, because there are no glandular dots in the leaves. It must, therefore,

belong either to the order *Linaceæ* or *Caryophyllææ*.

W. Then we should have to decide which of those orders it belongs to.

P. I will tell you how we could settle that question. If you remember our lesson on the latter order, you will remember that two of the five sepals are outside the others, and that it is therefore said to have an *imbricated* calyx. We should find on examining the flower of our chickweed that this is not the case—the five sepals are all arranged in one whorl. There is also a difference in the *ovaries* of these two plants, (for you may see by the table that the capsule of the *Caryophyllææ* is one-celled), but the difference in the calyx would be sufficient to decide the question.

Ion. Then even if we did not know the *name* of our piece of chickweed, we should say that it belonged to the Order *CARYOPHYLLÆÆ*.

P. Yes. And having found its proper order, we should find too that the account given of that order would apply not only to this plant but to many others.*

You may pursue a similar course with all the plants you may find, and thus, when you pick any Thalamiflorals, you may easily know which class they belong to.

* The substance of the above conversation and the table, are taken from "Vegetable Physiology and Systematic Botany," by Dr. Carpenter. Published by Orr and Co.

THE PROGRESS OF ENGLISH COMMERCE DURING
THE 17TH CENTURY.

P. LAST week I remarked that in the 17th century many new taxes were laid on articles of commerce.

L. You spoke of the tax laid on *coals* for building St. Paul's Cathedral.

P. Yes; and in James II.'s reign not only *coals*, but *sugar*, was taxed. New taxes were made on *tobacco*, *wine*, and *vinegar*. In the *beginning* of the 16th century, some of these articles were not so much used as they are now. Potatoes were considered a delicacy, and tea and sugar were still greater luxuries.

L. Then what did the people drink? Were they teetotalers?

P. I am sorry to say they were not. While tea, coffee, and sugar were so rare, they drank beer, wine, and spirits instead. Thus, in the year 1688 (the last year of James II.'s reign), the taxes on these drinks amounted to nearly one-third of the public revenue. This you will see in the following account:—

PUBLIC REVENUE, A.D. 1688.

Taxes on <i>beer</i> and <i>ale</i> . . .	£666,383
Wine licenses . . .	10,000
New duties on <i>wine</i> (and <i>vinegar</i>) . . .	172,901
Duties on French <i>linen</i> , <i>brandy</i> , <i>silk</i> , &c. . .	93,710
Duties on <i>sugar</i> and <i>tobacco</i> . . .	148,861
Post-office . . .	65,000

Hearth money . . .	245,000
Tonnage and poundage . . .	600,000

£2,001,855

W. At that time, then, nearly all the revenue was derived from *commerce*.

P. That is what I wished you to observe. The English had now become a great commercial nation. You may remember how the spirit of enterprise was awakened in the beginning of the 16th century, in the reign of Henry VII., by the discovery of America.

W. And you told us, too, how Henry VII. promoted commerce, and encouraged the people to build towns and ships. Don't you remember the *Great Harry*?

P. Yes. Henry's reign was a period of peace; he gave the death-blow to the old feudal system. But the spirit of enterprise grew more in the reign of Elizabeth. When the English defeated the Spanish armada, they became a great *naval power*, and began to rival the Dutch in commerce. New enterprises were begun, and colonies were founded by Sir Walter Raleigh and others.

You remember, too, the wars with the Dutch during the Commonwealth. These were, you know, continued in the reign of Charles II. The sturdy Admiral Blake not only rendered England the *first naval*

power in the world, but, by the long continuance of the war, the trade of Holland was much disturbed. What the Dutch lost, the English gained; and we read that, when Charles made peace with Holland, his subjects *enjoyed unmolested the trade of Europe*. From that time the commerce of England grew rapidly. It is said that "in the year 1688 there were more merchants on the Exchange worth £10,000 than there were forty years before worth £1,000.

But the *public revenue* showed more strongly how commerce had increased. I told you that in 1688, the last year of the Stuarts, it amounted to *two millions of pounds*; when the first Stuart began to reign, in 1603, it was £500,000.

L. So that it had increased fourfold in less than a century.

P. Yes; but the increase reminds me of another event in this remarkable 17th century. The quantity of the precious metals had increased wonderfully. More than forty years before the 17th century, the rich silver mines of Potosi were discovered.

W. Oh! I have heard about those mines. We learned in our school geography that one great mountain of Potosi has 5,000 openings into it, and that all the silver taken from this mountain, *on which duty has been paid*, is worth nearly £250,000,000.*

P. And, as the silver increased during the 17th cen-

tury, money became less valuable. If you had lived in the latter period of the reign of Charles I., in 1640, you would have been obliged to pay for goods three times as much silver as you would have paid forty years before. Instead of paying two ounces of silver for a quarter of corn, you would have paid six ounces.

L. Then the king, as well as every one else, would require more income than he had before.

P. Yes. Thus the great increase in the national revenue is partly accounted for. It has been said that the change in the value of money was a principal cause of the "pecuniary difficulties" of James I. and Charles I., and was thus one of the causes of the civil war. The Parliament did not allow these two kings much more revenue than their predecessors.

L. Which, of course, was not fair, because the same money would not buy so much.

Ion. I have been thinking, papa, about the increase of commerce, and now I can see why there was so much dispute about the question of tonnage and poundage. It amounted to more than a quarter of the whole revenue in James II.'s reign.

P. True; and you may remark that these taxes on articles of commerce are *indirect* taxes. This has since been a favourite mode of laying on taxes, as the people have only to buy their tea, sugar, &c., at a higher price, and they thus pay their taxes without feeling

* Cornwell's School Geography.

it. When this plan was adopted, the old method of raising "subsidies," which you have so often heard of, was given up. So also the old feudal exactions of wardship, marriage, and knights' service were abolished. No more loans or benefits were allowed.

L. What were those "subsidies," papa?

P. Subsidies were *direct* taxes. The parliament granted the king 4s. in the pound on lands, and 2s. 8d. in the pound on goods. You also hear of the king receiving so many subsidies, and a *tenth* or *fifteenth*. These terms meant a tenth or fifteenth part of the value of moveable goods.

W. Did the nation improve their *manufactures*, papa, as much as their commerce?

P. No; the manufacturing prosperity of this country began in the 18th century. The machines then invented were the foundation of our success in the great cotton, woollen, and linen manufactures. Still, in the 17th century, several new manufactures were established, such as those in iron, plate-glass, paper, silk, and hats. I told you how Brewer brought over the art of dyeing woollen cloth; that the linen manufactures of Ireland were *founded*, and that the first looms were brought into England.

SONG FOR FEBRUARY.

ACROSS the wold
The wind blows cold,
The traveller wraps his cloak around;
Far o'er the hill
It whistles shrill,
And dies away with a mournful sound,
But to rise again
With a shriller strain,
And a stress that makes him forward bend;
While heap on heap
The dead leaves sweep
Where'er the miry ways extend.

The early blooms,
That in their tombs
Have lain the dreary winter long,
And just peeped out
To look about,
Lured by the throstle's cheerful song,
Their forms downcast,
As the savage blast
Ruffles and tears their tender leaves;
And a sob and a sigh
There passeth by,
As of one that o'er oppression grieves.

A sweep! a whirl!
A sudden swirl!
Like a headlong torrent bursting forth;
Hail, rain, and sleet
Together meet,
In blinding clouds from the frozen north;
While each tall tree
Swings heavily
Its naked branches to and fro;
And of its crown
Sends fragments down,
Where bide the heaps of last year's snow

But now again
Across the plain
Black shadows, chased by sunbeams, fly
And 'twixt the crowds
Of hurrying clouds,
Are glimpses of the clear blue sky;
Yet still the wind
Is keen, unkind
To shivering birds that sit aloof,
Or huddled keep,
With mournful "cheep,"
Beneath the eaves of friendly roof.

On, traveller, on!
The storm anon
Will once more sweep across thy way,
And o'er thy head
The sky will spread
A gloomy pall of sombre grey;
Yet bravely thou
May'st lift thy brow,
Whatever perils thee beset,
Assured that He
Still looks on thee,
At whose behest those clouds are met.

On, traveller, on!
The goal is won
By those who struggle and who strive
And 'mid the strife
And storms of life
Still keep the lamp of faith alive:
We journey oft
With clouds aloft,
And miry ways beneath our feet,
But none the less
Should onward press,
In hopes our high reward to meet.

H. G. ADAMS.

THE ENGLISH TRAVELLER.

WORCESTERSHIRE.

"MY DEAR CHILDREN,—

"I left Warwickshire for Worcestershire, and the first town that attracted my attention was KIDDERMINSTER. This town is on the river *Stone*, and is well known on account of its carpets. Kidderminster carpets are used principally in bed-rooms; they are very different in their manufacture from Brussel's carpets, the most observable difference is that the carpet has a pattern on both sides. The town is a prosperous place, but it does not present any particulars worthy of special notice.

"BEWDLEY and BROMSGROVE are also important towns at the north of the county; but, without visiting these, I called at DROITWICH. This town has from time immemorial been noted for its salt springs, which are the chief source of its trade. About a century and a quarter ago (in 1725), the quantity of salt was much increased by sinking the pits to a greater depth. The brine was then found to be much saltier; and not less than 30,000 ton of salt is now made at Droitwich every year.

"You have now heard of four towns from which salt is procured — *Northwich*, *Nantwich*, and *Middlewich* in Cheshire, and *Droitwich* in Worcestershire.

"Leaving Droitwich, I went

onward to WORCESTER, the capital. This town is united with Droitwich by the Worcester and Birmingham canal. Worcester is famous for its porcelain works; in my account of Staffordshire you have heard something of the manufacture of earthenware; the same description would almost apply to the manufacture of porcelain, for the two processes are very much alike. Porcelain is frequently called *China*, because it was originally made in that country. For a long time all our porcelain was procured from there, but at length the English discovered that they possessed clays which would produce 'porcelain' almost as fine as that of China. Manufactories were therefore established; the principal are at the Staffordshire potteries, Derby, and Worcester. Of these three towns Worcester is the most famous, because of the perfection of its articles and their elegant patterns. '*The Royal Porcelain Works*' of Messrs. Chamberlain and Co. are perhaps the principal manufactory in this kingdom; they are so called because they were visited and inspected by King George III., and his wife, Queen Charlotte. Not only cups, saucers, &c. are made here, but beautiful ornaments, statuettes, and tessellated tiles. On the Continent, *Sevres*, near Paris, and *Dresden*, in Germany,

have the finest manufactures of porcelain.

"I might talk to you very much about the cathedral of Worcester, which is as ancient as any I had before seen. It is not only very large, but it contains the tomb of King John. You may remember that his body was taken to Worcester to be buried. But there may be mistakes even in history; and about half a century ago many suspicious folk thought to themselves, 'We don't believe that King John's remains are really underneath the vault, they may have been taken away.' The tomb was therefore opened in 1797, and all that possibly could be expected of the body was found; there was a little dust, and the remains of a dress. It is a wonder that anything should have remained after lying there for 600 years. The ancient tomb is in itself very interesting; the original inscription, JOHANNES REX ANGLIÆ may be traced; but it is, like the remains of the body, very nearly destroyed; on the tomb is the king's effigy, with the crown, sceptre, and sword.

"Worcester is also famous for the great battle which was fought here in behalf of Charles II. You heard in your English History how the Scots attempted to make that prince their king in the time of Cromwell. The active Cromwell, you may remember, met the Scots in their own country, and defeated

them; he then pursued Charles northward, but in doing so *he went beyond him*. Charles immediately turned southward to England, but was quickly overtaken by Cromwell at Worcester. Cromwell, you may also remember, came upon the Royalists so suddenly, that they had little chance in resistance. The battle of Worcester was one of the most severe in those times; the friends of Charles were signally defeated, thousands were slain, including many of the nobility, and Charles escaped with great difficulty. No doubt you have heard of his flight, of *Boscobel house* in Shropshire, of the two brothers named *Pendrell*, and of the oak in which the unfortunate prince hid himself; this happened in the year 1651.

"Worcester, then, may be remembered by its porcelain works; its cathedral, with the tomb of King John; and the famous battle of Worcester. There is little else to be said of it, except that its merchants were in former times very rich; and it is generally described as '*a rich, prosperous, and handsome old town*.' I cannot say that it is handsome, but it is rather '*picturesque*,' for the houses are nearly all built of red brick; the churches and cathedral are built with a soft reddish kind of sandstone.

"I am, dear Children,

"Your faithful friend,

"HENRY YOUNG."

ARITHMETIC.

COMPOUND ADDITION.

P. ADA; do you know how many pence make a shilling?

Ada. Yes; *twelve*. I have always remembered it in this way; *two sixpences* make a shilling. Once, when uncle and aunt gave me sixpence each, I changed the two sixpences for a bright new shilling which mamma had. And you know that sixpence means six pennies, so two sixpences are twelve pennies.

P. That is very true. But I do not think that you know how many shillings are wanted to make a pound.

Ada. I think I do. A pound is worth *twenty* shillings;

A shilling is worth *twelve* pence; and

A penny is worth four farthings.

P. Then you know sufficient to be able to add sums of money together. Here is your slate; now notice how I write four pounds, sixteen shillings, and two pence farthing.

£	s.	d.
4	16	2½

Ada. I notice, papa that for pounds you write £ over the figures; for shillings s, and for pence d. Are these letters the initials of *Latin* words, again?

P. Partly; but I want you to notice the *farthing*.

Ada. Yes; why is it written in this curious manner? You make two little figures, and draw a stroke between them.

P. I will tell you. There are four farthings in a penny; so that each farthing is called a *fourth*. If a penny contained five farthings, each would be called a *fifth*; and if it contained six farthings, each would be called a *sixth*.

Now, as a farthing is a fourth, when we wish to write it, we put down ¼th. The number which tells you how many, is placed above the line; and the farthing is placed below the line. Let me see you write two farthings.

Ada. Here they are, ½ths.

P. Right; now *three* farthings.

Ada. Here they are, ¾ths.

P. Now four farthings.

Ada. Here they are, 1ths. Shall I write five farthings, and six?

P. It is not necessary, as so large a number of farthings as four is seldom written. When you have four farthings you should change them into a penny; then you can easily write them on the slate with one stroke of your pen, so. 1d.

Ada. Of course, if you get four farthings, or more than four farthings, it is much more comfortable to change them into pence; just as you change ones into tens.

P. True; and when you add up sums of money, if you have more than twelve pence, you may change them into shillings.

Ada. Just as I changed tens into hundreds.

P. Yes; and if you have more than twenty shillings, you may change them into pounds.

Ada. Just as we changed ten hundreds into thousands. I think I could do that if you were to give me some money to add up.

P. Very well, *Ada*; first write on your slate £ s. d., so that you may have a place for each kind of money.

Ada. I have done that, papa.

P. Then here is, first, a bag containing seven pounds, eight shillings, and four pence farthing.

Ada. I have written that, papa.

P. Here is a box containing three pounds, seven shillings, and seven pence halfpenny.

Ada. A halfpenny is two farthings; I have written that, papa.

P. Here is a drawer containing five pounds, twelve shillings, and three pence three farthings; and here also is another bag, I think that you will find inside it thirty pounds, eighteen shillings, and four pence three farthings. When you have written the two latter amounts underneath the former ones, will you let me see your slate?

Ada. Here it is:

£	s.	d.
7	8	$4\frac{1}{4}$
3	7	$7\frac{3}{4}$
5	12	$3\frac{3}{4}$
30	18	$4\frac{3}{4}$

P. You have written it all properly, with the exception of the halfpenny. As there are two halfpence in a penny, a halfpenny is written thus, $\frac{1}{2}$. I will add up this sum for you. I find that the four amounts of money, when added together, make £47 6s $8\frac{1}{4}$ d.

Now, will you add them together yourself, and see if, with my guidance, you produce the same result. Count up the farthings first.

Ada. There are 9 farthings altogether. Must I change them into pence?

P. Yes.

Ada. Then I will see how many fours there are.

1111 1111 1

See, papa, there are two fours, and 1 farthing over—2½d.

P. Then you write the farthing underneath the farthings, as I have done; and add the 2 pence to the others. Begin, 2 and 4 are 6.

Ada. There are twenty pennies altogether. I will make a stroke for each penny, and see how many *twelves* I can get out of twenty.

1111111111 11111111

There is 1 twelve with 8 pennies over, which makes 1 shilling and 8d.

P. Then you will, of course, put the 8d. under the pence, and add the 1s. to the other shillings in the next line.

Ada. I have done that, papa; there are 46 shillings. I will count out the *twenties*, and will change them into pounds. One twenty is 20; two twenties are 40; three twenties are 60—No!

FRIDAY.

PLEASANT PAGES.

ARITHMETIC.

I can only make two twenties, and there are 6s. over. I have put the 6s. under the shillings, and have added the two pounds to the others; is that right?

P. Yes; and by adding the pounds together, you will see there are 47.

Ada. I have done that; so that the answer to my sum is like yours.—

£47 6 8½

This sum is not much harder than those in simple addition, except that you have to count up fours, and twelves, and twenties, to change into pence, and shillings, and pounds, instead of always counting up tens.

P. You may now try and add together some more sums of money.

Exercise 9. COMPOUND
ADDITION.*

(a) Add together the following amounts:—

£ s. d.	£. s. d.
43 16 7½	65 12 4
65 13 4	72 17 6½
84 12 2½	13 8 7½
92 11 3	16 14 8½
41 16 6½	72 12 4½

£ s. d.	£ s. d.
36 13 4½	462 16 2
12 8 6½	785 17 6½
11 19 10½	696 18 8½
17 14 8½	846 14 7½
28 12 6½	765 12 4
	346 7 9½

£ s. d.	£ s. d.
684 14 0½	732 12 7½
273 0 4	416 17 2
856 12 6½	178 0 4½
276 13 7½	423 4 0½
842 15 4½	146 16 10½
687 17 7½	876 19 6½

£ s. d.	£ s. d.
568 17 6½	726 16 4½
786 14 4	894 17 6½
249 16 1	107 14 5½
304 13 6½	645 12 10½
160 14 2½	346 16 7
746 0 3½	568 7 1½
876 7 1	725 16 0½
416 19 10½	268 10 6½

* The Author would call the attention of teachers to the following reasons for proceeding at once from Simple to Compound Addition, instead of following the usual course of Arithmetic.

In the first place, the transition from the changes of ones into tens, &c., to those of farthings into pence, and pence into shillings, is not only easy, but the one form serves to illustrate the other.

Secondly—the pupil learns the practice of the rules which follow “Addition” before he becomes acquainted with the *forms*. Thus, sup-

pose that he has added together a column of 14 farthings; by counting up the fours he sees that three fours make twelve, without having learned the formula of the multiplication table—3 times 4 are 12. The advantage of this will be, that when it becomes necessary for him to learn that “troublesome” table, he will commit to memory the results of his own experience, and it will be “troublesome” no longer. A boy who has seen three fours become twelve, or has counted up six twelves into seventy-two (either with strokes on his slate,

			s.	d.
A pair of gloves ...	...	2	6	
— stockings ...	...	3	4	
— shoes ...	...	9	6	

			s.	d.
A coat ...	...	14	0	
Waistcoat ...	...	5	4½	
Hat ...	...	10	0	

(b) *Correct the errors made in writing the following sums:—*

£	s.	d.	£	s.	d.
2	20	12½	46	19	17½
1	21	13½	28	28	28¾
0	54	26½	3	30	30½
0	7	3½	71	17	48
14	24	0½	6	18	25½
15	7	0½	148	29	22½

(c) A draper received in his shop, on Monday, £4 25s. 18d.; on Tuesday, he received 8 sovereigns, fifty shillings, and twenty-three pence; on Wednesday, fifty-two pounds, forty-

or mentally, will be certain to feel and remember better than he who has not done so, that 3 times 4 are 12, and 6 times 12 are 72. The pupil, by this necessity for adding together similar numbers (which arises from his not having learned the multiplication table), will also perceive the nature of multiplication. When he sees that "12 x 5" means five twelves, he will understand that multiplication is only a short form of addition.

Thirdly—the same column of 14 farthings will teach him not only multiplication, but *subtraction*. By having counted the 12 farthings, he finds that he has to count *two* more to make 14. Thus, without knowing anything of the rule, he will intuitively

two shillings, nineteen pence, and nine farthings; on Thursday, he received eleven pounds, thirty-fourshillings, and thirteen pence halfpenny; he did not open his shop on Friday, but on Saturday he received as much money as he had received during the first four days of the week. How much did he receive during the whole week?

17. A merchant, the first year he was in business, sold goods to the amount of £476 18s. 7d.; the second year, £678 14s. 6½d.; the third year, £878 7s. 0½d.; the fourth year, £917 18s. 7d.; the fifth year, £1312 19s. 8½d.; what was the amount of goods sold during the five years?

18. Bought a quantity of goods, for which I paid £496 16s. 6d.; besides this, I paid for packing, 6s. 8d.; for case, 16s. 6d.; for cord, 1s. 6d.; for portorage, 4s.; for freight, £4 11s. 6d.; carriage by waggon, 13s.; for booking, 9d.; how much did I pay altogether?

(Exercise 9 continued on page 125.)

learn subtraction by counting on *onwards* from the smaller number to the greater, instead of counting backward from the larger number to the smaller one. And this is the more natural way; it is much easier for the child to understand that 14 and 2 are 16, than that 14 from 16 are 2.

Lastly—by this plan of proceeding at once from Simple to Compound Addition, the pupil necessarily gains much practice in *mental arithmetic*; and having, as was said at first, "learned the practice of the rules which follow Addition without an acquaintance with their forms;" he will soon feel the want of such forms, and will more readily understand them.

EIGHTH WEEK. MORAL LESSON.

MONDAY.

CHARITY.

"Rejoiceth in the truth."

THE thought that his house was to be sold, and might be pulled down, continued to trouble Jennings. He remembered that only two or three years before some market-gardens had been destroyed to make the park for a neighbouring country seat.

His fears were not lessened by the visits of strangers, who intended to become purchasers. He was often asked whether the place was healthy, and he was constrained to reply that it was. One person seemed much inclined to buy all the cottages. Jennings ventured to hope that, if he did, he would allow the present tenants to remain; and the gentleman said that he wished to do so. There was, however, another man, who styled himself an agent. He called several times, and seemed very determined to purchase. Jennings learned from others that this man was commissioned to buy *all* the land that was to be sold, and that he had bought the land which had before been wanted to make the neighbouring squire's estate. He therefore summoned up courage to ques-

tion the agent the next time he saw him.

"Shall you be at the sale to-morrow, sir?" said Jennings.

"Yes, I should think so," said the agent. "What do you suppose I have had all the land measured for, and the cost of drainage calculated?"

"And, if it's a fair question, sir, shall you let our row of cottages stand?"

"I should say there is no chance of such a thing," said the agent. "Why, they would just cut off the corner of the park which we shall plant. Haven't you heard that we are going to build a country-house here?"

Jennings had not heard this for a certainty, and he did not want to hear any more. The sale of the land was to take place on the next day, and while he waited with others in the sale-room he could not help hearing more of this agent from the talk of two strangers who sat near him.

"I believe," said one stranger to the other, "that Mr. —, the agent in the corner, is sure to buy. He is acting for a rich

merchant, who has lately come home from India."

"Indeed!" said the other, turning round; "I thought that that matter was a secret."

As this gentleman turned round, Jennings was startled, and delighted to find that it was no other than his old enemy, Mr. Ernest Randall. In his strong delight, he could hardly restrain himself from getting over the seat on which he sat, to greet him. But there was no time for doing so. The sale began: it was carried on quickly, and it ended as had been expected—the agent, who seemed richer than any of the other bidders, had purchased the entire property.

Jennings's heart sank within him at the prospect before him; but he hastened to make himself known to Mr. Randall. When he turned round, however, he found that he was gone!

Jennings waited outside the sale-room, in the hope of seeing his old acquaintance, but in vain. He therefore returned home gloomily; and, on entering his own door, he found, to his joy, that Mr. Randall was there, and was playing with the children.

"Ah, Jennings! my worthy friend," he cried, coming forward. "I suppose you did not expect to see me!"

"Indeed I did not," said Jennings, with the tears in his eyes. "Oh! let me tell you, sir, for how many weeks and years I have longed to see your face again."

"I am glad to hear that,"

said Mr. Randall. "Then I suppose you have left off being my enemy?"

"Oh, sir, do not talk so!" said Jennings. "Will you stay, if only for a quarter of an hour, and let me tell you *when* I ceased to be your enemy?"

Jennings then told Mr. Randall the history of the change which had taken place within him, just as he had told it to the stranger, but with a great deal more force. "And now, sir," he said, when he had concluded, "I am proud to show myself to you. When you think of what I might have been, and see my comfortable home, you may know what your kind words of charity have done. May God grant that you may always feel such charity, sir, to all other people!"

"It is only God," said Mr. Randall, "who can help you or me to have charity. God gave me a good mother, who taught me. It was when you saw that *I could not rejoice in your iniquity* that you took a better course; and, now that I see you to be a truthful, honest man, I will rejoice in you with my whole heart, for *CHARITY rejoices in the truth.*"

But there was more pleasure still in store for Jennings. He told his benefactor that he had seen him at the sale-room; and told him of the ruin which would, perhaps, come upon him and others in the row of cottages, because it was to be removed.

"We know, sir, that there is no hope for us," he said, "for the land has been bought oy

an agent for a rich merchant."

"So I heard in the sale-room, for I was there myself," said Mr. Randall; "but you need not fear. I am so glad to see you truthful and honest, that I could not bear to see your prosperity hindered."

"But how can you prevent our misfortune, sir?" said Jennings.

"Very easily," was the reply, with a smile, "for *I* am the rich merchant for whom the agent bought this property. I

have lately returned from India. Now that you have left off being my enemy, I want to have the pleasure of keeping you as my friend, and of seeing you and your children go in the right path all the rest of your life."

I need hardly tell you any more. A fine estate was made for Mr. Randall, extending down to the very edge of the Thames; but the old row of cottages was allowed to stand, and John Jennings is now not "Ernest's enemy," but Ernest Randall's *gardener*.

THE SCARLET POPPIES.

"We little Redcaps are among the corn,
Merrily dancing at early morn;
We know that the farmer hates to see
Our saucy red faces; but here are we!

"We pay no price for our summer coats,
Like those slavish creatures, Barley and Oats;
We don't choose to be ground and eat,
Like our heavy-headed neighbour, Gaffer Wheat.

"Who dare thresh *us*, we should like to know!
Grind *us*, and bag *us*, and use *us* so!
Let meaner and shabbier things than we
So stupidly bend to utility!"

So said little Redcap, and all the rout
Of the Poppy clan set up a mighty shout;
Mighty for them; but, if you had heard,
You had thought it the cry of a tiny bird.

So the Poppy-folk flaunted it over the field,
In pride of grandeur they nodded and reeled,
And shook out their jackets till naught was seen
But a wide, wide shimmer of scarlet and green.

They swelled and bustled with such an air,
The corn-fields quite in commotion were;
And the farmer cried, glancing over the grain,
"How the rascally weeds have come up again;"

"Ha! ha!" laughed the Redcaps; "ha! ha! what a fuss
Must the poor *Weeds* be in! how they're envying *us*!"
But their mirth was cut short by the sturdy strokes
They speedily met from the harvest-folks.

L. A. TWAMLEY.

THE JUSSIEUAN SYSTEM.

RECAPITULATION.

Ion. Good morning, papa. I want to ask you if you will make some questions for recapitulation on the sub-class THALAMIFLOREALS.

P. Yes, I was going to do so.

W. We have been doing something for ourselves. When you had finished your account

of the Linnæan system, we made a list of the examples of each class; so we thought that we would make a list of examples in each order of the Thalamiflorals. Shall I read it to you?

P. Yes. It will serve as one means of recapitulation.

THE SYSTEM OF JUSSIEU.

SUB-CLASS I.—THALAMIFLOREÆ.

Examples of each Order.

Order 1. *Ranunculaceæ*.—The meadow crowfoot, creeping crowfoot, pilewort, celery-leaved crowfoot, water-crowfoot, and garden ranunculus. The green heliobore, stinking hellebore, trollius, marsh marigold, columbine, larkspur, monkshood, the peonies, anemones, hepaticas, and the clematis.

Order 2. *Berberidaceæ*.—The Siberian, Canadian, Hawthorn, Iberian, Chinese, and Common Barberry.

Order 3. *Nymphæaceæ*.—The lotus, the white and yellow water-lily, and the Victoria Regia.

Order 4. *Papaveraceæ*.—The common red poppy, black, white, oriental, Marseilles, and horned poppy, major celandine, eschscholtzia.

Order 5. *Fumitoriaceæ*.—Various kinds of Fumitories.

Order 6. *Crucifera*.—Cabbage, mustard, turnip, stock, wallflower, &c., which form the first division. Candytuft, shepherd's purse, &c., which form the second division. Radish, &c., which form the third division.

Order 7. *Cistaceæ*.—The cistus, helianthemum, &c.

Order 8. *Violaceæ*.—Dog violet, sweet violet, heartsease, &c.

Order 9. *Droseraceæ*.—The sundews, Venus's fly-trap, &c.

Order 10. *Caryophyllaceæ*.—Pink, Sweet William, and Ragged Robin, which form the first division. Chickweed, sandwort, spurrey, &c., form the second division.

Order 11. *Linaceæ*.—Different kinds of flax.

Order 12. *Malvaceæ*.—Mallow, lavatera, hollyhock, hibiscus, cotton plant, bombax, and others.

Order 13. *Bromaceæ*.—Theobroma cacao, and the Guazuma.

Order 14. *Tiliaceæ*.—Different kinds of lime trees.

Order 15. *Camelliaceæ*.—Different camellias, pæony, tea-tree.

Order 16. *Aurantiaceæ*.—The orange, lemon, shaddock, &c.

Order 17. *Ampelidæ*.—Different grape-vines, Virginian creeper, &c.

Order 18. *Geraniaceæ*.—The wood-geranium, round-leaved geranium, herb Robert, &c.

Order 19. *Balsaminæ* and *Oxalidæ*.—Various balsams, "Touch-me-not" (*noli-me-tangere*), the wood sorrel.

Order 20. *Rutaceæ*.—The garden rue, fraxinella, &c.

P. Very good, Willie. You will find that account useful to refer to sometimes when your memory may fail you. Now answer a few questions.

QUESTIONS FOR RE-CAPITULATION.

1. I know of a plant which requires much moisture. It was formerly grown principally in *Columbia*; now it is cultivated by the English in the Isle of *Trinidad*. What is its name?

2. There is another plant which grows in marshy places. Its leaves are "orbicular" and "depressed," being covered with long red hairs, which have at the end little glands, containing a sticky fluid. These plants do not grow well if transplanted. What are they called?

3. Tell me which order of plants have a gum with tonic properties?

4. Which order is noted for the narcotic properties of its plants?

5. Which order supplies seeds that furnish a refreshing drink?

6. Which order of plants contain in their stalks and other parts much mucilage, useful for the cure of coughs, &c.?

7. Which order contains plants with highly poisonous juices, and others with very acid juice?

8. In one order the seeds contain *albumen*, and are therefore used as articles of food; what is the name of that order?

9. In another order the seeds are hot and pungent, and contain oil: they are also antiscorbutic, but they do not contain albumen. They are quite

harmless, but when mixed with water, may be used as an emetic. What seeds am I speaking of?

10. In another order, already mentioned, the seeds were once used as money. What is the name of this order?

11. In which order is the root sometimes used as an emetic instead of *ipecacuanha*?

12. I know an order of plants in which the root is used as a yellow dye for leather, while the acid berries are used as preserves. Do you remember that order?

13. Tell me the name of some plants from which we procure salad for dinner; and the division of the order to which the plants belong.

14. The leaves of another order supply a refreshing, stimulating, and almost *universal* drink. What is the name of that order?

15. From which order do we procure oxalic acid, and the "salt of lemons," which is used to remove silk-stains?

16. There is an order which was once much used in medicine. It was thought to prevent contagion, and was called "the herb-of-grace." What is it called now?

17. There is a plant which has a name that might lead us to place it in the same order as the garden-*cress*. Its seeds are picked when green, and are made to answer the purpose of French capers. What is the name of this plant?

18. What plants have an unpleasant smell that gives rise to the name of the order?

GEORGE I.

QUEEN ANNE at her death left no children to succeed her. The question then was, "Who is to be the king?"

This question had already been settled. The interests of the Protestant religion were now most jealously guarded. In the reign of William III., when it was seen that the House of Stuart would regain the crown if they could, an act was passed, called the *Act of Settlement*.

Let us understand this Act of Settlement. Do you remember the unfortunate Frederick, the Elector Palatine, who married Elizabeth, the daughter of James I.? I dare say you remember how the English helped him because he was a Protestant, fighting with the Catholic powers of Europe. This Elector Palatine had several children; you heard how one of his sons, Prince Rupert, fought for his uncle, Charles I. in the civil war. The fifth and youngest daughter of the Elector Palatine, named SOPHIA, married Ernest Augustus, the Duke of Hanover, and Elector of Brunswick. Their eldest son was named George. He was born in 1660, the year in which Charles II. began to reign. When his father died he succeeded to his titles, and reigned as ELECTOR OF HANOVER AND BRUNSWICK. The *Act of Settlement* of William III.'s reign provided, that if William and Mary died without children,

the Princess ANNE, the daughter of James II., should be Queen, because she was a Protestant; and that if Queen Anne should die without children, then Prince George, who, you perceive, was the *great-grandson* of James I., should be king, because he was a Protestant.

At Anne's death, therefore, GEORGE, THE ELECTOR OF HANOVER, was invited over from Hanover to be King of England, according to the Act of Settlement. He came, and reigned as King GEORGE I. The king was born in 1660, the year in which Charles II. began to reign; so that when he came to England in 1714 he was fifty-four years old.

W. Then I suppose he was a very "steady" king?

P. He had certainly reached a sedate age. He had been Elector of Hanover fourteen years, and was known as being "just and circumspect." But when he came to England he did not like the change. His home was Hanover, and he felt himself a stranger here; he was therefore very shy and reserved in public. He was German in all his habits and in his language, for he could not speak English. His Prime Minister, Sir Robert Walpole, could not speak French or German; they used, therefore, to converse together in Latin. It is said that "he looked upon his acceptance of the English crown

as an act of usurpation," and always felt uneasy on the subject. He had no taste for literature or the arts, but was fond of punch, and was parsimonious. Indeed, he was more than parsimonious,—he was avaricious. I must not omit to say that he came over without his wife. He had married the Princess Sophia of Zell (in Germany), and being displeased with her, he had shut her up in a castle near Hanover, where she was kept prisoner to the end of her life,—a period of forty years.

Upon his coming to the throne, the king bestowed all his favour on the Whig party. The Duke of Marlborough, and others, who had been disgraced in Anne's reign, were recalled. Harley and St. John, who you may remember became Earl of Oxford, and Lord Bolingbroke, were now disgraced in their turns. Lord Oxford was sent to the Tower, where he was kept for two years; he was then set at liberty. Lord Bolingbroke and the Duke of Ormond were impeached, but they fled the kingdom, and escaped to France. Their names were then erased from the peerage, and their estates were forfeited to the crown.

The people did not like these violent proceedings. The nobles and gentry of the Tory party were much excited. Both English and Scots began to think, "We had better be governed by a Stuart king than be subject to such severities." Those who wished for the return of the king were called "Jacobites."

They were a very numerous party in Scotland; and it was resolved to raise an insurrection on behalf of Prince James, the son of James II.

Ion. I should think that they would be afraid to do so. They would remember how those who had tried to make Monmouth king, instead of James II., had failed.

L. But they might remember how William III. had succeeded when he was proclaimed king.

P. Yes. But William was a Protestant, and was changed for a Catholic king. To put the Catholic James on the throne of the Protestant George was a much more difficult matter.

W. Did the Jacobites try?

P. Yes; but the enterprise was a very rash one. The Earl of Mar proclaimed Prince James King of Scotland. He was assisted by troops from France, for you remember that the French kings were related to the Stuarts. Finding himself at the head of 10,000 men, he met the Duke of Argyle, the commander of the king's forces, at Dumblane. Argyle had only 3,500 men.

The battle of Dumblane was a singular one. The rebels defeated the left wing of the Royal army, and drove them off the field. The Duke of Argyle defeated the opposite wing of the rebel army, and also pursued them from the field. The rebels returned from pursuing the Royalists, rejoicing that they had won the victory. When, however, they reached the battle-field, they found the victorious Royalists

returning from the pursuit of their opposite wing, and declaring that *they* had won the victory. The two victorious halves therefore met, but they did not begin a new battle; both parties retired from the field, and both were able to say that they had conquered.

W. So that a great many men had been killed on both sides without any advantage to either.

P. Which is the case with many fights. The Duke of Argyle found, however, that the rebels had been checked by this battle, for most of the Highlanders who had joined the Earl of Mar returned home.

The English Jacobites also rebelled in favour of Prince James. But on the same day that the Earl of Mar was defeated, the English insurrection was quelled. The rebels were headed by the Earl of Derwentwater, Lords Kenmuir, Nithsdale, and others. They tried to get possession of Newcastle, but failed. They then marched through Cumberland and Lancashire as far as Preston. Here they were met by so large a body of the royal forces, that their courage failed them, and they surrendered. The leaders were pinioned like common felons; were sent to London; and were thus conveyed, through the streets, to prison.

Lords Derwentwater and Kenmuir were beheaded, but Nithsdale, by the help of his wife, contrived to escape in woman's clothes. Some of the common men were hanged at

Tyburn; twenty-two were executed in Lancashire; and about a thousand were sent to the North American colonies.

These events happened before Prince James arrived in Scotland. He at length came, attended by only six gentlemen. Being joined by the half-defeated Earl of Mar, he was proclaimed King in the expectation that all Scotland would rise in his favour. But he was disappointed; although the day for his coronation was fixed, before that day came he was so closely pursued by the Duke of Argyle, that he was glad to get back again to France.

Prince James was called by the Royalists "The Pretender," and in history he is generally spoken of by this name. Soon after his defeat, another attempt was made in his favour by the Duke of Ormond, who set sail from Spain, but his fleet was driven back by a violent storm.

One of the Acts of Parliament, called the SEPTENNIAL ACT, was passed after the attempt of the Pretender, and is in force now. The members of Parliament had hitherto been elected for three years, but it was now proposed that the Parliament should last for seven years. The *Whigs* proposed this, on the ground that the tumults which happened at the elections would not be so frequent. The real reason was that they were then very unpopular, and were afraid to trust to another election. The people were so excited against the king for his severities

against the rebels, that they would perhaps have elected *Tory* members of Parliament, who were the friends of the Pretender. The bill was not carried without violent opposition; and although there are no Jacobites or Pretenders to endanger the Protestant government now, members of Parliament are still elected for seven years.

W. But I have heard, papa, that the Chartists, and others, want to return to the old plan

again. They say, "Let us have *Triennial Parliaments*, so that if the members we elect do not behave well, we can after three years, choose new ones."

P. That is quite true.

W. And I think that it would be quite fair. If any one should ask me the origin of septennial parliaments, I shall say, "Because when the Pretender was defeated, the Whigs were afraid that they should not be re-elected."

MARY'S LAMB.

MARY had a little lamb,
Its fleece was white as snow,
And every where that Mary went,
The lamb was sure to go.
He followed her to school one day,—
That was against the rule:
It made the children laugh and play
To see a lamb at school.

So then the teacher turned him out,
But still he lingered near,
And waited patiently about,
Till Mary did appear.
And then he ran to her and laid
His head upon her arm,
As if he said,—"I'm not afraid—
You'll keep me from all harm."

"What makes the lamb love Mary so?"
The eager children cry:
"Oh, Mary loves the lamb, you know,"
The teacher did reply;—
And you, each gentle animal
In confidence may bind,
And make them follow at your call,
If you are always kind.

Infant School Magazine.

THE ENGLISH TRAVELLER.

WORCESTERSHIRE.

"MY DEAR CHILDREN,—

"I do not think that there is much more to be said about Worcestershire. Besides the towns Kidderminster, Bewdley, Bromsgrove, Droitwich, and Worcester, there are two others in very different parts of the county, namely, Dudley and Evesham.

"DUDLEY is, as you know, the great nail-making town; it is situated in an isolated part of Worcester, which is in Staffordshire. You may remember that, being the centre of the nail-making district, I thought it better to describe it to you with the Staffordshire towns.

"EVESHAM is situated on the river Avon. The valley of the Avon is just at this part a very pleasant place. The town is very ancient, and it arose from the following circumstance:—A Saxon named *Eoves*, who was a swineherd of one of the Saxon bishops, gave out that he had had an interview here with the Virgin Mary. The superstitious Saxons believed him, and built an abbey on the spot, which they of course dedicated to the Virgin. A town was soon formed round the abbey, and it was called '*Eoves-holme*,' after the wonderful Mr. Eoves.

"The remains of this abbey are, perhaps, one of the most remarkable features of Evesham. The last abbot but one,

whose name was Clement Lichfield, built a tower 110 feet high, which is a most beautiful specimen of the pointed architecture of the period just before the Reformation. If I were to describe to you its panelled buttresses, its windows with rich 'ogee' mouldings, its embattled parapets, and its light pinnacles, you would, I fear, only get half an idea of its beauty; the tower is all that is left of this once celebrated abbey.

"But I had almost forgotten something else, which renders Evesham remarkable. In the part of the valley of the Avon which is called the *Vale of Evesham*, was fought the last of the great 'barons' wars,' in the reign of Henry III. Now that you have learned English history, you of course know how that ambitious character, SIMON DE MONTFORT, Earl of Leicester, put HENRY III., and his son, PRINCE EDWARD, in prison. We must not, however, speak ill of De Montfort, for it was he who laid the foundation of the House of Commons. You may, remember, too, how the young Prince Edward (who afterwards became the famous Edward I.) escaped from prison, assembled an army, and gave battle to the Earl of Leicester and the barons. It was in the Vale of Evesham that the two parties met; here Simon de Montfort and his son were both killed, and here the

weak old Henry III. was placed in front of the battle, and was only saved by crying aloud, 'I am HENRY OF WINCHESTER, your king!'

"But, be thankful! the vale of Evesham is a quiet place now; we live in better times, and we may hope that no more battles will be fought there.

"The fertile soil of Worcestershire is worthy of notice; the SEVERN, you may perceive, flows through the centre of the county, from north to south; its valley contains some extremely rich pastures. The Severn contains much salmon. In ancient times this fish was very abundant; it was often part of the agreement made by apprentices and servants that they should not be compelled to dine on salmon more than twice a week. Lampreys, a kind of eel, are also very plentiful.

"The SROUR, the TEME, and the AVON, also flow through this county; if you remember that there is also the Worcester and Staffordshire Canal, you will see that the county is particularly well watered. On the banks of these rivers are many hop-gardens and orchards, which, it is said, are a sure proof of a good deep soil. In the orchards are many apple trees, and more pear trees. Just as the neighbouring county, Herefordshire, is famous for cider, the juice of the apple, so is Worcestershire the chief county for perry, a drink made from the juice of the pear. You may, therefore, easily remember that perry, hops, and the salt from Droit-

wich, are three of the peculiar products of this county.

"I might go on to show you how healthy Worcestershire is, from its diversified surface of hill and dale; and I cannot help telling you that the southwestern corner is part of the range called the *Malvern Hills*. These hills are celebrated for their mineral waters and bracing air; they are, therefore, often visited by persons in ill-health. Here also is the celebrated *Hydropathic establishment*, in which many weak, sickly persons have received the benefit of what is called 'the cold-water cure.'

"But of WORCESTERSHIRE we have had enough. You may, therefore, learn the following short memory lesson, and next week we will talk about another county.

"I am, dear children,

"Your faithful friend,

"HENRY YOUNG."

WORCESTERSHIRE.

(Shape and Boundaries.)—WORCESTERSHIRE is of an irregular shape, with detached portions sprinkled about in the neighbouring counties. It is bounded on the north by STAFFORDSHIRE and SHROPSHIRE; on the south by GLOUCESTERSHIRE; on the east by WARWICKSHIRE; and on the west by HEREFORDSHIRE.

(Soil and Rivers.)—The soil is well watered with noble rivers; it is, therefore, much diversified with hill and dale. In the southwest are the *Malvern Hills*, noted for their bracing air and mineral springs. At Droitwich are famous salt springs, and the

whole county is celebrated for its hops and perry.

The principal rivers are the SEVERN (which once abounded with salmon), the STOUR, the TEME, and the AVON.

(Surface.)—The battles of Evesham and Worcester, fought in this county, give it an historical interest.

(Towns.)—The most remarkable towns are WORCESTER, the capital, an ancient and prosper-

ous city. It has a cathedral containing the tomb of King John, and very celebrated porcelain manufactures; DUDLEY, situated in one of the detached portions, is famous for its nails; KIDDERMINSTER for its carpets; STOURBRIDGE for its glass and iron works; and EVESHAM for the ruins of its ancient abbey. BROMSGROVE, BEWDLEY, and DROITWICH, are also places of note.

THE ANT AND THE GLOW-WORM.

WHEN night had spread its darkest shade,
And e'en the stars no light conveyed,
A little Ant, of humble gait,
Was pacing homewards somewhat late.

Rejoiced was she to keep in sight
A splendid Glow-worm's useful light,
Which, like a lantern, clear, bestowed
Its service o'er her dangerous road

Passing along, with footstep firm,
She thus addressed the glittering worm:—
“A blessing, neighbour, on your light!
I kindly thank you for't. Good night!”

“What!” said the vain, though gifted thing,
“Do *you* employ the light I bring?
If so, I'll keep it out of view;
I do not shine for such as you.”
It proudly then its light withdrew.

Just then a traveller passing by,
Who had beheld with curious eye
The beauteous lustre, now put out,
Left all in darkness and in doubt,
Unconscious, stepped his foot aside,
And crushed the Glow-worm in its pride.

ARITHMETIC.

COMPOUND ADDITION.

(Exercise 9 continued.)

19. A merchant purchased goods to the amount of £468 16s. 7d.; he paid freight, £7 7s. 6d.; other charges, £3 14s. 7½d.; and he gained by the sale of the goods, £48 19s. 6½d.; how much did he sell the goods for?

20. The expenses of building a house were as follows:—architect, £198; bricklayer, £4762; mason, £2141 16s. 6d.; carpenter, £2768 17s. 9d.; plumber, £896 14s.; glazier, £478 16s. 6d.; painter, £421 18s. 11½d.; and paper-hanger, £243 18s. 7d.; what was the amount?

21. A person went to market and laid out on the purchase of tea, £2 16s. 7d.; on coffee, £2 7s. 8½d.; on sugar, £3 14s.; on beef, £2 16s. 6d.; on mutton, 37s.; on veal, 9s. 7½d.; on various other articles, £3 15s. 7½d.; how much was laid out in all?

	£	s.	d.
For paving yard ...	4	7	0
— new-laying floor ...	2	5	6
1000 bricks ...	1	16	0
For mortar ...	0	14	0
— hair ...	0	2	6

	£	s.	d.
40 copy books ...	1	4	0
100 slates ...	0	10	6
100 slate pencils ...	0	0	8
8 qrs. of paper ...	0	9	4
500 quills ...	0	7	7

Ada. I hope I am to have a lesson in mental Arithmetic to-day, papa; we have worked three lessons on the slate.

P. Then you had better put away your slate and take a seat on my knee. Here begins

Exercise 10.

MENTAL ARITHMETIC.

Addition, with Units forming more than ten.

(The pupil is to read off these examples at sight, remembering that the tens are to be added together first, and the units afterwards. In all cases the *larger* numbers are to be added together first.)

(36) 35 + 35	(37) 48 + 48
46 + 46	25 + 25
47 + 47	34 + 36
34 + 38	37 + 37
29 + 29	46 + 46

With tens, forming more than a hundred.

(38) 50 + 50	(39) 70 + 30
60 + 60	30 + 70
70 + 60	90 + 30
40 + 80	30 + 90
80 + 40	80 + 80
60 + 90	40 + 70

With units forming more than ten; and tens forming more than one hundred.

(40) 56 + 56	77 + 77
66 + 66	68 + 68
76 + 76	49 + 49
87 + 87	65 + 65
68 + 68	78 + 78
86 + 86	89 + 89

With units, tens, and hundreds.

(41) 124 + 124	245 + 245
243 + 245	250 + 250
432 + 432	346 + 346
350 + 350	457 + 457
342 + 342	222 + 222
456 + 456	333 + 333
273 + 273	498 + 498

P. Now let us try, for a little amusement, how many times you can double any number without finding it too difficult for your memory to retain:

(42) How much are 2+2; 4+4; 8+8; 16+16; 32+32; 64+64; 128+128; 256+256; 512+512; 1,024+1,024; 2,048+2,048; 4,096+4,096; 8,192+8,192; 16,384+16,384; 32,768+32,768? (In adding these large numbers, add the *thousands* together first; the *hundreds*, *tens*, and *ones* should be added together next, and joined to the amount of the *thousands*. Thus the addition of the foregoing two numbers is by no means difficult, 32+32 thousand, are 64 thousand; 768+768 are 1,536. 64 thousand, and 1 thousand, and 536, are 65,536.)

65,536+65,536. (This is almost as easy as the preceding one, if taken in the form of two questions; the addition of 65 and 65 is easy, whether it be 65 thousands or 65 pigs; the doubling of 536 is also easy; the amount should then be added to the number of thousands.)

131,072+131,072; 262,144+262,144; 524,288+524,288; 1,048,576+1,048,576.

Answer to the last question,

2,097,152.

126

(43) How much are 3+3; 6+6? Double the answer of each question, until you cannot do so any longer.

P. We will now set out on an excursion through a large extent of numbers. Let me see how far you can follow me. You are to follow me as quickly as you can; directly you have added the new number to the old one, answer; let me know by saying *yes*. Now then,

(44) Add 8 and 5?

Ada. Yes.

P. And 13?

Ada. Yes.

P. And 14?

Ada. Yes.

P. And 30?

Ada. Yes.

P. And 32?

Ada. Yes.

P. And 92?

Ada. Yes.

P. And 16?

Ada. Yes.

P. And 200?

Ada. Yes; that is very easy.

P. And 22?

Ada. Yes.

P. And 422?

Ada. Yes.

P. And 56?

Ada. Yes.

P. And 101?

Ada. Yes.

P. And if you were to take away 1,000 from the last number, how many would remain?

Ada. Only one.

P. You may now follow me again, through two or three new excursions:

(45) Add 3+13+26+42+16+150+250.—*Answer*, 500.

(Exercise 10 will be continued next week.)

GEORGE I.

AFTER the defeat of the Pretender, and the establishment of septennial parliaments, the next important event was the *South Sea Bubble*, A.D. 1720.

W. What was that, papa? I should think that if all the south seas were blown out they would make a gigantic bubble, large enough to fill — I don't know what.

P. The South Sea bubble is not a subject to make jokes upon. It was a source of ruin and misery to thousands. I will try and make you understand its history.

You know that the national debt was caused by the government borrowing money of merchants and other private persons, because the taxes were not large enough to pay their war expenses. The government had borrowed large sums from a company of merchants, which traded in the south seas, and was called the South Sea Company. Sir John Blount, a busy, speculating man, got up a scheme by which this company should pay off all the debts which the government owed to other merchants or companies; thus they would become the only creditors of the nation. The government was then to have the advantage of paying them a lower rate of interest than they had paid to others.

L. But how would the South Sea Company procure enough

money to pay all the debts of the government?

P. The people were to furnish the money by buying "shares" in the company, just as we buy railway shares in these days. An act was passed to give the company authority to buy up the government debts.

W. I can understand that. But what hope had the company that the people would buy shares if they were to receive from the government *less interest* than had been paid before?

P. It was promised to the people that the Company would by their trade in the south seas gain enormous profits. These profits, when divided, would allow them a most extravagant rate of interest for their money. By false representations the people were made to believe all this. When the shares were first offered for sale, they were not bought up very readily, but by degrees the public became most eager to engage in the scheme. The people came forward in crowds to subscribe, and numbers ventured all the money they had. In a few days two million pounds worth of shares were subscribed. The desire to obtain shares then became so strong, that the people who had subscribed their money at first were offered for their shares ten times as much as they had paid.

The hopes which were entertained from this scheme led to the formation of other companies for other purposes. It is said that all distinction of party, religion, sex, character, or circumstances, were forgotten. Exchange Alley was filled with a medley of statesmen, clergymen, churchmen, and dissenters, whigs and tories, physicians, lawyers, tradesmen, and multitudes of women of all ranks. The ordinary modes of gaining money were neglected in the hopes of profit which were to be gained by the new companies. Even the Prince of Wales was constituted governor of one association, called the Welsh Copper Company, and the money which the nation intended to raise for the different undertakings amounted to THREE HUNDRED MILLIONS OF POUNDS.

In a few months, however, it was seen that the schemes of these companies could not possibly succeed; and that they were all bubbles, consisting only of outside show. Then those persons who had fancied themselves to be worth tens of thousands of pounds, found that they did not possess as many pence. Thousands of families were reduced to beggary, and the trade of the country suffered a most severe shock.

W. What was done to the wicked men who got up such a scheme?

P. Many of them were punished most severely; some who had absconded, escaped; some were put in the pillory; some of the members of parliament were expelled, and others were made to forfeit nearly all the money they possessed.

In 1726 a war broke out with Spain. The Spaniards attempted to take Gibraltar from the English, but failed.

In 1727, the king died. He was much attached to his own country, Hanover. He had visited it several times, and he now set out to go there once more. When he reached the frontiers of Germany he suddenly became extremely ill. It is thought that had he stopped on his journey he might have recovered, but he had set his mind on reaching the palace of his brother at Osnaburg. While hastening thither he became so much worse that he could scarcely speak. Still he kept exclaiming, "Osnaburg! Osnaburg!" But he did not live to get there; when the carriage reached the gate of the palace he had breathed his last. He was then in his sixty-eighth year, and had reigned in England nearly thirteen years.

THE GNAT AND FLY.

THE gnat and fly,
That wing their way
So blithe, so brisk,
In heat of day,
And fly so swift their round,
And speak His skill who made them.

View their fine wings,
So firm, so neat;
It is with them
The air they beat,
And make so loud a sound,

NINTH WEEK. MORAL LESSON.

MONDAY.

CHARITY.

"Beareth all things."

I don't think you know Willie's Uncle John.

You would like to go to Uncle John's farm-house, I'm sure. Not long ago Lucy and Ion were both there on a visit. Their cousins were at home—Cousin Mary, Cousin Anne, and Cousin Tom. They were all sitting round the fire, when Ion asked his Uncle John to give him a lesson on CHARITY.

"So I will," said Uncle John. "How am I to begin?"

"Begin where papa left off," said Ion. "I will find you the place—in the 13th chapter of the 1st book of Corinthians, 7th verse—'*beareth all things.*'"

"Is that what charity means?" said Ion's Cousin Tom. "Then I think I must be full of charity, for I have plenty to bear with every day."

"What's the matter?" said Ion.

"Two problems in Euclid," said Tom, "and a page of French Idioms, and, after that, a question in Quadratic Equations, which made my head ache. Those were my home-lessons last night; and, though I took a great deal of pains, I was 'kept' to learn them during

play-time. It was a very hard thing to be in the schoolroom when the other boys were playing at hockey just under the window; but I *bore it all*, and I worked at my lessons until I finished them. Don't you call that charity?"

"Pooh, pooh!" said Uncle John. "You must know, Tom, that that is not charity."

Tom. "Well, I thought that perhaps it might be. What is it?"

"That," said Uncle John, "is only DUTY. Having failed in your tasks, it was right that you should try again until you succeeded."

"Please, let me tell you of a case," said Cousin Anne:—

"My friend Jane had been promised that, if she behaved well at school during the quarter, she should be placed in the first division; so she worked very hard at all her lessons for three months, and last week she was told that there would not be room for her in the first division until the *next* quarter. About an hour afterwards the postman brought her a letter to say that she could not go home for the Easter holidays,

and that her mamma was very ill. Poor thing! it was a great deal of trouble for her to bear, but *she bore it bravely*: she only said that she would make herself as happy as she could."

Uncle John. "But that, dear Anne, was not charity. The feeling which bears up against evils that cannot be helped, we call '*strength of mind*,' or *FOR-TITUDE*; it is a very good feeling to possess."

Ion. "I think I was charitable last week. Papa made me stay in doors all day, because, when he sent me for some postage stamps, I did not come back for half an hour. He said that I had a very bad habit of loitering; but it wasn't my fault; mamma met me in the street, and told me to go to have my hair cut. Never mind! I bore it all, and I didn't grumble. Don't you call that charity?"

"No, not at all," said Uncle John, laughing; "it is more like charity than Tom's case; but you belong to your father, so you are to submit to him in all things. It would have been wrong to grumble, because your father had not time to listen to your explanations; so you bore the injustice with resignation."

Ion. "But I am sure there was some good feeling in me; what is it called?"

Uncle John. "We call it *PATIENCE*—not charity. This feeling is more like charity than *fortitude*, or mere attention to duty."

"I think, uncle," said Lucy, "that I remember a case of charity. In our French Fable

book there is a story of a Lion and a—*Fox*, I think it is; I almost forget. It is said that the Fox insulted the Lion very much. The Lion, however, was too important an animal to care about such things; he might have punished the Fox, but, instead of doing so, he let him alone, and passed on quietly. He seemed to bear the insult without feeling it."

Uncle John. "That showed that the spirit of the lion was the greater of the two; it was such that the fox's rudeness could not reach him. When any man is so superior to another that he does not feel his insults, and can easily forgive him, we say that he has *MAGNANIMITY*. It is more like charity than any of the feelings you have yet mentioned."

"Then, I suppose," said Cousin Mary, "that charity means bearing insults that we *do* feel. I know a man who will sometimes suffer almost anything that may be put upon him. He certainly does bear up when he is ill-treated; yet I do not think there is much charity in him."

"Who is he?" said Uncle John.

"Our cow-man, Jerry Stokes. He is very patient. He is much more patient than Ion is. Sally says he is as patient as an ass. The other day Squire Brown's son kicked him, but he bore it all. He told the young squire that he would not let himself be kicked by anybody, but he would bear it from him because he was his superior. And then, again, he minds whatever we

say to him, but he won't bear anything from the other servants."

"Certainly, then," said Uncle John, "*he* has not charity. Your case is farther off from charity than ever. When you talked of patience and magnanimity, you were 'warm;' but when you spoke of this man, you were a long way off—you were decidedly 'cold.' This man 'beareth all things' from SERVILITY."

"Now, suppose I tell you a case. I may be able to show you how it is that CHARITY beareth all things."

"MR. BROWN, THE SHOEMAKER."

"Of course you know Mr. Brown's shoe-shop; it is the principal shop in the town."

"Ion. "I know it; Cousin Anne showed it to me the other day, and said that all her shoes were bought there."

"So they are. I remember when Mr. Brown came to live in the town. There was an old shop in the London-road which had been shut up for many years; and one day, as I passed, I saw that it was opened, and that there was in the window a model of a foot with corns on it; there was also a board with 'REPAIRS NEATLY EXECUTED' written upon it."

"A great many people were glad to see the new shop; for before, John Welt, of the High Street, was the only shoemaker in the town."

"But John Welt did not like the new shop; he said that he had been able hitherto to make and mend all the shoes, and he

did not want any help. Everybody, however, did not think so. It was found that Brown repaired shoes very neatly, and did not charge so much as John Welt; besides, he was more civil, so that he very soon had plenty of work to do."

"Brown soon found out that he was not liked. When he came to the town he called on Mr. Welt, and said that he should be very glad to help him whenever he could be of service; but he did not meet with a civil reply. Brown, however, kept his temper; whenever he met Mr. Welt in the street he greeted him with a friendly nod; but Welt, instead of replying, would turn away his head. Still Brown determined to be civil to him; and one day, as they met in a narrow lane, he stopped to speak to him. But it was of no use; Mr. Welt was only more rude than before."

"Welt had made up his mind that he wouldn't like Brown, and when he went home he told his wife so. 'If he thinks he will gain anything by being civil to me,' he said, 'he is mistaken.'"

"The next day John Welt was in his shop, and Mr. Speller, the master of the National School, was also there, being measured for some boots, when a little girl entered, with a message from Brown."

"'If you please, sir,' she said meekly, 'father says could you oblige him with some patent leather like this; he has not any left.'"

"John Welt felt rather sur-

Prised that Brown should ask a favour of *him*. When he thought over the matter, he came to the conclusion that it was a piece of impudence, and he told the little girl to 'be off.'

"As soon as she was gone, without the leather, John Welt and his customer began to talk about Brown.

"Why didn't you let him have some leather?" said the schoolmaster.

"Don't like the man," said Welt; "and you wouldn't, if you knew all about him. Why, he *never* goes to church!"

"Ah!" said the schoolmaster.

"And, what is more," said Welt, "he does not go to any place of worship in the town; every Sunday he walks off to some place ten miles from here, but I don't know what he does

there. I am afraid that he is a bad man—very bad."

"The schoolmaster began to think so too; he was the parish clerk as well as a teacher; and, when he formed an opinion of another man, it was always a most serious question with him whether he went to church or chapel. As he left the shoemaker's house, he determined to make more inquiries about Brown, and, after two or three days, he heard several things which caused him to think that Mr. Brown *was* 'a bad man.'

"A few weeks afterwards there were many more people who had the same opinion of Mr. Brown. It was said that there was 'a great mystery' about him; and he found, to his cost, that many who had been his customers would not now enter his shop."

THE FOX AND THE CAT.

A FOX and a cat, as they travelled one day,
With moral discourses cut shorter the way.

"How great," said the fox, "to make justice **our guide!**"

"How lovely is merey!" Grimalkin replied.

So onward they journeyed, and moralized still,
Till they came where some poultry picked chaff by a mill.

Sly Reynard beheld them with gluttonous eyes,

And made, spite of morals, a pullet his prize;
A mouse just then chanced from her covert to stray,

Which greedy Grimalkin secured as her prey.

A spider who sat in her web on the wall,

Beheld the poor victims, and pitied their fall.

She cried, "Of such murders how guiltless am I!"

So ran to regale on a new-taken fly.

The faults of our neighbours with freedom we blame,
But tax not ourselves, though we practise the same.

RECAPITULATION, &c.

W. I THINK, papa, that you are in a difficulty.

P. Why, Willie?

W. Because, when you began to teach us natural history, you said that the *animal kingdom* is divided into four sub-kingdoms:—

1. Vertebrated animals,
2. Articulated animals,
3. Molluscous animals; and
4. Radiated animals.

You then showed us that the 1st sub-kingdom is divided into four classes—

1. Mammals.
2. Birds.
3. Reptiles.
4. Fishes.

Now, if you are going to teach us *all* natural history, we have yet to learn of the three classes of vertebrated animals; afterwards we shall have to learn all the classes in the sub-kingdom, *articulated* animals; then all the classes in the sub-kingdom, *molluscous* animals; and, again, all the classes of *radiated* animals. So I think that you must be in a difficulty; you have only four more numbers of PLEASANT PAGES to publish; how will you *print* the lessons on all these classes?

P. I will answer your question soon; but let me first show you that we have as much work left undone in our BOTANY lessons.

You may remember (see vol. iv., page 52) that the *vegetable*

kingdom is arranged into two sub-kingdoms—

1. *Flowering Plants.*

PHANEROGAMIA.

2. *Flowerless Plants.*

CRYPTOGAMIA.

You may also remember (see vol. iv., page 281) that the sub-kingdom *flowering plants*, are arranged into two classes—

1. *Plants whose stems grow from within.*

EXOGENS.

2. *Plants with stems growing from without.*

ENDOGENS.

You may remember, again, that the class EXOGENS is divided into four sub-classes. (See vol. v., page 183):—

1. *Polypetalous flowers, with "hypogynous" stamens (growing from the receptacle).*

THALAMIFLORE.

2. *Polypetalous flowers, with "perigynous" stamens (growing from the calyx).*

CALYCIFLORE.

3. *Monopetalous flowers.*

COROLLIFLORE.

4. *Apetalous flowers.*

MONOCHLAMIDE.

Class 2, ENDOGENS, is divided into two sub-classes—

1. *Complete flowers.*

2. *Incomplete flowers.*

Supposing that we were to study these two classes, exogens and endogens, and the sub-classes in each—

L. And the *tribes* in each sub-class; and the *species* and *varieties* of each tribe.

P. Yes; if we were to do that, it would be a work of some years. Even then, you see, we should still leave the second sub-kingdom, the flowerless plants, untouched. Thus you may get a faint idea of the labour we should have before us, if we intended to study natural history thoroughly (or, rather, all that men know of nature). Now, I can get out of the difficulty which Willie spoke of at first.

W. How, papa?

P. By asking you another question. *How can you expect me to give you, in PLEASANT PAGES, the whole history of the animal and vegetable kingdoms?*

W. Then how are we to learn the orders and classes which we have not heard of?

P. By examining them, and reading about them. Our little lessons about the animal and vegetable kingdoms are principally intended to *teach you to study for yourselves*. I now, therefore, intend to provide you with *outlines* of the remaining classes and orders, both in Botany and Natural History. You may then study and fill up the particulars yourselves.

We will first finish our course on BOTANY.

SUB-KINGDOM 1.

PHANEROGAMIA.

Class 1. EXOGENS.

Sub-class 2. CALYCIFLORALS.

Order 1.

CELASTRACEÆ.

Plants resembling the Holly.

a (*Parts.*) 4 or 5 *sepals*, which are "imbricated"; 4 or 5 *petals*; 4 or 5 *stamens*, which alternate with the petals. The *disk* (or receptacle) is large and fleshy. The *ovary* contains 3 or 4 cells, and is either one or many seeded (it is immersed in the fleshy disk). In *size* these plants are mostly "shrubs," and the flowers are not conspicuous.

b The *varieties* are the Holly, the Spindle-tree, the Bladder-nut, &c.; they form the order CELASTRACEÆ.

c (*Uses of this order.*) The wood of the HOLLY is the hardest white wood; it is used by *turners*, and for making *Tunbridge toys*. The inner bark contains a sticky substance called *birdlime*; from one species of holly *Paraguay tea* is made; and, from another, a *fever medicine*.

The SPINDLE-TREE supplies hard wood for *butchers' skewers*; before the time of HENRY VIII. *pins* were made of this wood.

Order 2.

RHAMNACEÆ.

Plants resembling the BUCKTHORN.

a (*Parts.*) This order is an "ally" of the previous one. The flowers are like those of the holly, except that (1) the *sepals* are *not* imbricated; (2) the *stamens* are *opposite* the petals, which stand over them like hoods. The plants are mostly shrubs, which are very *spiny*.

b The principal *varieties* are the Buckthorn, Black Alder, and Alaternus; they form the order RHAMNACEÆ.

c (*Uses of this Order.*) The berries of the buckthorn produce a bright *yellow dye*; the juice of the berries forms a strong *purgative medicine*. *Sap green, jujube, &c.*, are procured from the juice of some species; strong *emetics* and *astriugent* medicines from the bark; the wood forms the best *charcoal* for gunpowder.

Order 3.

LEGUMINOSÆ.

Plants resembling the PEA.

a (*Parts.*) The *ovary* is the great distinction of this order, having the form of a legume or "pod," such as that of the pea. The pod is one-celled, generally many-seeded, and the *pistil* has a simple stigma and style. In the *seeds* there is no separate albumen, but the two large fleshy cotyledons, and the embryo, fill up the interior of the seed. The *stamens* are 10 in number; in some species they are distinct, in others they form one bundle (are "*monadelphous*"), in others they form two bundles (are "*diadelphous*"). The *corolla* has 5 petals; the *calyx* has 5 small sepals, united into one tube. In *size* and *form* these plants differ very much; they are herbaceous, or shrubby, or are trees; some have twining stems. The *leaves* are mostly compound, being ternate, pinnate, or bipinnate; some of the leaves have large *stipules*, two at the base of the petiole, and two at the base of each leaflet; the leafstalk frequently ends in a *tendrill*.

In one division of the order, which contains the pea, scarlet runner, beans, &c., the flowers are *papilionaceous* (or butterfly shaped); that is to say, the upper petal is

large and spreading, and is called the *standard*; the two lower petals are small, and stand forward, and are called the *wings*; they partly cover the two lowest petals, which are joined together into a *keel*. In other divisions of this order the petals spread regularly.

b (*Varieties.*) The principal plants of the order are the Peas, Beans, Lentils, Vetches, Lucerne, Clover, Trefoil, Furze, Heaths, Brooms, Laburnums, Lupins, Tamarinds, Senna, Logwood, Brazilwood, Rosewood, Cassia, Sensitive-plant, &c.; these are arranged in three divisions, and they form the order LEGUMINOSÆ.

c (*Uses of this Order.*) These plants, which are distributed over all the quarters of the globe, are highly useful to man.

(1) The fleshy cotyledons of the *peas, beans, lentils, &c.*, contain albuminous matter called *legumin*, and thus supply wholesome food. *Clover* and *lucerne* afford equally nourishing food for cattle.

(2) The pod of the *Tamarind* contains a fine acid pulp, which is useful as a preserve, or for cooling fever-drinks.

(3) *Logwood* and *Indigo* yield purple and dark-blue dyes.

(4) *Brazil-wood, Rosewood, &c.*, afford excellent timber.

(5) *Senna* and *Cassia* yield valuable medicines.

(6) The *Acacia* tree yields gum-arabic.

(7) The *Laburnum* has beautiful flowers.

(8) The *Sensitive-plant, &c.*, have interesting peculiarities of structure.

P. We will continue the out line of this sub-class in our next lesson.

THE ENGLISH TRAVELLER.

GLOUCESTERSHIRE.

"MY DEAR CHILDREN,

"Mr. — (never mind his name, he is one of my friends) went with me the other day to see the source of the Thames.

"THAMES HEAD is in Gloucestershire, near the road from Cirencester to Tetbury. The stream flows immediately into Wiltshire, where it is joined by the Swill brook. You may see on the map that it forms part of the boundary between Gloucestershire and Wiltshire. You may also see a town named Litchdale, in the corner of Gloucestershire. At this town the Thames becomes navigable; it is here joined by a canal to the SEVERN. This canal is a very useful one; for the Severn is, as you heard in my last letter, a large and most important navigable river. From this point you may easily trace the river Thames as a boundary between Oxfordshire and Berkshire, through Berkshire, between Middlesex and Surrey, and between Essex and Kent. At Oxford the Thames is called *Isis*.

"The rivers of Gloucestershire," said my friend to me, "are rather important; besides this source of the THAMES and the SEVERN, there is the WYE, which forms the western boundary; the LOWER AVON forms the boundary in the south-west; and in the north the UPPER AVON flows between the county and Warwickshire."

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"Are there any more rivers?" I said.

"Yes; there are several smaller rivers, such as the COLNE, the WINDRUSH, and others. The soil of our county is worth noticing as much as the rivers."

"That," I said, "is the very point on which I need information. Tell me all you know that is remarkable in Gloucestershire."

"Very well, I will. You may divide the county into three strips, lengthways, from north to south."

"You should say *longitudinal* strips," I remarked.

"Yes, longitudinal strips. Here is the map, sir. You see that the county is divided into two very unequal parts by the river Severn. Suppose we call the land on the west of the Severn the west strip. This strip contains the ancient FOREST of DEAN. This forest is as celebrated as that of Arden in Warwickshire, or the New Forest in Hampshire. The greater part of it is still the property of the Crown, and its oak and beech trees are used in building the ships of the British navy. I dare say you know how often the Stuart kings were in want of money. CHARLES I. was once in pecuniary difficulties; he therefore made a grant to Sir John Wytour of "the king's coppices and waste soil

of the forest in consideration of the sum of £10,000.

"The parts thus assigned to Sir John, then contained more than 105,000 trees, which would produce about 62,000 tons of timber. When the times of the civil war arrived, the grant was made null; and the inclosures which Sir John had built round his property were taken down. At the Restoration, a re-grant was made to Sir John of all the trees, except those which would furnish timber for the navy. He therefore immediately employed numerous fellers of wood."

"I suppose," I said, "that he made haste for fear there should be another civil war?"

"Yes, I dare say that such was the case, for those times were very unsettled. His woodcutters, it is said, made such rapid and fearful destruction of the trees, that the Parliament determined to interfere to save the forest. They introduced a bill to restrain his devastations."

"And then he was stopped, I suppose?"

"No; he found this time that the unsettled state of the times was to his advantage. Before the bill was passed, the Parliament was prorogued; Charles II., like his father, would not allow his Parliaments to sit a long time if he could prevent them. Sir John was therefore left to hew down as many trees as he pleased. A few years afterwards it was found that he had cut down all the trees that were granted to him; and that more than 7,000

tons of the timber which was to have been reserved for the navy, had also been taken away. Indeed, only 200 of the oak and beech trees remained."

"But there are more now, I suppose, or you would not call them a forest?"

"Yes. As soon as the reduced state of the forest was made known, 11,000 acres of land were enclosed. These were planted with young trees, and carefully watched. As these trees have grown up, they have supplied valuable timber for the dockyards."

"And what," I said, "is most remarkable in the midland soil of your county?"

"The middle strip is that through which the great river Severn flows. This is a wide extensive vale, and on both sides of the Severn you may see fine rich pastures."

"On which cows feed, I suppose? for I have found, in my travels through England, that the sheep are on the hills, and the oxen in the vales."

"And you'll find it so in Gloucestershire," said my friend, "and in other countries besides England. The sheep like the dry land, and the cattle the wet marshes. The milk from the cows in the valley of the Severn is made into cheese, which is famous in all parts of England. I dare say that you have heard of 'single Gloucester' and 'double Gloucester' cheese?"

"To be sure I have," I replied. "Now tell me what is worth observing in the eastern part of the county."

"If you look on this map you will see that the eastern strip is the widest of the three. This part is remarkable for the COTESWOLD HILLS. When I tell you, that these form a tract of high, bleak, and bare ground, with short fine grass, you will suppose that this is the proper neighbourhood for sheep."

"Yes, I was thinking so."

"There you were right; indeed you might have imagined this from the name, "*Coteswold*." *Cotes* means sheep-cotes; and *wold*, hill. Thus you may suppose that in the earlier times there were many sheep-cotes on these hills."

"I might tell you much about the minerals of our county," said my friend. "*Coal*

beds, alternating with iron-stone, occupy the whole of the Forest of Dean. There are large coal-beds near Bristol. In the cliffs near Westbury there are large collections of the remains of vertebrated animals, which are called "*bone-beds*." We have, too, famous medicinal springs in Cheltenham, Clifton, and in Gloucester. But we will make haste back to Cirencester."

"I returned with my friend to CIRENCESTER, but the town has not any peculiarities which are remarkable enough to be recorded. You shall hear of the other Gloucestershire towns in my next letter."

"I am, my dear children,

"Your faithful friend,

"HENRY YOUNG."

HARVEST HYMN.

God of the year ! with songs of praise,
And hearts of love, we come to bless
Thy bounteous hand, for Thou hast shed
Thy manna o'er the wilderness ;—
In early spring-time thou did'st fling
O'er earth its robes of blossoming—
And its sweet treasures, day by day,
Rose quickening in thy blessed ray.
And now they whiten hill and vale,
And hang from every vine and tree,
Whose pensive branches, bending low,
Seem bowed in thankfulness to Thee—
The earth, with all its purple isles,
Is answering to thy genial smiles,
And gales of perfume breathe along,
And lift to Thee their voiceless song.
God of the seasons ! Thou hast blest
The land with sunlight and with showers,
And plenty o'er its bosom smiles,
To crown the sweet autumnal hours ;
Praise, praise to Thee ! Our hearts expand
To view the blessings of Thy hand,
And on the incense-breath of love
Go off to their bright home above.

MRS. SIGOURNEY.

ARITHMETIC.

Lesson II.—SUBTRACTION.

P. Suppose that I gave you 8d., and then thought that I had given you too much?

Ada. I should think that you had not.

P. But if I should think that I had, and were to take away 5d., how much would you have left?

Ada. I will soon tell you. Fivepence (in a whisper—sixpence, sevenpence, eightpence), I should have only 3d. left; that wouldn't be too much!

P. No; but will you tell me how you found out that there would be 3d. left.

Ada. I counted in this way. Fivepence and one penny are sixpence, and two pennies are sevenpence, and three pennies are eightpence.

P. But suppose I gave you 47 pence, and then took 24 pence from you, how many would you have left?

Ada. I cannot tell you directly, because, you see, it will take such a long time to count all the way from 24 up to 47.

P. You need not take so much trouble. Let us write the 47 pence on the slate, and write the 24 pence which we are going to take away underneath them. I will write it for you.

XI
4 7 pence.
2 4 pence.
—
2 3 pence.

Ada. What is the meaning of the 23 which you have written underneath the 24 and 47, papa?

P. That is the difference between the 24 and 47. The 47 consists, you see, of 4 tens, 7 ones; and the 24 is made up of 2 tens, 4 ones. Now, instead of counting onward from the 24 to the 47, you may count from the 4 ones to the 7 ones; you will then find the difference to be 3 ones. You may next count from the 2 tens to the 4 tens, and you will find that the difference is 2 tens. So that the whole difference is 2 tens and 3 ones.

Ada. And that is 23. I think that I could subtract one number from another, if you will write them both on the slate.

P. I will give you an exercise directly. But you shall first see me work a larger sum.

I C X I
From 8 , 6 2 6 eggs.
Take 3 , 2 1 2 eggs.
—
5 , 4 1 4 eggs.

The difference between 2 ones and six ones is 4 ones.

The difference between 1 ten and 2 tens is 1 ten.

The difference between 2 hundred and 6 hundred is 4 hundred.

The difference between 3 thousand and 8 thousand is 5 thousand.

Thus, the whole difference between the two numbers is, as you see it on the slate—

FRIDAY.

PLEASANT PAGES.

ARITHMETIC.

4 ones, 1 ten, 4 hundred, and 5 thousand; or, 5 thousand, 4 hundred, 1 ten, and 4 ones.

For when we talk of any number, we generally speak of the larger quantities first.

Ada. Now, may I work a few sums by myself?

P. Not yet; I want to show you that we may subtract one sum of money from another, in the same way. Here is a question for you:—

A man gave me £417 4s. 10½d.; he found afterwards that he could not spare so much money, and he asked me to let him have back again £202 1s. 4½d. So I did as he asked me. How much money had I then left?

£	s.	d.
417	4	10½
202	1	4½
215	3	6½

Here you may see that I proceed in the same way as when subtracting *ones, tens, and hundreds.*

The difference between ½d. and ½d. is ½d.

The difference between 4d. and 10d. is sixpence.

The difference between 1s. and 4s. is 3s.

The difference between £202 and £417 is £215.

You may now answer the questions in the following exercise:—

*Exercise 11. SUBTRACTION.**Simple Subtraction.*

(a) Find the difference between the following numbers:—

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	<i>CXI</i>	<i>CXI</i>	<i>CXI</i>
From	4 6 9	9 8 7	7 0 0
Take	3 2 1	4 6 5	6 0 0

From	7 0 1	4 0 7	3 0 5
Take	6 0 0	7	3 0 4

	<i>ICXI</i>	<i>XICXI</i>
From	8, 4 6 2	7 9, 0 0 4
Take	7, 3 6 2	7 8, 0 0 3

From	1 46, 2 0 9	7 43, 9 9 9
Take	4, 2 0 9	2 20, 0 3 1

(b) John, said Uncle Henry, here is a bag, with 324 marbles; perhaps you had better not keep them all yourself, give your cousin 112. When John had done what his uncle told him, how many marbles had he remaining?

I had three hundred and seven apples on the tree in my front garden; but the two great pear trees in the back garden produced altogether one thousand two hundred and eleven pears. How many more pears than apples had I?

From 421,762 take 301,541.

From 221,409 take 543,469.

From seven hundred and nine thousand four hundred and twenty-seven, take two hundred and one thousand six hundred and two.

From two hundred and seventy-eight thousand and five, take sixty-six thousand and one.

What is the difference between

five hundred and forty thousand eight hundred and eighty-four, and twenty thousand seven hundred and sixty?

How much does sixty-four thousand six hundred and four exceed three thousand two hundred and three?

John lent James £9,971 of this sum he has received back £922; how much has James yet to pay?

On a cherry tree there were 2,046 cherries, of these 1,012 were gathered; how many remained?

Columbus discovered America in the year 1492; how many years is it from that time to 1799?

In a certain school there are 486 boys, of these only 264 can write; how many are unable to write?

In one of the National Schools there are 487 boys; in another there are 240; how many more are there in the one than in the other?

John had 892 nuts in his pocket, but, there being a hole in it, he lost 91 nuts; how many had he remaining?

On an apple-tree there were 165 apples, the wind blew off two dozen and a half; how many were left?

A draper bought 4,786 yards of cloth, and sold 2,412 yards; how many yards has he unsold?

What sum added to five thousand seven hundred and ninety-six will make eight thousand nine hundred and ninety-nine?

I was born in the year 1826; how old shall I be in the year 1839?

I called my man, and told him to go to market at the next town, which was 28 miles off; but when

he had travelled 8 miles, he felt so unwell that he was obliged to come home again. How many miles less did he travel than he would have travelled had he gone on to the end of his journey?—
(*You must remember that he had to RETURN 8 miles.*)

I had 486 apples, but Mary took away 31, how many had I then? Afterwards James took away 301, how many were left to me then? Afterwards I ate, in the course of the week, 44 apples, how many were there left? But by that time I was so tired of eating apples that I gave away 110, how many then remained?

Our large plum tree bore 666 plums, but the smaller plum tree bore only 111 plums. *First*, tell me how many more plums there were on the large tree than the smaller one. *Secondly*, tell me how many such smaller plum trees would be wanted to produce as many plums as there were on the large tree?—(*In this case you must subtract the 111 from the first remainder, and continue to subtract the same number from each remainder, until you cannot do so any longer.*)

On Tuesday morning a man started on a journey of 989 miles, which he was to finish by the end of the week. On Wednesday morning he had travelled 100 miles, how far had he to travel then? On Thursday morning he had travelled 201 miles, how far had he to travel then? On Friday morning he had travelled 322 miles, how far had he to travel then? On Saturday morning he had travelled 120 miles, how far had he travelled then? At four o'clock on Saturday afternoon he had, by making haste, travelled 245 miles, how much more than half a mile had he to travel then?

(c) (*Compound Subtraction.*)

	£	s.	d.	£	s.	d.
From	4	12	4½	761	18	6¾
Take	2	11	1	530	15	3¼

	£	s.	d.	£	s.	d.
From	194	7	6½	799	19	11¾
Take	100	3	6¼	545	14	5¼

From £7,462 16s. 3¾d. take
£6,421 12s. 3¾d.

Take £274 3s. 9½d. from £989
13s. 11¾d.

How much will remain of
£4,968 18s. 2d. if you take away
£923 9s. 1d.?

A horse and an ass were worth together £46 12s. 1½d., but the ass alone was not worth more than £5 5s.; can you tell me what was the exact value of the horse?

I bought some goods for £12 14s. 8d., and sold them for £28 16s. 8d., how much profit did I make?

Again, I bought some goods for £104 12s. 1d., and sold them for £218 18s. 11d.; which was more—the profit or the money I had paid for the goods?

Again, I sold for £806 2s. 8d. a number of books, which cost me only £303 1s. 4d., how much more was the *profit* I made than the *sum which I paid* for the books?

THE GRASSHOPPER.

HAPPY insect! what can be
In happiness compared with thee?
Fed with nourishment divine,
The dewy morning's gentle wine;
Nature waits upon thee still,
And thy verdant cup does fill.
Thou dost drink, and dance, and sing
Happier than the happiest king;
All the fields which thou dost see,
All the plants belong to thee,—
All that summer hours produce,
Fertile made with early juice,—
Man for thee doth sow and plough,
Farmer he, and landlord thou!
Thou dost innocently enjoy,
Nor does thy luxury destroy:
Thee, country hinds with gladness hear
Prophet of the ripened year!
To thee, of all things upon earth,
Life is no longer than thy mirth.
Happy insect—happy! thou
Dost neither age nor winter know,
But when thou'st drunk, and danced, and sung
Thy fill, the flowery leaves among,
Sated with thy summer feast,
Thou retirest to endless rest.

COWLEY.

THE ENGLISH TRAVELLER.

GLOUCESTERSHIRE.

"MY DEAR CHILDREN,—

"Not far from Cirencester there is a town named STROUD, which is worthy of remark. It is situated at the junction of two little streams, which form the Stroudwater; the waters of these streams are peculiarly suited for fixing *scarlet dyes*, and for rendering them very bright—the town is, therefore, chiefly inhabited by clothiers and dyers, for the scarlet cloth dyed here is superior to that of other places.

"The capital of the county is GLOUCESTER; it is situated at the north of Stroud, on the river Severn. The cathedral of this city is a very fine one. Its ancient cloisters are said to be the most elegant in the world. It contains many interesting monuments, such as those of ROBERT, son of William the Conqueror, the unfortunate EDWARD II., and ROBERT RAIKES, the founder of Sunday Schools. Gloucester has a manufacture of *pins*, which was once very extensive; it is said that more than £20,000 worth of pins from Gloucester have been sold in London in one year.

"At the north of Gloucester is another town, which is more celebrated than the capital itself; this town is named CHELTENHAM.

"The celebrity of Cheltenham is owing chiefly to its mine-

ral springs. These, like the medicinal waters of Bath, attract crowds of fashionable visitors.

"The town owes its existence entirely to those springs. The first discovery of a spring was made in 1716; it was inclosed some years afterwards, and invalids began to frequent the place; but their number was not large. It was not until near the end of the eighteenth century, that there were houses enough on the spot to constitute a town. About that time more mineral springs were discovered, and the number of inhabitants in the parish increased rapidly. In the year 1800, they did not, perhaps, number more than 4,000, but about thirty years afterwards, they were nearly 23,000 in number.

"Thus, you see that Cheltenham is a *very* modern town. It therefore has not the inconveniences of others, which are more ancient; the houses are well built, the main street is wide and airy, and the general arrangement of the place renders it agreeable. Again, the Cotswold Hills form an amphitheatre around it on the north-east; and they thus afford protection and delightful scenery.

"TEWKESBURY is another important town. It is worthy of particular notice, on account of the battle which was fought here between MARGARET, wife

of HENRY VI., and the Duke of York, who conquered, and became King EDWARD IV. This was the last of the bloody wars between the Houses of York and Lancaster.

"Lastly, if you go the south-west corner of the county, you will find BRISTOL and its suburb Clifton. These towns are accounted as belonging to Somersetshire, but the greater part of them is situated in Gloucestershire.

"I am, dear children,
"Your faithful friend,
"HENRY YOUNG."

GLOUCESTERSHIRE.

(Boundaries.) — GLOUCESTERSHIRE is bounded on the north by WORCESTERSHIRE; on the south by WILTSHIRE; on the east by OXFORDSHIRE and

WARWICKSHIRE, and on the west by MONMOUTHSHIRE and HEREFORDSHIRE.

(Soil.)—The soil of this county may naturally be divided into three longitudinal strips: the western strip contains the FOREST OF DEAN; the middle strip consists of the VALE OF THE SEVERN, while the larger eastern district contains the COTESWOLD HILLS.

(Rivers.)—The principal rivers are the SEVERN, the UPPER and LOWER AVON, the WYE, the WINDRUSH and the COLNE.

(Towns.)—The capital of the county is Gloucester, which has a cathedral with very elegant cloisters; the other important towns are STROUD, famous for its scarlet woollen cloths, CHELTENHAM, famous for its medicinal springs, CIRENCESTER, TEWKESBURY and BRISTOL.

DON'T BE CROSS.

How now, Master Nero! what, barking again?
I wish your ill temper you'd learn to restrain,
And not be so peevish and sour;
There's scarcely a kitten can come in your way,
But you growl and you snarl, I am sorry to say,
As if the poor thing you'd devour.

Poor gentle old Dobbin can scarcely pass by
But straight at his heels you must snappishly fly,
And the timid old creature affright;
The ducks know full well what a vixen you are,
For they run to their pond when they see you afar,
To 'scape from your mischievous spite.

For shame, sir, for shame! I don't wonder, I own,
That none will caress you or throw you a bone,
For none thinks your absence a loss;
Good temper will always admirers secure;
But none, Master Nero, will like you, I'm sure,
If you will be so peevish and cross.

Rhymes Worth Remembering.

TENTH WEEK. MORAL LESSON.

MONDAY.

CHARITY.

"Beareth all things."

MR. BROWN, THE SHOEMAKER.

"The opinion which some of the people in our town had of Mr. Brown must have been a very bad one, for he found that scarcely any one would speak to him.

"Do you know, dear," he said to his wife one morning, "that neighbour Edwards will not be friendly to me now? He sent in his bill for bread last night, and asked me to pay it today."

"I wonder who will be offended next," said Mrs. Brown; "I am afraid we shall have to leave this place."

"I'm sure," said he, "that the people would not behave like this if they knew us; I would not cheat anybody. Do you know that when I took down the shutters this morning, I found that somebody had written on them the words 'No POVERTY.' Perhaps, they think that we are *Roman Catholics*."

"I think they do," said his wife, laughing, "or that you are very wicked, in some way or other."

"I'm only afraid," said Brown, "that we shall not get a living. I wish that Mr. Edwards would wait a little while for his money;

if I pay him his bill, it will take nearly all our money. Jamie, my boy," he said to his eldest son, "I cannot afford to send you to school any longer."

"Look! there is some one in the shop," said Mrs. Brown.

"It is neighbour Edwards," was the soft reply. "I wonder what he wants."

"Good morning, Brown," said Edwards, as the former came to meet him. "I've called to ask you to pay that account of mine."

"Can you not wait for a week or two longer?" said Brown.

"No, indeed," was the reply; "I would rather not trust you." After saying this, neighbour Edwards told Brown that he had heard "many things" about him, but he would not say from whom he had heard them, or what these unpleasant things were.

"When Brown paid neighbour Edwards's bill of £4. 3s. 4d., he had only £2 and a few shillings left. He then began to feel severely the effects of the ill-will which old Mr. Welt bore towards him. Yet, though every one treated him coldly, Brown

was still kind and civil towards all; and he bore their suspicious looks with the greatest good humour. Why was he able to do so? It was because he knew that he had done no wrong; he could look up to God and feel that he had a friend in Heaven. This knowledge gave him that joy and kindness which we call CHARITY; this charity towards others made him *bear all things*.

"Before many weeks had passed away, Mr. Brown became aware of two things:—First, that his money was reduced to a few shillings, and that his three children would soon be wanting bread; and, secondly, that the prejudices of John Welt and Mr. Speller were the first cause of his troubles.

"It was Saturday night; and Brown was sitting in his little room, thinking about the day of rest which to-morrow would bring, when his wife came in from market.

"Whom do you think I met in the market?" she said.

"I can't tell," he replied.

"Why, your enemy, Mr. Speller!"

"I hope that you were not uncivil to him," said Brown.

"I can't say, I'm sure. I only know that I told him my mind pretty freely. I said 'twas a great shame to speak ill of a good man like you, which is the truth; and I asked him why he didn't speak out plainly like a man, and say what fault he had to find with you."

"Well, dear," said Brown, "I must not find fault with *you*, but I should not have said so.

How often have we read together of Him, who 'when he was reviled, reviled not again!' Once more, our duty is just to look up to God, and to continue in one straightforward course, then we can bear any evil without returning it."

"I can tell you some more news," said Mrs. Brown. "I learned in the market that old Mr. Welt has been very ill for three weeks, and that two of his workmen have left him; they are going to open a new shoe-shop in the market next week. I am glad, because he is now punished for treating you so badly."

"Do not say so," said Brown; "we ought rather to feel sorry for him."

"The next morning was the Sabbath. Mr. Brown was up early, for he had to walk ten miles. Oh, how pleasant was that Sunday morning walk! How many good thoughts of God did he find when going on his quiet road! The village to which he was travelling was a small one by the sea-side; he was well known there, for it was his birth-place. There was not a tree, or bridge, or stile in the neighbourhood, which he was not familiar with.

"On this Sabbath morning, when he was about a mile and a half distant from the village, he heard a voice crying after him 'Stop!' On looking round, he found that it was no other person than the wife of John Welt.

"If you please, my good man, can you show me— Oh!" she added suddenly, being sur-

prised when she found whom she was speaking to, 'I did not expect to meet *you* here, Mr. Brown.'

"That shows ma'am," said John, smiling, 'that you don't know this part so well as I do. If you had been here very often you must have heard of me. Indeed, I come over here every Sunday.'

"Then you can show me my way," said Mrs. Welt, who was rather pleased with Mr. Brown's manners, for she had never spoken to him before.

"Yes," he replied, 'the road is a very awkward one just here. Instead of going over the cliffs, there is a short cut through the wood; and a very pleasant road it is too. I'll show it to you.'

"Oh, it *was* a pleasant walk through that wood! It was pleasant to Mrs. Welt in particular, the breezy rustling sounds of the wind and leaves, and the merry dancing lights and shades were pleasant: of course the music of the birds was pleasant; but pleasanter than all to her was the talk she had with Brown. She was naturally kind-hearted, and she was now much gratified with his civilities. She told him of all her troubles; how ill and 'shaky' Mr. Welt was, and that he had come to the village on account of his health; she told him how badly his workmen had treated him, and how they thought, now that he had no one to do his best work for him, they would get the trade of his best customers.

"Brown answered Mrs. Welt

according to the spirit which he had learned from God. He did not begin to tell her all his own troubles; he did not let her know that he was nearly starved through Mr. Welt's bad report of him; he did not say that Mr. Welt was justly punished, and that he was glad of it, as others would have done; he only replied to Mrs. Welt, 'Well, ma'am, when I first settled in your town I called on your husband, and said that I should be happy to help him; and I shall be very glad to do so now.' Mrs. Welt had by this time the greatest faith in Brown. They had just reached the village, for the church spire was seen above the trees, so she asked him if he would go with her to the house where her husband was living, and 'talk over matters' with him. Brown, however, would not consent to this; he told her that he had other thoughts than those of business on the Lord's day. 'Besides,' he said, pointing to the church, 'I have plenty of business *there*! enough to employ me until I go home.'

"Mrs. Welt shook hands with Brown, when she bade him 'Good bye;' and before the evening of that day the whole truth came out. The persons in whose house John Welt lodged knew Mr. Brown very well. They said that he was the superintendent of the rector's Sunday school, and had been so for twenty years; that he had lived in the village for thirty years before he left them, and that he was so well known for his kindness in visiting the poor, and

teaching them and reading to them, that he was called 'the curate.' They said more things in Mr. Brown's praise than I can repeat now.

"When old John Welt heard this, he was sorry for all the evil he had said of his neighbour. His wife then told him how grieved Brown was to hear of his illness, and that he was still willing to help him in his business.

"On the next Tuesday Mr. Brown was surprised by a visitor who had never been in his shop before; it was no other than the schoolmaster, Mr. Speller.

"'Good morning, friend Brown!' he said, advancing to shake hands. 'I have come to tell you that I wish I had known you before. I want too to say how sorry I am that I have had so bad an opinion of you. Not only I, but many more of us, I am afraid, have never done you justice.'

"'Never mind, sir,' said Brown; 'I don't often get angry at such things; they are very easy to bear. I knew that one day or another we should be good friends again.'

"'And I want to have a good word with you, neighbour Brown,' said Mr. Edwards, coming in.

"'But I need not tell you of all the friendly words that were spoken in that shop. Mr. Speller said that he had been over to see John Welt, who was much obliged to him for offering to help him in his business, and would be glad if he would undertake a quantity of orders which were waiting to be finished.

"The rest of my story you may easily imagine. When the people of the town knew what injustice they had done to Brown, they hastened to employ him. They were all angry with old John Welt for his evil reports, and many were disappointed because they had been waiting three weeks for articles which he could not get made.

"Brown, therefore, might almost have ruined his old enemy, but he kept on in his 'straight-forward course;' he executed John Welt's work *first*, because he had promised to do so. John Welt felt so grateful to Brown that he became his friend; and, at length, he found him so useful, that he made him his partner.

"Welt had long been 'shaky,' as his wife said; and a few years afterwards he died, leaving the business to Mr. Brown, who now has the principal shoe-shop in the place."

"And is that all true, papa?" said Cousin Ann.

"Yes; indeed if you want to hear more about it, go and ask the old widow Welt, who still lives in her house with Mr. Brown's family. She has paid for the education of all his children; and it is said that as she has no children of her own, she intends at her death to leave all the money which John Welt saved in his life to Mr. Brown's eldest son, Jamie."

"Now," said Uncle John, "you may learn your 'moral lesson.'

"There is no resistance to evil like *passive resistance*! What

wonderful power in this world has that charity which beareth all things! In the first place, it turned *all the wealth*, which old Welt worked for during his lifetime, into the hands of Brown.

"But there is a better moral lesson. The charity which beareth all things teaches *love* to men; it turned *all Brown's enemies into friends*; and they learned to speak more kindly of others than they had done before.

"Here, too, is a third moral lesson for you.

"If you wish to bear all things as John Brown did, look up to God, and keep on in 'the straightforward course.' Read of Jesus Christ, who said 'Father forgive them, for they know not what they do!' See, how when he looked up to his Father he could bear the reproaches of the world! How good it is that you, too, may look up to God! Thus you may, in His strength, be able to BEAR ALL THINGS!"

HONOUR TO PARENTS.

How sad my mother seems to-day!
I've caused her pain I fear,
Or else she would not turn away
With such a look severe.

Perhaps at play I made a noise,
When bidden to refrain,
Or quarrelled o'er my childish toys
With little sister Jane.

'Tis very wrong indeed, I know,
So troublesome to be,
The more to one who loves me so,
And is so kind to me.

When I was sick how close she kept
Beside my little bed,
And smoothed the pillow when I slept
To ease my aching head.

Her constant kindness and her care
I never can repay,
How can I grieve her then, or dare
Her word to disobey?

I'll go at once, my fault confess,
And pardon too implore,
'Till mind in future what she says,
And never vex her more.

GEORGE II.

Lesson 42.—GEORGE I.

Began to reign . . 1714
Died 1727

1. GEORGE I., THE ELECTOR OF HANOVER, became King of England in accordance with the "Act of Settlement," because he was a Protestant, and was the great grandson of Frederick the Elector Palatine, who married the daughter of James I.

2. Being a German in all his habits and tastes, he did not trouble himself much about English politics, but acted principally according to the advice of his ministers.

3. The principal events of his reign were the severe measures of the Whigs against ORMOND, BOLINGBROKE, and OXFORD, the Tory leaders in the reign of Queen Anne; the rebellion of the EARLS of MAR, DERWENTWATER, and others in favour of the PRETENDER; the SEPTENNIAL ACT; and the SOUTH SEA SCHEME, and other bubbles.

GEORGE II.

GEORGE II. was the son of George I. He came over to England with his father, and lived here during his father's reign. Thus, he knew more of the English nation than his father did, when he began to reign.

W. Yes, you told us that he was governor of the Welsh Copper Company.

P. When he came to the throne he was forty-four years

old. Yet, like his father, he took more interest in Germany and continental affairs, than the government of England.

Ion. Then who governed?

P. One person of importance was the queen. She was a woman of great beauty, and of strong understanding, and took a considerable part in the government; indeed, she acted for the king: she was truly "his better half." But there was a more important person than the queen, and he was, perhaps, the real governor of England; namely, the Prime Minister, the great SIR ROBERT WALPOLE.

Sir Robert Walpole had risen as the leader of the Whig party, in the reign of Queen Anne. By his prudence and talents for business, he had kept his position in the reign of George I.; and now, as chief minister, he managed the affairs of the country with skill.

With such a prime minister, we find that the first twelve years of this reign were times of peace. No great events happened. The two great political parties changed their names; the Whigs were called the *Court* party, and the Tories the *Country* party; but that was no great matter: these two parties disputed with each other, of course. They disputed about the increase of the national debt, and about the large "standing army" that was kept in pay; these were the only

very important events of the time.

But after these twelve years, in the year 1739, the enemies of Sir Robert Walpole became anxious for his downfall. There had been a long period of peace since the exhausting wars in the reign of William III. and Queen Anne. Commerce had flourished during this time, and the expense of Marlborough's "glorious victories" had been forgotten. The turbulent spirit of the people was now anxious for war. The country party saw that a war might cause the fall of Sir Robert Walpole's peaceful government; and they therefore inflamed the desires of the people by every artifice.

A pretext for war soon occurred. The merchants of Britain had, by treaty, the privilege to cut logwood in the Bay of Campeachy, a part of South America which belonged to Spain. But the Spaniards, in defiance of their treaty, refused the English merchants their rights, and treated some individuals with barbarous cruelty. These differences, however, might have been settled amicably; but Walpole, contrary to his better judgment, gratified the desires of the people, and war was declared.

This war lasted three or four years. PORTO BELLO, on the Isthmus of Darien, was taken by Admiral Vernon. A Spanish galleon, laden with gold to the amount of £313,000, and other prizes worth as much more, were taken by Commodore Anson. An expedition was also fitted out against CARTHAGENA, on

the N.W. coast of South America. This expedition consisted of twenty-nine ships of the line, and as many frigates, furnished with all kinds of warlike stores, 15,000 seamen, and nearly as many soldiers. Never had the English nation equipped a fleet more completely, and their heart was set upon its success. But, alas, the expedition failed! Lord Cathcart, the commander, died; the remaining officers quarrelled fiercely with each other; the siege of the fort was unsuccessful; and the troops, thinned by slaughter and disease, returned with their commanders in disgrace.

Now, the greatest disgrace was that such an enterprise should have been undertaken. But the English nation did not think so. The kingdom was filled with their murmurings and discontent. Not knowing what to do, they directed their violent indignation against their minister, Walpole. For the successes which had happened before, they had praised him. For this failure, of which he was quite innocent, they condemned him. The country party did not fail to take advantage of this feeling; they kept up the resentment, and aggravated it. Sir Robert tried every art to break the strength of their fury, but in vain; the outcry against him became most violent; and he resigned his office as prime minister. On retiring he was created Earl of Orford.

Such was the result of the first war in this reign. Now for the second. In 1742 a great

dispute arose amongst the continental powers. Charles VI., Emperor of Germany, haddied, and his daughter, MARIA THERESA, Queen of Hungary, ought to have succeeded him. The ELECTOR of BAVARIA, however, with the help of Saxony and France, deprived her of her inheritance, and was crowned Emperor. At the same time BAVARIA, FRANCE, and SAXONY attacked her.

George II. could not look on at this injustice; indeed, his own kingdom, Hanover, was endangered; so he resolved to take the part of Maria Theresa. The British government, therefore, sent an army of 16,000 men to join an equal number of Hanoverians in the Netherlands. Thus we see that this foreign German king was, after all, an evil to the nation. By intermeddling with the affairs of Europe, he involved this country in a new and great expense.

The army sent over was brought into great difficulties,

and was retreating from the French when King George and his son, the Duke of Cumberland, joined it. The French soon completely surrounded them, at the village of DETTINGEN; and, with his inferior forces, the king was obliged to give the enemy battle. The English conquered, having lost 2,000 men, while the French lost 5,000. It is said that George behaved with the greatest "gallantry," exposing himself to the thickest of the fire; but this was the last time that a king of England commanded his army in battle.

L. He ought to have done so; he was fighting for his own province.

P. The third war was a renewal of the second. In the following year, 1744, the English were defeated. The French, under the celebrated Marshal Saxe, defeated the English at the battle of *Fontenoy*. We will talk of this battle in our next lesson.

THE SABBATH.

BRITAIN! I love thee, when thy Sabbath dawns
O'er hills, and mountains, dales and lawns;
And streams that sparkle as they run,
As if their fountain were the sun:
When, hand in hand, thy tribes repair,
Each to its chosen house of prayer,
And all in peace and freedom call
On Him, who is the Lord of all.

MONTGOMERY.

THE ENGLISH TRAVELLER.

OXFORDSHIRE.

"MY DEAR CHILDREN,

"OXFORD is a very celebrated city. In the reign of EDWARD the CONFESSOR it was a celebrated place of study.

"There were many schools for the instruction of youth in this town in the times of the ROMAN KINGS. Some were 'claustral' schools; that is to say, they were connected with convents or other religious houses; others were secular schools, and these were called *Hostels* or *Halls*; and there are many 'halls' in Oxford even in the present day.

"In the reign of King STEPHEN, a Lombard named *Vacarius* lived here, and established a school of *Roman Law*. The laws of the Romans may be a very interesting study; but it appears that it did not meet with the approval of the king. Although *Vacarius* wrote a work on the Roman Law in nine books, Stephen tried to suppress his school; in this, however, he did not succeed.

"And from the time of King Stephen to this present year of our Lord, 1853, Oxford has been a celebrated city. It was here in the reign of King HENRY III. that the 'Mad Parliament' met. I mentioned Simon de Montfort in my letter on Worcestershire. You remember how he and the barons deposed King Henry, and set up a government of their own. Here,

too, in the time of the great civil war, CHARLES I. held his court. In one of the skirmishes fought near the city, the celebrated John Hampden was killed.

"But Oxford does not owe its celebrity to Charles I., or to Henry III., or to any other royal personage. If you will only take a walk with me through the city, you will soon see why it is so well known. It is a pleasant walk to Oxford, for it is situated on rising ground, and is surrounded by meadows, through which the quiet river *Isis* flows. The word '*Isis*,' by the way, is the Latinised name for *Ouse*; the river is really a part of the Thames.

"I wonder why Oxford is so called. Some persons say that, when the *Isis* was called *Ouse*, the ancient town was called *Ouse-ford*; others say, that it was then called *Oxen-ford*, which means, a ford for oxen; but I cannot say which opinion is the correct one. At a long distance from Oxford, the Thames is joined by a little tributary called the *Thame*; from this tributary the river is supposed to derive the name of Thames.

"But if we stop here in the meadows we shall not get on with our walk. Here is the city itself. Are you not astonished at the number of ancient

buildings? This city is filled with halls and colleges; let us take out our guide-book and learn about them. Here are their names:—

UNIVERSITY COLLEGE	founded 872
BALLIOL COLLEGE	" 1202
MERTON COLLEGE	" 1264
EXETER COLLEGE	" 1314
ORIEL COLLEGE	" 1326
QUEEN'S COLLEGE	" 1340
NEW COLLEGE	" 1386
LINCOLN COLLEGE	" 1427
ALL SOULS COLLEGE	" 1437
MAGDALEN COLLEGE	" 1456
BRAZENOSE COLLEGE	" 1490
CORPUS CHRISTI COLLEGE	" 1516
CHRISTCHURCH COLLEGE	" 1525
TRINITY COLLEGE	" 1554
ST. JOHN'S COLLEGE	" 1555
JESUS COLLEGE	" 1571
WADHAM COLLEGE	" 1613
PEMBROKE COLLEGE	" 1624
WORCESTER COLLEGE	" 1714

"Besides these colleges, there are other establishments called *Halls*. They differ from the colleges in not being endowed or 'incorporated;' they were, as I told you, very numerous in ancient times; they are only five in number now. Their names are:—

ST. EDMUND HALL	founded 1269
ST. MARY HALL	" 1333
NEW INN HALL	" 1392
MAGDALEN HALL	" 1487
ST. ALBAN'S HALL	" 1547

"There are many other remarkable buildings. One of the most splendid buildings of the University is the *RADCLIFFE LIBRARY*. The founder of this library, Dr. Radcliffe, of Wakefield, left £40,000 for the building and the ground upon which it stands; £150 per annum for the librarian; and £100 per

annum for the purchase of books. The *BODLEIAN LIBRARY*, to which the *Picture Gallery* of the University is attached, the *Schools* of the University, the *ASHMOLEAN MUSEUM*, the *RADCLIFFE OBSERVATORY*, the *BOTANICAL GARDEN*, which is situated on the ancient burial-ground of the Jews at Oxford; and the *University Press*, where the Bibles of this country are printed, are all places of interest.

"In *CHRISTCHURCH COLLEGE*, which was founded by Cardinal Wolsey, is the celebrated bell, the *GREAT TOM* OF OXFORD, which weighs 17,000 pounds. I spoke of this bell when I wrote about '*Great Tom of Lincoln*.' Can you tell me which is the heavier of the two?"

"It would take a long time to describe to you the Halls and Colleges of Oxford. I shall not attempt to do so. I will only say that, with the churches and other public buildings, and the spacious streets, they have a singularly striking and majestic effect.

"Neither need I tell you why these colleges were built. Most children have heard what learned men study at Oxford. You know that a college is a school for grown up men. Here, those who intend to be lawyers, or doctors, or clergymen, come to study Greek, Latin, Mathematics, Chemistry, Medicine, and other things which are hard to be understood. I am sorry to add, that those who come to study are not always studious people; they have sometimes

been given to riotous and disorderly conduct. The young men of the University form a party distinct from the people of the town. The scholars and townsmen have been jealous of each others' authority from the earliest times.

"The quarrels between the two parties caused bloodshed in the times of Henry III. On several occasions the scholars quitted the University for a time. On one occasion they went to Stamford; at another to Northampton. The most serious riot was in 1355, when many lives were lost. The bishop of the diocese then placed the townsmen under an 'interdict,' which, if you have ever read the history of King John, you will remember was a serious matter. They were not released from this interdict until two years afterwards, and then only upon the condition that they should perform a religious service every year for the souls of the clerks and others who had been killed in the conflict. By this agreement the mayor, the two bailiffs, and sixty of the principal burghers were to appear personally on the said day, at St. Mary's Church, and, during mass, were to offer a penny each at the great altar. The mayor and citizens at the same time gave a bond that, if this duty were not performed, they would pay 100 marks yearly to the University, in compensation for the losses occasioned in the fray. The penance thus ordered was performed every year, with occasional excep-

tions, until the year 1825, when the town was released from its observance.

"There are not many celebrated towns in the county besides Oxford.

"WITNEY is celebrated for its blankets, and for thick woollen cloths, called bearskins, and kerseys.

"WOODSTOCK has, I believe, a manufactory of gloves; but I did not visit this town. In this place was the famous bower where Henry II. is said to have placed his mistress, Fair Rosamond.

"Not far from Woodstock is BLENHEIM. This is a magnificent mansion which was given to the Duke of Marlborough by the nation, in gratitude for his victory over the French at Blenheim in Germany.

"BANBURY is another Oxfordshire town; it is principally famous for its cakes and ale. I dare say you, like many other English children, have tasted Banbury cakes.

"The rivers of Oxfordshire are not very important. The principal is the THAMES, which divides the county from Berkshire; its wanderings give to Oxfordshire a very irregular shape. Many small tributaries of the Thames flow through the county; the largest is the little river CHARWELL.

"The soil of Oxfordshire has not any remarkable features. The *Chiltern Hills* are worthy of notice; they have a chalky soil, and abound in flints; they are mantled with rich beech trees; between them and the river Thame is a range of downs on

which sheep feed. In the middle district much butter is made, and calves are reared for the London market. Other parts of the county yield ochre and pipe-clay, which is said to be the best in the world. I need not tell you the boundaries of Oxfordshire; you may learn them from the map, or from the memory lesson which I send herewith.

"I remain, dear children,

"Your faithful friend,

"HENRY YOUNG."

OXFORDSHIRE.

(Shape and boundaries).—*Oxfordshire has a very irregular shape, on account of the windings of the Thames, which separate it from Berkshire. It is bounded on the north by NORTHAMPTON-*

shire, on the south by BERKSHIRE, on the east by BUCKINGHAMSHIRE, and on the west by GLOUCESTERSHIRE and WARWICKSHIRE.

(Soil).—*The Chiltern Hills, with their rich beech trees; the pipe-clay and ochre; and the butter and calves which are produced for the London market, are the only particulars worth noticing in reference to the soil.*

(Rivers).—*The small tributaries of the THAMES, such as the CHARWELL and the THAME, and the THAMES itself, are the principal rivers of this county.*

(Towns).—*The capital of the county is OXFORD, a most renowned seat of loyalty and learning; it is famous for its ancient University, with twenty Colleges and five Halls. WITNEY, BANBURY, and WOODSTOCK, are the other towns of note.*

THE BIRD'S LESSON.

THOU'RT up betimes, thou little bird,
And out this morning early,
For still the timid bud is closed,
And still the grass is pearly.

Why rise so soon, thou little bird,
Thy soft warm nest forsaking,
To brave the dull cold morning sky,
While day is scarcely breaking?

Ah! thou art wise, thou little bird,
For fast the hours are flying,
And this young day, but dawning now,
Will soon, alas, be dying.

I'll learn of thee, thou little bird.
And, slothful habits scorning,
No longer sleep youth's dawn away,
Nor waste life's precious morning.

Rhymes Worth Remembering

ARITHMETIC.

Lesson 12.—SUBTRACTION (continued).

P. I AM going to work another subtraction sum for you, Miss Ada.

Question.—Suppose that I had 522 sheep in a field, and lost 346, how many sheep would be left?

From 522 sheep
take 346 sheep,

and there remain 176 sheep.

Ada. I don't understand at all how you could subtract that, papa. How *could* you take 6 ones from 2 ones? Six is *more* than 2.

P. If you will be patient, I will show you. I said to myself, I want to take 6 ones from 2 ones, but I *can't*, for 2 is less than 6. "But," I said, "I have more than 2 sheep in the upper line of figures, for the next 2 means twenty sheep, or 2 *tens*; so I can take one of these tens, and *change* it into ones; then I shall have enough to take 6 from." This ten which I borrowed made *ten ones*, and, when I added it to the *two* ones, there were twelve ones. I now counted from the 6 up to the 12, and found that then there were 6 ones remaining.

Ada. I can understand that; but what did you do when you wanted to subtract 4 tens from 2 tens? I couldn't do such a thing!

P. Nor could I; for you see, in the first place, that I had only *one* ten in the upper

line, because I had taken away a ten, and had changed it into ones.

Ada. Yes, I remember that.

P. So I said to myself, "If I have not enough tens to take 4 tens from, I have some *hundreds* in the next place; I will take one of those 5 hundreds, and change it into tens."

Ada. One hundred would make *ten* tens, just as the ten made *ten* ones.

P. True; and those *ten* tens, with the *one* ten, made *eleven* tens. I then counted up the difference between 4 tens and 11 tens, and found that it was 7 tens, which you see I have written down.

Ada. Yes. You subtracted the hundreds next, I suppose.

P. Yes. I did not say to myself, "3 hundred from 5 hundred," because I had *changea* one of them into tens; I therefore had only 4 hundred in the upper line. The difference between 3 hundred and 4 hundred is 1 hundred.

Thus the answer to my question was 5 ones, 7 tens, 1 hundred; or, as we say generally, 1 hundred, 7 ty, 5 ones.

Now, let me see if you can work the following sum:—

From 42,276 apples
take 24,189 apples.

Ada. Take 9 apples from 6

apples. I cannot do it; so I take 1 ten from the 7 tens, and change it into 10 apples. 10 and 6 are 16; from 9 to 16 are 7.

Take 8 tens from 6 tens. I cannot do it. I get 10 tens from one of the hundreds, and I then have 16 tens. From 8 tens to 16 tens are 8 tens.

Take 1 hundred from 1 hundred, and there remain 0 hundreds.

Take 4 thousand from 2 thousand. I can't do it. I take one of the ten thousands from the next figure, and I then have 12 thousand. From 4 thousand to 12 thousand is 8 thousand.

From 2 *ten thousand* to 3 *ten thousand* is 1 *ten thousand*.

So, the difference between the lower number and the upper number is—

7 ones, 8 tens, 0 hundreds, 8 thousand, 1 *ten thousand* apples;

or, I will write it in the old way,—

XXI, CXI
18,087 apples

P. Very well, *Ada*. Now it is my turn. I will show you something else.

CXI CXI
From 142,020 marbles
take 131,240 marbles.

10,780

If you will pay great attention, you will be able to understand how I have worked this sum.

0 ones from 0 ones are 0 ones. Take 4 tens from 2 tens.

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I cannot do it; then I must take one of the hundreds.

Ada. Ha, ha! there are no hundreds to take! What will you do now, *papa*?

P. I want you to notice what I do. I *make* hundreds by taking one of the *thousands*. This I change into 10 hundreds.

Ada. So that now, instead of having 0 hundreds in the place for hundreds, you have 10.

P. True. I will now change one of these 10 hundreds into tens.

Ada. Then, instead of having 10 hundred 2 tens, you have 9 hundred 12 tens.

P. Yes. From 4 tens to 12 tens are 8 tens. From 2 hundred to 9 hundred are 7 hundred, and so on. You can finish the sum yourself. Here is a more difficult sum of the same kind:—

From 420,001 sheep
take 219,974 sheep.

Ada. Take 4 sheep from 1 sheep. I can't do it. I would change a *ten* into ones, but there are no tens, so I can't do it. I would change one of the *hundreds* to make tens, but there are none; I would change one of the *thousands* to make hundreds, but there are none; I would change a *ten thousand*, and I find that I have one.

1 *ten-thousand* makes 10 *single thousands*; but I leave only 9 thousand in the place for thousands, because I change one

into 10 *hundred*. I leave 9 of the 10 hundreds in the place for hundreds, and change the other into 10 *tens*. I leave 9 tens in the place for the tens, and change the other tens into *ones*. 10 and 1 are 11 ones.

Now the rest is easy.

From 4 to 11 are 7.

From 7 tens to 9 tens are 2 tens.

From 9 hundred to 9 hundred are 0 hundred.

From 9 thousand to 9 thousand are 0 thousand.

From 1 ten thousand to 1 ten thousand are 0 ten thousand.

From 2 hundred thousand to 4 hundred thousand are 2 hundred thousand.

So the difference between the two numbers of sheep is 200,027 sheep.

P. And you can prove that this difference is the correct one by adding it to the smaller number. You will find that it will thus become equal to the larger number.

Ada. I think, papa, that this is a *long* way of working subtraction. Willie showed me a shorter way; he only added a 10 ten to the top, and 1 to the next figure in the lower line.

P. Willie's method is shorter and less "troublesome," but it is not so *good* a way as this which I have shown you; it is

not so correct or so reasonable. In this way you recapitulate your lessons in *numeration*, and, by changing these larger quantities into smaller ones, you learn to *feel the value* of each number.

You may carry out the same plan (that of changing the larger quantities into smaller ones) when you practice COMPOUND SUBTRACTION. I need not teach you how to work the two following sums. When you have not enough pence, you make them by changing one of your shillings; when you have no shillings to change, you make them by changing one of your pounds.

You see that I have written the "answer" to each sum, and the proof. Try if you can work these sums correctly.

From . . .	614	10	4 $\frac{1}{2}$
Take . . .	504	10	9 $\frac{1}{2}$

Difference	109	19	7 $\frac{1}{2}$
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Proof . . .	614	10	4 $\frac{1}{2}$
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From . . .	29	0	1 $\frac{1}{2}$
Take . . .	28	19	11 $\frac{1}{2}$

Difference			1 $\frac{1}{2}$
------------	--	--	-----------------

Proof . . .	29	0	1 $\frac{1}{2}$
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BIRDS.

THE birds that fly
In air so high,
And those who share

Our homes and care,
The swan, the duck, the goose,

Praise HIM who gave them!

The cock that crows

When day is near,

The hen that tends

Her brood with care:

Have all to man their use.

THE SEASONS OF DEATH.

LEAVES have their time to fall,
And flowers to wither at the north-wind's breath,
And stars to set;—but all,
Thou hast *all* seasons for thine own, O Death!

Day is for mortal care,
Eve for glad meetings round the joyous hearth.
Night for the dreams of sleep, the voice of prayer;
But all for thee; thou mightiest of the earth.

The banquet hath its hour,
Its feverish hour of mirth and song and wine,
There comes a day for grief's o'erwhelming power
A time for softer tears;—but all are thine.

Youth and the opening rose
May look like things too glorious for decay,
And smile at thee; but thou art not of those
Who wait for ripened bloom to seize their prey.

Leaves have their time to fall,
And flowers to wither at the north-wind's breath,
And stars to set;—but all,
Thou hast *all* seasons for thine own, O Death!

We know when moons shall wane,
When summer birds from far shall cross the sea,
When autumn's hue shall tinge the golden grain;
But who shall teach us when to look for thee?

Is it when spring's first gale
Comes forth to whisper where the violets lie?
Is it when roses in our paths grow pale?
They have *one* season;—*all* are ours to die!

Thou art where billows foam;
Thou art where music melts the air;
Thou art around us in our peaceful home;
And the world calls us forth, and thou art *there*!

Thou art where friend meets friend,
Beneath the shadow of the elm to rest;
Thou art where foe meets foe, and trumpets rend
The skies, and swords beat down the princely crest.

Leaves have their time to fall,
And flowers to wither at the north-wind's breath,
And stars to set;—but all,
Thou hast *all* seasons for thine own, O Death!

MRS. HEMANS.

ELEVENTH WEEK. MORAL LESSON.

MONDAY.

CHARITY.

"Believeth all things."

OUR PARISH BEADLE.

HERE! (said Uncle John) here is another tale on Charity; I found it in my head this morning, ready made.

As I was returning from London last autumn, (you know I always go to London every year, and you may ask your aunt if I don't always bring home plenty of presents with me).

That is CHARITY, (said Lucy.)

I don't think it is, (said Uncle); for if I *didn't* bring them—if I didn't—but we will not talk about that matter now. I had been away three weeks, and the first thing that I observed on entering our village, was this thing—

BOWLES
FOR
BEADLE.

Tom. That is a placard, uncle!

Uncle. Yes, and underneath it was another, on red paper—

NO BEADLE:
LIKE
PARKIN.

I did not much like this bill, for some mischievous fellow had written an *S* at the end of the first line on every bill of the kind. So the bill seemed to say, that Parkin was disliked by all the beadles in existence.

Before I reached home, I saw more of these placards, and heard the boys of the place crying, "PARKIN FOR EVER!"

By all this I saw very clearly that we were to have an election in the parish. Our parish is a very small one; and the most important man in the place then was old Mr. Humphreys; so the morning after my arrival, I paid Mr. Humphreys a visit.

Tom. Who was Mr. Humphreys, uncle?

Uncle. He was called "The Father of the Village." It was he who built the new marketplace; the new comfortable cottages which the men who work at the foundry live in were built by him; he planted the trees on each side of the walks in the church-yard; and so on.

I found Mr. Humphreys in his study. There were on his

table several handbills relating to the election. "I have just been thinking about these two men," he said, when I mentioned what I had called about. "I am really puzzled to know whom to vote for. PARKIN is a very good man, I think; he has a wife and seven small children; Bowles has a wife and five small children. They are both like the candidates in Cruikshank's picture—they have plenty of small children.

"Parkin, you know, is a tinman, and I dare say that he would be very glad of the situation, for his business is not large. The new beadle is to take care of the new fire-escape, as well as the engine, so that he is to be paid £20 a year. I expect we shall have a visit from both of the candidates this morning. Come in!" he added, as a servant knocked at the door.

"Please sir," said the servant, "MR. BOWLES wishes to speak to you."

"Ask him up stairs, then."

We heard a thump thump on the stairs directly afterwards—a double thumping. "Yes," I said, "there are two. You don't mean to say that both candidates are coming at once?"

"Yes, I think so," said Mr. Humphreys. "No! I suppose that this is a friend of his; he is come to carry the cards and papers.—Good morning, Mr. Bowles!"

Bowles. "Yourthervant, thir! I have tome to thowithit your wote and intewetht."

"Eh?" said Mr. Humphreys.

"At the enthuing ewection, thir."

"Oh, you wish me to vote for you, Mr. Bowles. Well, I can't say! You see I am so well acquainted with your friend Parkin. Do you think you could attend to the duties faithfully?"

"Well, thir, ith not for me to thay tho, but them ath knowth me, I think can thay that I alwyth twy to do my betht. Ith thirty-two yearth come Cwithmath, ath I have been in thith pawith."

"Yes; we ought to know you by this time, Mr. Bowles; and I must say that I have always seen you at church on the Sunday. Then, again, you see, Mr. Parkin is a very regular attendant; I believe he knows all the pews as well as you do."

"Yeth, thir, p'waph he doeth. I've noffin to thay gin Mither Parkinth."

"But some people say that he is a more active man than you, friend Bowles."

"P'waph he ith, thir, but I alwayth do my betht. And, if you would give me them boyth to mind in turther, and the pewth to open, well thir, I'm thure you could depend 'pon me. And, thir, ath for the pawith ingine—but ith not for me to thepeak of mythelf."

"Well, Mr. Bowles, you shall have my vote, if I find you more suitable than the other party; but I believe he is a very clever man."

"Well, thir, I dare thay he ith, but I would do my betht. Good morning, thir."

"Good morning, Bowles!—Well," said Mr. Humphreys,

turning to me with a smile, "we shall have PARKIN here next. Now, you pay attention! I will say to him exactly the same words as I have said to Bowles—let us notice his answers."

Before the last words had left Mr. Humphreys' mouth, in walked PARKIN.

"Your servant, sir," said Parkin. "I hope you are well, sir. Hope *you* are well, too, sir!" he added, addressing me.

"Eh?" said Mr. Humphreys.

"I hope you are quite well, sir," repeated Parkin, in a louder voice, supposing Mr. Humphreys to be deaf. "I have come about your vote at the ensuing election, sir!"

"Oh! you wish me to vote for you, Mr. Parkin? Well, I can't say! You see I am so well acquainted with your friend Bowles. Do you think you could attend to the duties faithfully?"

"I suppose, sir, you are joking with me," said Parkin, "to call Bowles my friend."

He is no friend of mine, sir. I never have much to do with that class of men; he cannot read or write correctly—that is to say, not—not—not as he might be *expected* to do, for a beadle. As for my attending to the duties, of course I can—you never *have* seen me away from church, hardly ever."

"Yes," said my friend, "we ought to know you by this time, Mr. Parkin; and I must say, that I have always seen you at church on the Sunday. Then, again, you see, that *Mr. Bowles* is a very regular attendant; I believe he knows all the pews as well as you do."

"I should hardly think that, sir. I have been in this parish six years, next Midsummer, and I ought to know the inhabitants pretty well. You see, sir, there are the boys to look after, and those children are in the habit of mocking Mr. Bowles, because he lisps—I can't even keep my own children from doing it."

"But some people say that he is a more active man than you, friend Parkin."

"And I have heard, sir, that he is one of the laziest men in the parish. It is on that account that I think it my duty to oppose him. A man who does not take the pains to speak properly—who lisps as much as he did when he was a boy—that *must* be laziness, I am sure."

"Well, Mr. Parkin, you shall have my vote if I find you more suitable than the other party, but I believe he is a very industrious man."

"I'm afraid you'll find yourself mistaken, sir," said Parkin, rather sharply, for he seemed as if he could not bear to hear Bowles spoken well of. "Good morning, sir."

I had noticed that while Mr. Humphreys was talking, he was writing on a piece of paper which lay before him. When Parkin was gone, he showed me that he had drawn a straight line from the top to the bottom of the paper, and that he had written in shorthand the answers of Bowles on one side of the line, and those of Parkin on the other side. "I have added them up," he said, "and

I have quite decided whom I will vote for."

But Mr. Humphreys would not tell me his decision, and he left me to judge for myself.

On the day of the election, it seemed pretty clear what course matters would take. The boys and girls were all crying, "PARKIN FOR EVER." The people hastened to the vestry with as much importance as though they were electing a Member of Parliament. The state of the poll at 10 o'clock was—

Parkin		42
Bowles		13

Again, at 1 o'clock it was—

Parkin		98
Bowles		47

But the men at the iron-foundry had not voted yet. They left off work at half-past 3; there were seventy men altogether, and fifty-two of them had votes. They determined that they would all vote for the same man, but they could not come to one opinion. At last they resolved that they would all vote on the same side as Mr. Humphreys. They all agreed that their landlord, who was "The Father of the Village," was a better judge than they were. So they all marched in a body to the church, and waited until Mr. Humphreys should come out from giving his vote.

"Don't vote for Bowles!" said the children. "Down with old Bowles!"

"No good thoulth
Votes for Bowlth."

"Five small children! friends," said Bowles's party.

"Seven small children!" said Parkin's party. And a great many more things were said, such as people only say at election time. It was said that Parkin had given the children of the village a great many sweetmeats, and had given them some Christmas candlesticks out of his shop. Mr. Bowles, however, was a barber, and all he would offer to do for them, was to cut their hair.

Or to shave them, (said Ion).

Uncle. Yes, but the children were not likely to care about either privilege. It was heard, however, that Parkin was "awfully strict" with his own children, and that he was even unkind to his wife. The workmen were talking over one or two matters which they did not like in Parkin's character, when Mr. HUMPHREYS was seen coming out of the vestry.

There was, instantly, a buzz amongst the iron-foundry men, and one of them advanced to speak to him. When he heard of their determination, he said that he would rather that each man should vote according to his own judgment; but they would not agree to this.

"Well, then, friends," said Mr. Humphreys, "if you really must know my opinion, you shall have it. Both the candidates called upon me. When I spoke to Bowles about the character of his opponent, he never said a word against him; he was ready to believe everything I said in his favour. When Parkin

called on me, *he would not believe a word in favour of Bowles*; he said all he could to damage his character.

"Now, friends, I have one very certain rule for judging of other people. Hear it—

"Whenever I find a man willing to believe a good report of another, especially of his enemy, I know directly that this man has some good in him. Again, when I find a man thinking and speaking ill of others, I think to myself that he has not charity. He thinks thus because he has evil within himself. We all judge others by what we are ourselves. Do you understand that?"

"Yes, sir," they all replied.

"Then," said Mr. Humphreys, as I am quite sure about this rule, I have voted for Mr. Bowles. I believe, too, that the children will be kept in order in the church much better by one who is ready to think

well of them, and to believe that they are good, than by one who will think evil of them."

When the workmen of the iron-foundry heard these words, they remembered the reports concerning the wife and children of Parkin, and they all shouted, "*BOWLES FOR EVER!*" I was just entering the vestry to vote for Bowles; many others followed my example, and in a few minutes the election was settled. Parkin had boasted half an hour before that he was *certain* of success, and now Bowles had won by a majority of 12.

You may make your own lesson from this tale. I can only tell you that Mr. Humphreys' words have proved quite true; that we find PARKIN to be not so good a man as he was supposed to be, and that BOWLES is an *excellent beadle*.

BLESSING.

Who ever lost by giving?

The sky pours down its rain,
Refreshing all things living,
While mists rise up again.

Go, rob the sparkling fountain,
And drain its basin dry;
The barren seeming mountain
Will fill its chalice high.

Who ever lost by loving?
Though all our heart we pour,
Still other spirits moving,
To pay our love with more.

And was there ever blessing
That did not turn and rest;
A double power possessing,
The blesser being blessed?

New York Observer.

CALYCIFLORALS, &c.

Sub-class 2.—CALYCIFLORALS.

P. We will proceed with our account of the orders of this sub-class.

Order 4.

ROSACEÆ.

Plants resembling the WILD-ROSE, or STRAWBERRY BLOSSOM.

a (*Parts.*)—The parts of these plants closely resemble those of the *Ranunculaceæ* in the sub-class *Thalamiflorals*. They have five sepals and five petals (sometimes, but very seldom, there are only four of each).—The strawberry-blossom seems to have ten sepals, but, on examination, these are found to be arranged in *two rows*; the outside row may therefore be considered as bracts. The *stamens* are numerous and *perigynous**—(it is principally by the stamens that this order is distinguished from the *Ranunculaceæ*, which have *hypogynous* stamens). The *pistil* of the strawberry (like that of the *crowfoot* on the *Ranunculaceæ*) consists of a cluster of distinct carpels; but when the corolla has fallen off, these carpels are separated from each other by the receptacle, which gradually swells and forms a tender juicy fruit; the carpels still remain on the outside, where they may be seen in any strawberry. The calyx, as is well known, remains at the base of the fruit (here again the flower differs from the *crowfoot*, which has a *deciduous* calyx). The number of carpels and the manner of their development, vary very much in the different flowers of this order.

* See second cut, page 182, vol. 5, where, in the last line, for *epigynous*, read *perigynous*.

In the *raspberry*, the carpels themselves swell and become the fruit; in the *dog-rose* the fruits, which are called "*hips* and *haws*," consist of the tube of the calyx. The fruit of the *apple-tree* consists of the ovary and the tube of the calyx united. In the *ALMOND TRIBE*, which includes the *plum*, *apricot*, *peach*, *cherry*, &c., the carpel becomes a hard stone.

In *size*, these plants are either herbaceous, are shrubs, or trees. The *leaves* are either simple or compound; they are alternate, and generally have two stipules.

b (*Varieties.*)—Roses, pot-tillas, strawberry, raspberry, apple, pear, whitethorn, mountain ash, sloe or blackthorn, plum, cherry, apricot, peach, nectarine, almond, Portugal laurel, common laurel, cherry laurel, &c. &c. These plants form the Order ROSACEÆ.

c (*Uses of this Order.*)—This order is nearly equal in extent and importance to the LEGUMINOSEÆ, for it contains the principal and most valuable of our fruits.

Order 5.

ONAGRACEÆ.

Plants resembling the ENOTHERA.

(*Varieties, Parts, and Uses.*)—The *ENOTHERA*, or evening-primrose (formerly called *onagra*, or ass-food); the *EPILOBIUM*, or willow-herb, and the *FUSCHIA*, are the best-known plants of this order in England; the principal flowers are found in America.

They are distinguished by the *ovary*, which has four cells, each containing many seeds; the *pistil* has one style and four stigmas. There are four or eight *stamens*.

(To which classes of the *Linnean system* do the plants therefore, belong?) The calyx is *superior* to the ovary (or *epigynous*—that is to say, the sepals surround the ovary, and seem to arise from the top). The flowers are either of a red, purple, white, blue, or yellow colour. In size they are either herbaceous or are shrubs.

(Note.—The deep crimson part of the fuschia is the calyx,—here it may be plainly seen that the calyx is superior, as the spreading sepals arise from the top of the ovary; the small dark-purple leaves rolled up within it are the petals.)

Order 6.

MYRTACEÆ.

Plants resembling the MYRTLE.

(Parts.)—Calyx superior, with five sepals, sometimes four, forming a tube. Corolla with same number of petals as there are sepals. Stamens numerous; sometimes only twice as many as the petals. Ovary with three cells, each many-seeded. Pistil with simple style and stigma.

The principal distinction of the order is the peculiarity of the leaves, which are filled with transparent dots like those of the orange-tree; these dots are, as in the other case, receptacles for a fragrant aromatic oil.

(Varieties and Uses.)—The common myrtle; the clove-tree; the pimento, or all-spice; the guava; the pomegranate-tree; and the gum-tree of Australia.

(Note.—The clove has only two cells in the ovary, and the parts are arranged in fours. Every part of this tree abounds in aromatic oil; the unripe flower-buds of this plant and the berries of the all-spice are two of our principal spices. The berries and fruits of

some kinds are eaten as fruits; and the Malays use the leaves of one species as a tea.

Order 7.

CUCURBITACEÆ.

Plants resembling the CUCUMBER.

(Parts.)—These are tall herbaceous plants, growing in the tropics, and in temperate climates under glasses. They have twining stems with tendrils. The sepals, petals, and stamens are each five in number. In the cucumber the sepals are sometimes wanting, and the corolla then looks like a calyx. The ovary has three or five united carpels; as the fruit ripens, the partitions of these carpels are lost, and they form only one cell. The pulp of the fruit is formed like that of the apple, by the prolonged receptacle and tube of the calyx. The shape of the fruit is varied; in the cucumber it is long—the gourd is nearly globular; so also are the melon, water-melon, &c.; the pumpkin, vegetable-marrow, &c. have oval and other shapes. These plants form the Order CUCURBITACEÆ.

(Uses of this Order.)—These plants are useful, particularly in hot countries, for their cooling pulp. Some also supply useful vessels—the rind of the gourd, when cut in half, forms two basins; some grow in the shape of bottles, being six feet long by one foot and a half in circumference. The vegetable-marrow is a common dish at the dinner-table; melons are used on the Continent for feeding cattle, hogs, &c.

Order 8.

PASSIFLOREÆ.

Plants resembling the PASSION-FLOWER.

(Parts, &c.)—The passion-flower is found principally in America.

It was so called by the superstitious Spaniards, who gave religious names even to the rivers and towns of the countries they discovered. They thought that the five anthers of the stamens represented the five wounds of Our Saviour; that the three styles of the pistil represented the nails of the cross; that the column formed by the stamens represented the cross itself; and that the *numerous little fibres* which spread from the cup were like the crown of thorns. The *petals* and *sepals* are each five in number.

The *ovary* when ripe is egg-shaped, and very fleshy inside; it may be eaten with safety. When cut across it is found to contain many pulpy seeds, which grow from three parietal placentæ, like those of the violet. In this country the ripe ovary is sometimes as large as a hen's egg. In some tropical kinds it reaches the size of a man's head, and contains a slightly acid pulp. The rind, too, is a little acid; when cut into slices and made into tarts, it tastes something like apple.

Order 9.

CRASSULACEÆ.

Plants resembling the HOUSE-LEEK.

(*Parts, &c.*)—These plants have thick "succulent" leaves. It is said, that "they are found in the driest situations, where not a blade of grass nor a particle of moss can grow; on naked rocks, old walls, and sandy hot plains exposed to the heavy dews of night, and the scorching mid-day rays."

The parts of these plants vary in number; the *petals* are of the same number as the *sepals*; the *stamens* (which alternate with the petals) are either equal in number or twice as many; the *carpels* of the pistil are as numerous as the petals, and each contains several ovules. The *HOUSE-LEEK* has twelve stamens, and twelve styles to the pistil; while the *STONE-CROCK* has five sepals, petals, and pistils, and ten stamens. These plants are very tenacious of life; they can resist the sun's rays, because the cuticle of the leaf is so very thick and has few stomata.

JANE'S NEW FROCK.

AND so you have got a new frock, little Jane,
And a pretty one truly it is;
Well, I hope you'll ne'er vex your dear mother again,
But thank your kind parents for this.

But why do you run, Jane, so oft to the glass,
And why strut about all the day,
And toss up your head when your playfellows pass,
If you are rather smarter than they?

I fear that gay frock, Jane, may do you some harm,
If your heart thus to pride should incline,
For dress is to keep us but tidy and warm,
And not make us gaudy and fine.

That we may with piety ever be drest,
Should still be our chiefest desire,
For modesty is of all ornaments best,
Humility noblest attire.

Rhymes Worth Remembering.

THE ENGLISH TRAVELLER.

NORTHAMPTONSHIRE.

"MY DEAR CHILDREN,—

"I can't say that there are many ruins in Northamptonshire. Now, I had heard of *Higham Ferrers*, and *Bruckley*, and *Northampton*, and *Fotheringay*. There were castles in these old places—a long time ago—and, after the castles, were were their ruins, perhaps—but where are they now?

"That is the question. 'Master!' I said to an old peasant who was sitting down on a stone, and was doing nothing at all, 'Master, where is FOTHERINGAY CASTLE?'

"'Noo, there ben't noo castle here, zur.'

"'Well, then, the ruins—there be the ruins?'

"'There ben't noo ruins at all. There's arth-works yonder, where the old castle wor wunst. But the castle, bless you, zur, 'twor all pulled down, long before your time, nor mine. I can tell ye all about it.'

"And so he did, dear children; and I can tell you—but we must make the story very short.

"Do you not remember MARY QUEEN OF SCOTS? The Scots would not let her be married to young EDWARD VI. of England; but they sent her to France, and wedded her to the Dauphin, who was a Roman Catholic. It was partly on this account that Mary became a

Roman Catholic also. And do you remember how, after the Dauphin was dead, she married Lord Darnley, and had a little son, named James Stuart? And how, also, Lord Darnley was murdered, and Mary afterwards behaved so badly, and so offended her Protestant subjects, that she was obliged to flee to England? And you remember, too, how Mary was imprisoned in England by her cousin Queen Elizabeth, and at last was tried, and condemned, and beheaded? She was beheaded in Fotheringay Castle.

"And you remember, too, that when Queen Elizabeth died, little James Stuart had grown up a big man, and was called King James VI., in Scotland; and that he then was made King of England also.

"And when King James was really king here, and he heard people talk of Fotheringay Castle, and he thought that they looked at him, as much as to say, 'Ah! that is the place where your mother was killed!' what would he do to that castle?

"What would you have done to the castle if your mother had been killed there?"

W. I know! Let me tell you.

"I know pretty well what you will say; you'll say, 'I would pull it down. Down with it! every

stone! Let not one remain on another, but demolish it entirely! I can't bear the sight of the place!"

"I'm sure you would say that, now! James I. said so; and directly he got up on the throne, Fotheringay came down to the ground.

"And then, after Fotheringay, there is NASEBY. That is not a place to be forgotten. The battle fought there decided the civil war which the son of James I. and his parliament fought. More than 8,000 men met more than 8,000 men, and proceeded to the business of cutting, and shooting, and killing each other. More than 800 followers of Charles I. were killed, and a still greater number of Parliament men. 4,000 Royalists were taken prisoners there, and all the artillery too, and with these the hopes of King Charles were gone; his fate was sealed.

"What shall I say about the boundaries of Northamptonshire?—Look on the map.

"What shall I say of the position of the county?—That it is almost in the centre of England.

"What shall I say of the shape of the county?—That it is rather awkward to define. What do you think of its shape? I think it is something like that of a slug. Say it over to yourselves—*The shape of NORTHAMPTONSHIRE is like that of a slug.*

"What shall I say of the soil of this county?—I know what that old peasant said when he was sitting on a stone. He said

that 'twasn't no-ways particular—*remarkable*, he meant. But he said something about the climate, which you may discover for yourself. Don't you remember how damp and aguish Lincolnshire, and many more eastern counties are? That is because they are so near to the sea. But the sea cannot get at Northamptonshire. It would have to cross Cambridgeshire, &c. Thus, the climate of this inland county is 'mild and salubrious.' On this account partly, it abounds with noblemen's and gentlemen's seats. Of course, this is natural enough; if you wished to live in the country, I dare say you would build your house where the air is pleasant and healthy.

"I might talk to you of Rockingham Forest, and of Whittlebury Forest, where *wild cats* may still, now and then, be found. But enough of the soil and the country; let us walk into the towns.

"This, if you please, is NORTHAMPTON—chief produce, boots and shoes. These boots and shoes are not 'made to measure.' They are 'ready-made,' and are worn by those who don't mind fitting their feet to the boots, instead of fitting the boots to their feet. They are not only worn in London and other large cities, but they are exported in considerable quantities.

"There is little worth noticing in the town. The county gaol is a fine building, and it is interesting because it was built according to the plan of the celebrated JOHN HOWARD. I

should like to give you this good man's history, but I dare say you have read long ago how he travelled through England, and other parts of Europe, visiting the sick and the afflicted, and comforting those who were in prison.

"PETERBOROUGH is another Northamptonshire town. You will find it in the north-east corner of the county. It is a very ancient place, and was formerly noticable for its splendid monastery. I think that before the time of Henry VIII. the city must have been full of monks. Some of these men were as numerous as they were rich, and the town was then called 'Gilden-burgh,' or 'Golden-city.'

"The great glory of the city now is its magnificent cathedral. It contains two remarkable tombs, that of the mother of James I., MARY Queen of Scots, and that of CATHERINE, wife of Henry VIII. The celebrated divine, Dr. PALEY, was born in this town.

"The rivers of Northamptonshire are the *Nene*, which flows northward through the centre of the county, and the *Welland*. The canals are almost as important as the rivers; while the railways are more important still. The LONDON AND BIRMINGHAM RAILWAY crosses the

county; so also does the GREAT NORTHERN, another of the *trunk* lines of Great Britain.

"I do not find any more particulars of this county worth recording, so I commend my 'memory-lesson' to your notice, and remain, dear children,

"Yours faithfully,

"HENRY YOUNG."

NORTHAMPTONSHIRE.

(Position, Shape, and Boundaries.)—*The shape of NORTHAMPTONSHIRE somewhat resembles that of a slug; the county is situated near the centre of England. It is bounded on the north by LEICESTERSHIRE, RUTLANDSHIRE, and LINCOLNSHIRE; on the east by BUCKINGHAMSHIRE, BEDFORDSHIRE, and HUNTINGDONSHIRE; and on the west by WARWICKSHIRE.*

(Soil.)—*The soil of this county is rich, and well cultivated; and the climate is remarkable for its mildness and salubrity; the county therefore abounds in gentlemen's country seats.*

(Rivers and Towns.)—*The principal rivers are the NENE and the WELLAND. On the former are situated NORTHAMPTON, the capital of the county, noted for its ready-made boots and shoes; and PETERBOROUGH, an ancient city, celebrated for its splendid cathedral.*

No reign but ANNE's in war more justly crown'd,
No reign for learning justly more renown'd;
ELIZABETH a SHAKESPEARE own'd;
CHARLES could a MILTON boast;
But ANNE saw NEWTON, high enthroned
Amid the heavenly host.

ARITHMETIC.

*Exercises 12 and 13.*SUBTRACTION AND MIXED
QUESTIONS.

P. I do not intend, Miss Ada, to teach you any new principles to-day; I have, however, supplied you with new exercises. You will find some of the questions in one of our arithmetic books (that of the Commissioners of National Education in Ireland). I have given them to you to save myself the trouble of writing others.

*Exercise 12.—SUBTRACTION.
(Simple Subtraction.)*

(a)	CXI	CXI	CXI
From	206	340	400
Take	109	249	399

	I, CXI	XI, CXI
From	4,004	70,402
Take	3,465	69,463

	CXI, CXI	CXI, CXI
From	409,706	400,000
Take	399,688	388,889

(b) Ben Nevis, in Scotland, the highest mountain in the British Islands, is 4,350 feet above the level of the sea; the summit of Magillcuddy's Reeks, the highest point in Ireland, is 3,610; what is the difference in height between these two mountains?

The Shannon, the largest river in the British Isles, has a course

of about 170 miles. The Amazon, in South America, has a course of about 3,000 miles. What is the difference in length of their course?

The diameter of the sun is about 883,246 miles; that of the earth about 7,912; what is the difference in the diameter of the sun and earth?

The surface of the earth is nearly 200,000,000 of square miles; of this it is probable that 60 millions are land. How many more square miles of water than of land are there in the earth's surface?

Mont Blanc, in Switzerland, is the highest mountain in Europe, being 15,680 feet above the level of the sea. Chimborazo, the highest mountain in America, is about 21,000 feet in height. What is the difference in height between these two mountains?

Coals were discovered in Newcastle, A.D. 1234. How long is it from that time to the year 1853?

Since convicts were first sent to Botany Bay, it is now, viz. 1853, about 59 years. In what year were convicts first sent?

Sir Isaac Newton was born A.D. 1642, and died 1727. How old was he when he died?

The art of printing was discovered about the year 1449. How long is it from that time to the year 1853?

The height of our cottage is 24 feet, while our church tower is 264 feet high. First tell me how much higher the church is than the cottage; then, secondly, say how many such cottages must be piled one on top of another to reach the height of the church? (To find

the answer to the last question you must, after you have subtracted the height of the cottage from that of the church, subtract that of another cottage from the remainder. Then, take the height of another from that remainder; and, if the remainder is still more than the height of the cottage, subtract again, and so on: continue to subtract the height of the cottage from each remainder until there are no feet remaining.)

(c) (Compound Subtraction.)

	£	s.	d.	£	s.	d.
From	14	2	6 $\frac{1}{2}$	17	3	10 $\frac{1}{2}$
Take	12	2	5 $\frac{3}{4}$	16	3	10 $\frac{3}{4}$

From	116	0	6 $\frac{1}{2}$	128	0	0 $\frac{3}{4}$
Take	108	9	6 $\frac{1}{2}$	119	19	11 $\frac{3}{4}$

From	14,001	16	7 $\frac{1}{2}$	1042	0	3 $\frac{1}{2}$
Take	10,762	16	8 $\frac{1}{2}$	909	2	2 $\frac{1}{2}$

From	4,601	12	4	70	0	0
Take		0	12	4 $\frac{1}{2}$	0	0

(d) From £4,298 16s. 6 $\frac{1}{2}$ d. take £1490 19s. 8 $\frac{1}{2}$ d.

Take £2,704 19s. 8 $\frac{1}{2}$ d. from £17,024 18s. 0d.

How much will remain of £4,968, if you take away £1,467 19s. 6 $\frac{1}{2}$ d.?

I lent John £2,046 15s. 0d.; he has paid me £1,276 14s. 9d. How much does he still owe me?

A person was sent to the Bank to receive £467; in returning he lost two fifty-pound notes, and

three ten-pound notes. How much had he remaining?

A cow and calf were worth £16 7s. 10 $\frac{1}{2}$ d.; but the calf alone was worth £2 6s. 7 $\frac{1}{2}$ d. Can you tell me the value of the cow?

A farmer owed £164 10s. 0d.; he gave to his creditors a horse worth £24; a cow worth £16 14s. 6d., and a plough worth £13 16s. How much was still due?

A vessel, with its cargo, was worth £56,439; the cargo was worth £34,909 8s. 6d. What was the value of the ship?

A tradesman borrowed £1,243; in January he paid £236 15s., in April £197 12s. 6d., in August £349 18s. 8d., and in December £283. How much does he yet owe?

A man possessed £5,426, but he gave his brother £641 14s. 2d.; how much had he remaining? He next gave his sister £349 12s. 6 $\frac{1}{2}$ d.; how much remained to him then? He next gave his father £1,241 13s. 11 $\frac{1}{2}$ d.; how much was then left to him?

Prove to me whether your answer to the last question is correct, by adding together all the amounts given, and subtracting the whole from the £5,426.

Exercise 13.—MIXED QUESTIONS.

Tom had 264 marbles; he gave 64 to James, 75 to William, and 42 to John. How many had he left?

A merchant had 4,268 yards of cloth; on Monday he sold 146 yards, on Tuesday 97, on Wednesday 246, on Thursday 198, on Friday 364, on Saturday 497. How much cloth had he remaining?

Three boys had 7s. 6d. each, and

another had £1 2s. 4½d., when a rude man said to one of them, "Give me 1s."; to another, "Give me 5s. 9d."; to another, "Give me 8d."; and to the other, "Give me 4½d." When all the boys had done what he told them, how much money had they left?

John had 9d. and 1s. 11½d., but he lost 6d., and gave away 1½d.; on the next morning his father gave him 11d.; then how much money had he?

A young man had in the Savings Bank £124 16s. 6d., and #72 3s. 8d. Being sick and unable to work he drew out £8 4s. 8d. After this he went into business and laid out in the purchase of stock £42 16s. 6d., and for fixtures £14 18s. What sum had he still in the bank?

A merchant has in cash £568 17s. 6d.; goods valued at £4,794 18s.; a house worth £809; a ship worth £894; debts due to him £749 16s. 9½d. He owes for goods £2,475 16s.; an architect £374 19s., and various other sums that come to £798 17s. 9½d. What is his net stock?

One day I bought some goods for £104 2s. 1½d., and sold them for £125; I also gained £34 2s. 1d. by another transaction, and 2s. 4d. by other means; how much profit had I then made?

My cousin had only 13s. 4d., but in the course of a week he gained in business £4 6s., and lost £2 1s.; the next week he gained 6s., but lost £2 10s. At the end of the fortnight was he richer or poorer than he was at first?

A man had a journey of 298 miles to make; the first day he walked 42 miles, the second 36

miles, the third 31 miles, the fourth 27 miles. How much farther had he to go?

Three vessels sailed to America with emigrants; in the first vessel there were 126 men, 96 women, and 42 children; in the second vessel there were 93 men, 37 women, and 26 children; in the third vessel there were 43 men, 24 women, and 8 children. In the first vessel three persons died; in the second two were washed overboard; the third vessel was wrecked and all on board perished. How many got safe to America?

A man at the Australian diggings earned £42 4s. 3½d on Monday; £31 0s. 4½d. on Tuesday; and £3 4s. 5½d. on Wednesday; he was too tired to work during the rest of the week, but he found that he had spent for board and lodging during the first three days £5 2s. 1d.; his board and lodging cost him on the Thursday £2 10s. 4½d.; on Friday, £3; and on the Saturday, £1 4s. 0d. How much richer was he on the Saturday night than on the Monday morning?

A little boy went to the Zoological Gardens to see the animals; he laid his hat on the ground, which contained 264 nuts; while his attention was engaged, the monkey stole 27 of his nuts; while he was pursuing the monkey, a squirrel made off with 16 more. How many had he remaining?

The population of Cork is about 108,000; of Belfast 55,000; of Liverpool 166,000; of Glasgow 203,000. By how much does the population of London exceed all these cities, the population of it being 1,776,556 in the year 1831?

CHRIST IS MERCIFUL AND MILD.

MENDELSSOHN.

Tenor. 2 Treble. 1 Treble.

1st Ver. Christ is mer - ci - ful and mild; He was
 3rd Ver. He the sick to health re - stord, To the

once a lit - tle child; He whom heav'n - ly
 poor he preach'd the word; E - ven chil - dren

hosts a - dore, Liv'd on earth a - mong the poor;
 had a share Of his love and ten - der care.

p.

2nd. Ver. Thus he laid his glo - ry by, When for us he
4th. Ver. He who is the Lord Most High, Then was poor - er

2nd. Ver. Thus he laid his glo - ry by, When for us he
4th. Ver. He who is the Lord Most High, Then was poor - er

f.

stoop'd to die: How I won - der when I
far than I, That I might here - af - ter

stoop'd to die: How I won - der when I
far than I, That I might here - af - ter

see His un - bound-ed love for me.
be Rich to all e - ter - ni - ty.

see His un - bound-ed love for me.
be Rich to all e - ter - ni - ty.

TWELFTH WEEK. BOTANY.

MONDAY.

CALYCIFLORALS.

Sub-Class 2.—CALYCIFLORALS.

P. To-day we will continue our account of the orders in the sub-class CALYCIFLORÆ.

Order 10.

CACTEÆ.

Plants resembling the CACTUS.

(Parts, &c.)—These plants are in the tropics like the house-leeks in the temperate climates. During "the rainy-season," when the atmosphere is loaded with mist and the earth with moisture, the cactus lives very fast and fills all its tissue with fluid. It is thus able to live during the hot weather, for the thick cuticle which covers it (like the cuticle of the house-leek) prevents the water from evaporating. This water nourishes the plants until they can get a new supply, like the water in the stomach of the camel in the desert. The thick fleshy parts of the plant are the *stems* and *branches*, which are flat and expanded, and perform the functions of leaves. There are no real leaves, but a series of *tufts of prickles* which grow on the stem at regular intervals. These tufts are undeveloped leaves; they are the midrib and veins not connected by any tissue. The *flowers* of this order are showy, and even splendid, but are very fugitive; they also have a delightful fragrance. The *ovary* contains many

ovules, which grow from parietal placentæ.

(Uses of this Order.)—The ovary, when ripe, resembles a gooseberry, but has not so good a flavour. On MOUNT ETNA the large cooling *fruits* of one species are called the *Indian Fig*, and are sold extensively. Here they have a singular use; they are of service in bursting the large rocks of lava by the growth of their *roots*. In the WEST INDIES the cattle tear off the thick thorny skin that covers the *stems*, and feed upon the moist pulp. The *flowers* and fruit of one species contain a red juice; this supplies food to an insect called the *coccus cacti*. These insects are filled with the colouring matter, and their dried bodies form the valuable red dye which is called *cochineal*.

Order 11.

GROSSULARIACEÆ.

Plants resembling the GOOSEBERRY.

(Parts.)—The gooseberry affords a good instance of a *superior* calyx (*i. e.*, a calyx which arises from the top of the ovary), for when the ovary has become a ripe berry we see the dry calyx growing on the top; we call it the *eye*, and pull it off the berry before eating it. This calyx may be contrasted with the *inferior* calyx of the strawberry; for when eating straw-

berries, we pull off the fruit and leave the calyx.

(*Varieties.*)—The gooseberry (*Ribes grossularia*); the red currant (*Ribes rubrum*); and the black currant (*Ribes nigrum*), are the principal plants of the order.

On examining the blossom of a currant or gooseberry, we find that it has five *sepals*, and five very small *petals* inserted in the calyx, and when ripe is filled with pulp. The *ovary* is one-celled; its numerous seeds are attached to parietal placentæ; they hang in the pulp by minute threads, from which the *pistil* has a single style with two or four stigmas.

In *size* these plants are "shrubs," the leaves are divided and alternate. The currants differ from the gooseberry, because (1) they have no prickles; (2) their flowers grow in racemes; and (3) the fruit is smaller.

(*Place.*)—These are hardy plants, growing in cold temperate climates; they are natives of England, but the black currant is found in Russia, and even in Siberia, where the leaves are used as tea. The fruit of the gooseberry may be said to represent that of the cactus in cold climates.

Order 12.

SAXIFRAGACEÆ.

Plants resembling the SAXIFRAG.

(*Parts, Varieties.*)—The saxifrage, London pride, hydrangea, and many more species, belong to this order. They may be easily known by the *ovary*, which consists of two carpels; these are joined face to face at the base, but diverge at the apex; each carpel is many-seeded, and has a pistil growing from it.

The flowers of this order are something like the Rosaceæ; but they may readily be distinguished

from that order by the two diverging carpels; indeed, all the polypetalous flowers of Europe, which have two diverging carpels with many seeds, belong to the order SAXIFRAGACEÆ. The number of *sepals* is generally five; they are frequently joined to each other; the *petals* are of the same number as the *sepals*; the *stamens* are five or ten in number.

(*Place, Uses.*)—These plants grow "in cold and mountainous countries; on the sides and summits of mountains, the depths of wooded dingles, the sides of trickling streams, and the recesses of dreary bogs." The name, Saxifrage, is derived from *saxum*, a stone, and *frango*, I break. The plant is so called because of its power of breaking up the surface of the rocks on which it grows. Its roots spread in the crevices of the rock, and cause them to break open; like the roots of the cactus plants on Mount Etna. Many species of this order live only in marshy soils; some resemble the *sun-dew* plants of Britain, and have on their leaves large hairs which are tipped with glands. The hydrangeas require a very large quantity of water. It is said that a full-sized plant requires from ten to twelve gallons per day in warm weather.

Order 13.

UMBELLIFERÆ.

Plants resembling the CARROT.

(*Parts.*)—The carrot is a good example of an umbelliferous plant; the flowers are arranged on the stem in a peculiar way, so that any plant of this order may easily be distinguished. The flower-stem divides at the top into a number of rays, which are something like the *stretchers* of an umbrella. Such an arrangement of the stalks is

called a simple *umbel*; but we find, on examining the blossom of the carrot, that each stalk of the umbel bears another and smaller umbel upon it (see vol. iv. page 229). The stems of these plants are nearly always hollow, and the leaves are much divided. The flower has five sepals, five petals, five stamens; and an inferior ovary, containing two cells, each cell having one hanging ovule. The pistil has two styles and stigmas.

(*Varieties and Uses.*)—The carrot, parsnip, celery, fennel, parsley, carraway, dill, anise, coriander, and samphire, &c., belong to this order; so also do the hemlock, henbane, dropwort, fool's parsley, &c. The former group has many important uses; carrots, &c., supply *vegetables* for the dinner-table; celery is eaten with cheese, &c.; fennel with fish; parsley is used for garnishing meat, stuffing, &c.; carraway-seeds are eaten in cakes; dill-water, and extracts of aniseed have narcotic qualities, and are sometimes given to young children. Hemlock, henbane, &c., are also useful medicines, but in

large quantities are violent poisons.

Order 14.

LORANTHACEÆ.

Plants resembling the MISLETOE.

(*Parts.*)—*Calyx* adheres to the ovary, has two bracts; *corolla* with three, five, or eight petals; stamens same number as petals, and opposite; *ovary* one-celled, with one seed; *pistil* with one stigma, which is sometimes "sessile." When ripe, the ovary becomes a soft white berry, filled with viscid matter; the birds eat the berries and drop the seeds on the trees. These seeds are so formed that they pierce the bark of the tree, into which they fix their roots when they begin to grow; such plants are called *parasitical*.

(*Varieties.*)—The *Viscus* and the *Loranthus* are the two principal kinds; but there are several families in this order. The former, which we call misletoe, grows principally on apple-trees, and others of the order *Rosaceæ*; it is very seldom found on the oak.

THE GREAT TEACHER.

I ASKED the little joyous Bird who taught him how to fly,
And sing such pretty songs in the bright blue morning sky;
And he told me it was God who had given to him his wing,
And taught him how to build his nest, and taught him how to sing.

I asked the little lovely Flower who gave her perfume sweet,
And dress'd her in her velvet coat so beautiful and neat;
And she told me it was God who had clothed her with such care,
And taught her how to breathe so sweet upon the evening air.

I asked the little twinkling Star who taught him how to shine,
And run with such a steady pace along his proper line;
And he told me it was God who bade him shine so bright,
And trim his little tiny lamp to cheer the winter night.

Since all things, then, look up to God, the flower, the star, the bird,
And all obey his holy laws, and listen to his word,
I too, although a child, will try his bidding to obey,
That I may learn to please him too, and serve as well as they.

Rhymes Worth Remembering.

CALYCIFLORALS.

CALYCIFLORALS.

Order 15.

CAPRIFOLIACEÆ.

Plants resembling the HONEY-SUCKLE.

(*Parts.*)—The *calyx*, *corolla*, and *stamens* resemble those of the misletoe tribe. The *ovary*, however, is different; it is generally three-celled, with one ovule in each cell. The *leaves* are opposite and without stipules. The *fruits* are succulent. These plants are not "parasitical," like the misletoe.

(*Varieties and Uses.*)—The honeysuckle; the fly-honeysuckle; the guelder-rose; the laurestinus; the snow-berry; and the elder-tree. The uses of elder-berries in making elder wine is well known; the bark is generally astringent; in some cases it is used in tanning. The berries of one species in America are dried and roasted as a substitute for coffee.

Order 16.

RUBIACEÆ.

Plants resembling the MADDER.

(*Parts.*)—*Calyx*, superior, generally with five sepals; but their number varies from three to eight. *Corolla*, with petals equal in number to sepals. (These petals adhere at their lower part and form a tube. Partly on this account these flowers are accounted *monopetalous* by some botanists, and are placed in the 3rd sub-class, the *COROLLIFLORALS*; such is the case with several other orders now in-

cluded in this sub-class.) *Stamens* as numerous as the petals, and alternate. *Ovary* two cells; *ovules* solitary; *pistil* with single style, but as many stigmas as cells in the ovary. *Size*, herbaceous plants and shrubs.

(*Varieties.*)—The MADDER plant; the field-madder; the COFFEE-TREE; the woodruff; goosegrass, &c. These have various uses. The *albumen* of the coffee-seed is roasted and universally used. *Emetics*, *tonics*, and *astringent* medicines are produced from this order. The best known emetic is *ipecaacuanha*, which is "the powdered root of a creeping-rooted plant, found in the damp shady forests of Brazil." The most valuable tonics from this order are *quinine* and *Peruvian bark*. A valuable *dye*, indeed the principal red dye of the vegetable kingdom, is procured from the madder. It is produced from the roots, which are largely cultivated in Belgium and Holland for the dyers of cloth, &c.

Order 17.

COMPOSITÆ.

Plants resembling the DAISY

(*Parts.*)—This is the largest of all the Natural Orders; it contains many thousand species. It corresponds with class 19, SYNGENESIA, in the Linnæan system. By referring to the description of that class (see vol. v. page 133) you will find that what appears to be one flower, consists of a number of distinct *florets*. In these florets the *calyx* is superior, and is so united with the ovary that it cannot be distinguished from it. The

corolla, like the calyx, is superior; it is monopetalous, and is either spread flat (ligulate), or is tubular, with the ends of the petal forming teeth. The *stamens* are as numerous as the teeth of the corolla; their *anthers* are so united that they form a tube. The *ovary* is inferior, one-celled, with one ovule. The *pistil* has one style and two stigmas. The *receptacle* is broad, forming a head, on which the florets are fixed; it is surrounded by an involucre (see vol. iv., page 231).

(Divisions and Varieties.)—This order has three great divisions.

1. CORYMBIFERÆ. — Most of these have the florets *tubular*. The *style* is not jointed; the *involucre* is soft and unarmed. The principal families are the daisy (or day's eye); the coltsfoot; the helianthus, or sun-flower; the Jerusalem artichoke; the dahlia; the chamomile, wormwood, southernwood, mugwort, tarragon, chrysanthemum, groundsel, marigold, ragwort, tansy, &c.

2. CYNARACEÆ. — Most of these have tubular florets, an involucre, hard or spiny, and a style jointed at the end. Their principal families are, the cyanus (or corn-thistle), centaurea scabiosa, &c.

3. CICHORACEÆ. — All of these have ligulate, or strap-shaped, flowers. The principal families are the taraxacum and dandelion, the succory (or chicory), endive, lettuce, sow-thistle, &c.

Order 18.

CAMPANULACEÆ.

Plants resembling the HAREBELL.

(Parts.)—The *calyx* is superior, and has five lobes (or sepals), which are adherent; the *corolla* has five lobes (or adherent petals), in shape

it is like a bell. The *stamens* are inserted in the calyx; these also are five in number, *alternating* with the lobes of the corolla; their filaments are broad and leaf-like at the base, and curve towards the style until the flower opens. The *ovary* is inferior; it has two or more cells which are *polyspermous*; these cells are thick and fleshy (which may easily be seen on examining a Canterbury bell when the ovary has ripened). The cells split at the sides so that the seeds may fall out. The seeds are attached to a central placenta.

In size, these plants are either herbaceous or are *under-shrubs*, yielding a white milk. The *leaves* are simple, deeply divided, without stipules, and mostly alternate. The *flowers* grow in racemes, spikes, or panicles, or in heads; in colour they are usually blue or white.

(Varieties.)—Harebell, Canterbury-bell, rampion, Venus's looking-glass, the lobelia. (The latter is said by some botanists to form another order; but it differs from the harebell only in having syngenesious anthers, and *oval* instead of round pollen grains; the lobelias and harebells are both "allies" of the compositæ.)

Order 19.

ERICACEÆ.

Plants resembling HEATHS.

(Parts, &c.)—The calyx has four or five lobes (*adherent* sepals), and is inferior; the *corolla* is a tube consisting of four or five petals, which are united up to their points (and is thus by some called *monopetalous*). The *stamens* are equal to, or twice the number of the petals, and are *nearly* hypogynous (they can scarcely be said to be inserted in the base of the corolla); their anthers are peculiar and open by pores, being of a

purple colour. The *ovary* has four cells, each with many ovules, growing on central placentæ; the *pistil* has one style, with a flat purple stigma which has four little projections. The ovary when ripe becomes "a dry capsule; this capsule bursts by valves, scattering an immense multitude of seeds, which are as minute as grains of sand,—these have little crests, or fingers, which are called *wings*, because they enable the wind to catch and disperse them."

In size, the plants of this order are either shrubs or under-shrubs. The leaves are evergreen, rigid, entire, whorled or opposite, and have no stipules. (The hypogynous stamens, and the anthers bursting by pores, are the real *distinctions* of this order.)

(*Varieties.*)—This order is an extremely beautiful one. It includes not only the common heaths and many beautiful varieties, but

the rhododendrons, kalmias, azaleas, &c. The arbutus (or strawberry-tree), the cranberry, bilberry, &c., belong to this order. The three latter are useful for their fruits.

Order 20.

ARALIACEÆ.

Plants resembling the IVY.

(*Parts.*)—The *calyx* is superior and entire; the *corolla* has from five to ten deciduous petals, which are sometimes absent. The *stamens* are equal in number to the petals, or twice as many. The *ovary* has more than two cells, each containing a solitary ovule. The *pistil* has the same number of styles as there are cells in the ovary; the stigmas are simple. In size they are trees, shrubs, or herbaceous plants.

(*Varieties.*)—The ivy and the moschatel, which are the only two European plants of this order.

THE BUD.

PRETTY bud, in you I see
Much that's very like to me;
And from your instructive look,
Learn, as from a little book.

I am young, and so are you,
Life with us is fresh and new;
Yet fair buds oft withered lie,
And the youngest children die.

Riper flowers may wide expand,
Win the eye and court the hand,
But, like you, oh may I be
Graced with humble modesty.

When 'tis evening, dark and chill,
Close you wrap yourself from ill;
So may God my heart secure,
Safe from everything impure.

And as, when the sun is up,
You expand your little cup,
So, by my Redeemer's grace,
May my heart his truth embrace.

Rhymes Worth Remembering.

GEORGE II.

P. LAST week you heard of the war which was waged on the Continent on behalf of HANOVER, the King's native country.

L. Yes; and you left off at the battle of *Dettingen*. You said that the king was commander, and that the English were victorious.

W. And you said, too, that this was the last time that a king of England appeared on the battle-field.

P. True. In the following year, 1745, the battle of *Fontenoy* was fought, but in this the English suffered a most bloody defeat. The French were commanded by their most celebrated general, Marshal Saxe; the English were commanded by the king's second son, the Duke of Cumberland. The French besieged the city of Tournay, in Flanders: it is said that their army numbered 120,000 men. The English, in order to save that place, attacked the enemy near the village of Fontenoy. The result of the battle was, that 12,000 of our army were killed, and Tournay was taken.

In the same year, 1745, the English were harassed at home by the memorable rebellion of Prince Charlie.

L. Who was "Prince Charlie," papa?

P. You shall hear. The Pretender, who attempted to gain the crown in the reign of

George I., was still living. He had married a princess of Poland, and now had two sons in the bloom of youth. These resolved to invade England, and once more to try and restore the line of Stuart. The opportunity was a most favourable one, for the best troops of England were absent, engaged in the war with the French; and these had been defeated at Fontenoy. Prince Charles and his brother were furnished with money, and large promises of assistance from France; and accordingly they landed in the north of Scotland, with seven officers, and arms for 2,000 men.

The boldness of this attempt astonished all Europe. It awakened the fears of some and the pity of others. Prince Charles and his brother, however, proceeded vigorously. Directly they reached Perth, they caused their father to be proclaimed king. Charles worked upon the feelings of the Highland chiefs; and soon Lochiel, Clanronald, Glengary, and Keppoch, and other great leaders, were in the field, at the head of their clans.

Down southward went Prince Charlie, with his ardent followers. As they descended from the mountains they gathered strength from all quarters, like the streams that come down from the hills. Full of enthusiasm, they marched boldly into

Edinburgh without opposition, and again Charles proclaimed his father King of England, and himself Prince Regent.

At Edinburgh the rebels were joined by 1,000 more Highlanders. Charles pleased the citizens by promising that the Union of Scotland and England should be dissolved; but very few recruits came forward.

As yet, the king had not been able to oppose the progress of Charles. But while the latter was playing the king at Edinburgh, the news arrived that Sir John Cope was marching toward the city with the king's troops. Charles quickly put his men in motion, arrived at the village of PRESTON PANS, where Cope had encamped, and having lain all night in the field with his Highlanders, he attacked the royal troops the next morning before daylight, and completely defeated them. Each army did not number more than 2,000, but 500 of the king's forces were killed, and a larger number were made prisoners. Charles returned to Edinburgh in triumph, and so prosperous did his enterprise now seem, that he was joined by the Earls of Kilmarnock, Cromartie, and many others.

The country was now in so defenceless a state, that if Charles had proceeded at once to London, he might, with ease, have made himself master of the city. He, however, trifled away his time at Edinburgh, collecting new troops, and waiting for help from France. This gave the government an opportunity to recover its strength,

and to bring over the troops from the Continent.

After six weeks' delay Charles marched southward. He took CARLISLE after three days' siege, again caused his father to be proclaimed king, and marched southward to MANCHESTER. An army of 10,000 men was now waiting to meet him in Staffordshire, under the Duke of Cumberland, but he dexterously passed them, and reached DERBY, when he was only 130 miles from the capital.

Had Charles still continued southward, nothing could have prevented his success; but here he was hindered by the Scottish chiefs. They had expected by this time to have been joined by a larger number of the English; but seeing that the army was still small, they would not go any further. They had also been looking out for the promised assistance from France, but as it had not arrived, they resolved on the next day to return home.

Charles was thus obliged to begin a retreat, and with this movement his hopes were almost ended. It is true that he again defeated the king's army at Falkirk, but they were once more met at Culloden, near Inverness. This time the royal troops were commanded by the Duke of Cumberland, who was the favourite of the army, and had 14,000 men.

The battle of Culloden ended in the defeat of Prince Charles. The miserable condition of the rebels, especially of the Highlanders, ought to have excited pity; they were, however, cut

down, and shot, without mercy. The Duke of Cumberland behaved with disgraceful ferocity: quarter was refused even to those who were wounded and unarmed, and the whole country round was one scene of plunder, slaughter, vengeance, and desolation. More than 3,000 men are said to have been killed.

The usual consequences of unsuccessful rebellion followed. The English gaols were filled with prisoners, who were either executed or transported. Lords Kilmarnock, Balmerino, and Lovat, and Mr. Radcliffe, were the four principal persons who were executed. They were the last persons who were beheaded in this country.

Prince Charles, like the Duke of Monmouth, tried to escape, and, unlike him, was successful. His adventures were far more romantic than those of the duke; and his hairbreadth escapes were even more remarkable than those of Charles II. after the battle of Worcester. Although a reward of £30,000 was offered for his discovery, and although the highlands were filled with soldiers, he trusted himself to more than fifty persons, and could not be found. After five months of suffering, disguise, and extraordinary adventures, he got on

board a French privateer, with a few faithful friends, and reached France in safety.

After this rebellion, the government took measures for the regulation of the highlands. The chiefs of the different clans had, according to the old feudal system, the power of judging and punishing their vassals, but this power was taken away from them.

The war with France was now continued. In all her engagements on the land England was defeated, but was victorious at sea. It is worth noticing, that after the death of the Duke of Marlborough, until the time of the Duke of Wellington, England failed in nearly all her military enterprises, and succeeded in her naval battles. In 1748, the two countries found that they had been fighting for nine years, and had only brought upon themselves equal losses. They therefore made a treaty at *Aix-la-Chapelle*, in which they agreed mutually to restore the conquests they had made, and to go back to exactly the same condition in which they stood before the war. This, however, they could not do, for each nation had added about *thirty million pounds* to its national debt! Such is the folly of war.

I OFTEN say my prayers;
But—do I often pray?
Or do the wishes of my heart
Join with the words I say?
Lord, teach me what I want,
And teach me how to pray;
Nor let me e'er implore thy grace,
Not feeling what I say.

THE ENGLISH TRAVELLER.

RUTLANDSHIRE.

"MY DEAR CHILDREN,

"How often I used to say, 'RUTLANDSHIRE, the smallest county of England,' and 'Rutlandshire, Oakham, and Uppingham,' out of that old geography-book, where the names of the counties are arranged all in a row down the left-hand side of the page, and the capitals on the other side. Don't you remember it?

"And perhaps, that is all you remember of Rutland? You don't remember about those horse-shoes, do you,—the horse-shoes that are silvered over, and nailed on to the castle wall?

"Not a bit!"

"I thought not! Nor do you know anything about the etymology of Rutland, perhaps? Well, then, let us run through this little county, and see if there are any particulars which are worth adding to your old names.

"In the first place, we say that Rutlandshire is the smallest English county. Its length is only about 14 miles, and its breadth, I believe, is not 12 miles. OAKHAM, the capital, is by no means a large place; it is not much larger than a village. The most remarkable place in the town is the old castle. The only sound part that remains is now used as the county-hall, and here the assizes are held, and the business of the county and of the town is transacted. The gate of the castle-yard would, I think, surprise you, for it is covered with horse-shoes.

You might think this a strange place for horse-shoes, but if you wandered inside the town-hall you would see more. What can they be used for? Certainly they cannot be wanted to charm away the *witches* in these days, for people have given up believing in witches now. They are not for sale, surely, for the Rutlandshire folk will not allow their town-hall to be used as a blacksmith's shop. No! they can't be for sale—for, see, they are of all sorts and sizes, and some of them are gilt, others are even stamped with the names of noblemen; there is one with the name of a king upon it, and another bears the name of a queen!

"I'll tell you, then, how they came there. The *Lord of the Manor* took them. According to an ancient custom, whenever any nobleman passed through Oakham for the first time, the lord of the manor had the right to demand of him a shoe from one of his horses; or, if the nobleman did not like to stop his carriage, and deprive one of his horses of a shoe, he was obliged to give the lord of the manor enough money to buy one. Amongst these shoes is one given by Queen Elizabeth, and another by George IV.

"UPPINGHAM, the other important town of the county, has scarcely any peculiarities worth mentioning. There is a race-course in the neighbourhood,

and in the town itself there is a large church with a lofty spire. At the end of the church-yard is the free grammar-school, a neat, plain building; and there is a hospital for old men.

"The soil of Rutland has no very remarkable features. It is supposed that the word 'Rutland' is derived from the Saxon *rud-land*, or *red-land*. This is because in one part of the county the land contains much *red-ochre*, such as men use to mark the faces of the sheep, or to mark red crosses on their backs. The face of the county is varied, but the land is very fertile in the *Vale of Catmose*, through which the river *Guash* runs. The river *Welland* forms the eastern boundary of the county.

"And that is all, dear children; except that I have reached

the boundary of my letter, the southern boundary, which you will find as usual to be the name of

"Your devoted friend.

"HENRY YOUNG."

RUTLANDSHIRE.

(Size and Boundaries.)—*RUTLANDSHIRE is the smallest county of England; it is situated between LINCOLNSHIRE, NORTHAMPTONSHIRE, and LEICESTERSHIRE.*

(Soil and Climate.)—*The soil is fertile, and the air pure. In one Part red-ochre is found, and it is, perhaps, from this circumstance that it is called Rutland.*

(Rivers and Towns.)—*The principal rivers are the WELLAND and the GUASH; the principal towns are OAKHAM and UPPINGHAM.*

LEARNING TO READ.

I SHOULD not like to be a dunce,
And never learn to read,
So let me fetch my books at once,
And no excuses plead.

If I in youth my task despise,
Nor study while I can,
My sloth will soon against me rise,
When I am grown a man.

Had poor old Tom less idle been,
And studied when a boy,
He would not be so poor and mean,
And vainly seek employ.

So, lest I be, like him, a dunce,
And never learn to read,
I'll go and fetch my books at once,
And no excuses plead.

Rhymes Worth Remembering.

MENTAL ARITHMETIC.

P. To-day you may learn some long lessons in Mental Arithmetic. I daresay that when you look at them you will think them easier than the questions you have had before, but you will not say so when you know how they are to be performed.

Ada. What am I to do, papa? Something very dreadful?

P. These tables are given that you may learn to add numbers together very quickly. I will give you half an hour to study each table; you are then to answer all the questions in each table, at sight. For instance, you are to read the question and answer in one breath, like this:—

21+22+23+24 are 90.

Ada. I don't think I can do that. Won't you let me have a comma after the 24?

P. If you like, but it mustn't be a semicolon. To read mental arithmetic tables with success, you must bear in mind two things:—

1. That the larger numbers are to be added together first, the *tens* before the *units*, and the *hundreds* before the *tens*. (I have now told you this several times.)

2. That in such a line as the above, where more than two amounts are to be added, it is better not to add together all the *tens*, and then all the *units*, but to add the first two numbers before you proceed to the third.

Thus, instead of saying

20 and 20 and 20 and 20 are 80;

1 and 2 and 3 and 4 are 10;

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You should say

21 and 22 are 43, and 23 are 66, and 24 are 90.

You may now study the following tables. I shall be happy to hear you read them as soon as you know them perfectly.

No. 51.

Table 1. TENS AND ONES.

SHILLINGS AND PENCE.			
	s.	d.	d.
20 + 6	2	+	3 + 2
20 + 7	7	+	3 + 5
30 + 9	5	+	6 + 4
40 + 5	4	+	4 + 6
30 + 4	1	+	5 + 1
20 + 3	6	+	7 + 1
60 + 9	18	+	4 + 6
80 + 9	7	+	2 + 3
50 + 4	4	+	5 + 1
90 + 3	5	+	3 + 7
20 + 2	7	+	4 + 5
10 + 1	8	+	1 + 4
20 + 6	3	+	7 + 3
50 + 9	19	+	6 + 5

No. 52.

Table 2. TENS AND ONES.

SHILLINGS AND PENCE.			
	s.	d.	d.
40 + 7 + 4	5	+	7 + 6
50 + 8 + 4	6	+	6 + 7
70 + 8 + 9	7	+	5 + 9
80 + 4 + 7	4	+	9 + 4
70 + 6 + 6	14	+	6 + 6
40 + 7 + 3	3	+	6 + 6
20 + 8 + 3	7	+	7 + 7
70 + 7 + 5	9	+	8 + 6
70 + 5 + 6	4	+	9 + 4
40 + 9 + 6	3	+	6 + 9
20 + 6 + 8	9	+	8 + 5
60 + 7 + 5	16	+	9 + 7
50 + 7 + 9	14	+	7 + 8
40 + 8 + 9	9	+	9 + 4

No. 53.

Table 3. TENS AND ONES.

SHILLINGS AND PENCE.

20	+	3	20	+	6	+	4
30	+	9	40	+	5	+	6
50	+	8	80	+	7	+	7
70	+	3	30	+	9	+	8
50	+	3	50	+	6	+	9
40	+	5	70	+	8	+	6
60	+	6	90	+	6	+	5
80	+	2	10	+	7	+	6
90	+	5	60	+	4	+	9
30	+	2	30	+	4	+	9
70	+	4	50	+	5	+	6
50	+	4	70	+	9	+	4
80	+	3	90	+	6	+	6
60	+	5	40	+	8	+	8
90	+	7	60	+	7	+	7
90	+	4	70	+	4	+	5
90	+	4	60	+	5	+	2
90	+	4	80	+	3	+	8

No. 54.

Table 4. TENS AND ONES.

SHILLINGS AND PENCE.

s. d.	s. d.	s. d.	s. d.
6 9	+	7 4	7 4
5 6	+	6 8	6 8
7 9	+	4 5	7 9
8 5	+	9 8	9 8
9 8	+	6 7	6 7
4 7	+	5 5	5 5
10 8	+	6 6	6 6
7 10	+	10 3	10 3
10 6	+	6 10	6 10
6 11	+	11 6	11 6
8 6	+	6 8	6 8
6 9	+	9 6	9 6
9 9	+	9 9	9 9
11 7	+	6 7	6 7
12 7	+	7 3	7 3
9 10	+	8 9	8 9
7 9	+	3 9	3 9
12 8	+	5 9	5 9

No. 55.

Table 5. TENS AND ONES.

SHILLINGS AND PENCE.

24	+	35	s.	d.	s.	d.
27	+	21	4	6	+	2
44	+	54	6	2	+	6
23	+	23	4	3	+	4
34	+	64	3	4	+	5
37	+	21	5	3	+	7
42	+	47	7	6	+	9
57	+	22	6	4	+	4
62	+	35	4	7	+	3
72	+	24	9	10	+	3
43	+	56	7	7	+	5
24	+	25	14	2	+	4
29	+	40	6	4	+	7
33	+	24	3	3	+	2
74	+	25	4	2	+	9
26	+	41	9	7	+	7
41	+	49	7	7	+	1
			13	2	+	6
			17	2	+	9

No. 56.

Table 6. TENS AND ONES.

SHILLINGS AND PENCE.

	s.	d.		s.	d.			
47	+	44		6	8	+	7	7
29	+	63		7	9	+	9	8
46	+	45		4	10	+	6	9
53	+	19		5	7	+	4	6
29	+	74		8	6	+	3	7
78	+	19		9	9	+	4	9
15	+	78		6	7	+	9	5
19	+	43		4	8	+	7	8
43	+	49		7	10	+	7	4
57	+	24		8	11	+	6	7
58	+	17		6	9	+	4	8
47	+	48		7	11	+	3	6
27	+	29		9	10	+	5	9
64	+	28		1	7	+	7	6
73	+	19		4	9	+	6	4
54	+	46		11	10	+	4	11
79	+	22		14	11	+	2	11

JEMMY STRING.

I KNEW a little heedless boy—
 A child that seldom cared,
 If he could get his cake and toy,
 How other matters fared.
 He always bore upon his foot
 A signal of the thing,
 For which, on him his playmates put
 The name of Jemmy String.
 No malice in his heart was there;
 He had no fault beside,
 So great as that of wanting care,
 To keep his shoe-strings tied.
 You'd often see him on the run,
 To chase the geese about;
 While both his shoe-ties were undone,
 With one end slipping out.
 He'd tread on one, then down he'd go,
 And all around would ring
 With bitter cries, and sounds of woe,
 That came from Jemmy String.
 And oft, by such a sad mishap,
 Jemmy was sadly hurt;
 Rolling away you'd see his cap,
 While Jem roll'd in the dirt.
 Then home he'd hasten through the street
 To tell about his fall;
 While on his little sloven feet,
 The cause was plain to all.
 One day, his father thought a ride
 Would do his children good;
 But Jemmy's shoe-strings were untied,
 And on the stairs he stood.
 In hastening down to take his place
 Upon the carriage seat,
 While joy was smiling in his face,
 Mischief lurk'd near his feet.
 The dragging string had made him trip,
 And bump! bump! went his head,—
 His teeth had struck and cut his lip;
 And tears and blood were shed.
 His aching wounds he meekly bore;
 But with a swelling heart
 He heard the carriage from the door
 With all but him depart.
 This grievous lesson taught him care,
 And gave his mind a spring,
 For he resolved no more to bear
 The name of Jemmy String!

GEORGE II.

THE reign of George II. was a most warlike period. These wars, too, were very unfortunate.

Seven years after the peace of *Aix la Chapelle*, the French and English began to fight again. The cause of war was an unimportant colony, called *Nova Scotia*. This tract of land is situated at the N.E. of North America; the French had in the first instance rendered it habitable by cultivating the soil, but the colony had been given up to the English at the treaty of *Utrecht* (before that of *Aix la Chapelle*). The colony was valuable to the English for the purpose of maintaining their fisheries (especially the cod-fishery) in that part of the world. There were, however, French colonists still living in Canada, a neighbouring country; they were jealous of the English, and attempted to drive them out; they even excited the native Indians to attack them. Another dispute also arose concerning the country around *New Mexico*; and again on the *Malabar* coast of the *East Indies*, the French and English colonists quarrelled.

England had been very active and successful in rearing colonies for nearly two centuries, while those of the French had seldom prospered. In India the French considered themselves as our rivals, as well as in America; and had frequently attacked our settlements. On this account, our Government determined to afford their colo-

nies "protection," and in the year 1756 war was declared.

This war, which is called "The Seven Years' War," is worthy of notice. Four expeditions to different parts of AMERICA were fitted out, but they were mostly unprosperous. In nearly all the engagements the French were assisted by the native Indians, who were most dangerous enemies.

In 1758, when the celebrated *William Pitt* was Secretary of State, the English were more successful. The troops were better acquainted with the nature of American war; one fort after another fell into their hands; and in 1759, *QUEBEC*, the capital of Canada, was taken by General Wolfe; this brave commander, however, lost his life in this exploit. The year following, the whole of CANADA submitted to the British troops, and this extensive colony has ever since been a part of the British Empire.

War had also been declared against the French in the *EAST INDIES*. One of the native monarchs of India had lately attacked the English, and taken possession of our settlements in *Calcutta*. On that occasion, the savage conqueror confined 146 of the conquered in a narrow prison, called the *Black Hole of Calcutta*, where nearly all died of suffocation. The English had retaken *Calcutta*; had seized *Hooghly* and another important town on the *Ganges*, and having thus punished the natives in the

eastern part of India, they proceeded to punish the French in their colonies in the west.

This war with the French, like that in America, was, after some years, successful. The French lost all their colonies in India, except the strong town of Pondicherry. This they defended with desperate perseverance, but the English were commanded by LORD CLIVE, a general of the highest renown; he pressed the French until they were forced by famine to eat dogs and cats, and at length when they had one day's provision left, he made a breach in their walls and forced them to surrender. This conquest, in the year 1761, put an end to the French power in India, and secured that country to Britain alone.

Now for the third war. War not only raged in America and Asia, but in Europe. Here, however, the English were unsuccessful. The island of Minorca, which had been taken from the Spaniards in Queen Anne's reign, was now taken from our country by the French. Admiral Byng was sent to relieve the place, but he did not succeed, and on his return home he was tried and shot for cowardice!

On the continent of Europe England was allied with Prussia and Hanover against Austria, France, and Russia. Hanover was taken from the French, but recovered her liberty. Continued changes of fortune happened, all of which cost the British people immense sums of money, and in the midst of this war the king died, in the 77th year of his age.

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Lesson 43.—GEORGE II.

Began to reign . . . 1727

Died 1760

1. GEORGE II. was the son of George I.; he began to reign at the age of 45.

The first period of his reign was a tranquil one; but at length a dispute arose with Spain concerning the right of British merchants to cut logwood in the Bay of Campeachy, and war was declared. The bad success of the expedition against Carthage in this war led to the downfall of SIR ROBERT WALPOLE, who had hitherto been prime minister.

2. In the next period, England engaged in a continental war, chiefly in behalf of MARIA THERESA, daughter of the Emperor Charles VI., and in behalf of HANOVER. After a nine years' useless and bloody war, in which the battles of Dettingen and Fontenoy were fought, a treaty was concluded at Aix la Chapelle.

3. In the year 1745 England was disturbed by an almost successful attempt on the throne, which was made by PRINCE CHARLES, son of the late Pretender.

4. Seven or eight years after the treaty of Aix la Chapelle, war was again declared against the French in AMERICA, INDIA, and the CONTINENT. In America the English gained CANADA; in India they gained possession of all the French colonies; but in Europe they were sorely defeated; they lost the island of Minorca, and involved themselves in most ruinous expenses.

5. George died during the continental war, at the age of 77, in the year 1760.

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THIRTEENTH WEEK. MORAL LESSON.

MONDAY.

CHARITY

"Endureth all things."

BY EBENEZER PROUT, JUNIOR.

Ion. I AM so glad ! Here is cousin Ebenezer ! Cousin Ebenezer, uncle has gone out, and you ought to tell us a moral tale. Do ! will you ?

L. Yes, do ! but it must be a tale about Charity.

Cousin Ebenezer. Very well. I remember the history of an old man-servant whom grandpapa knew. Perhaps it may teach you a good lesson. Listen to the tale of

JOHN STUGGINS.

"George," said Mrs. Cross to her husband as they sat at tea, "I expect our new servant, John Stuggins, here this evening."

"Indeed ! I hope he'll do," said Mr. C., "we have been so troubled with our servants lately. I think, do you know, that as he comes from the country he may be a rather rough subject ; but I know that he is honest."

Just then a loud bang at the door was heard. "Here he is, I believe," said Mr. Cross ; and soon a rough voice was heard saying, "Is this Mr. Cross's ?"

Mr. Cross opened the parlour door. "Is that John Stuggins ?"

"Yes, it be," was the reply.

"Then will you step in here ?" said Mr. C.

In clumped John, and when his gawky form met the astonished gaze of Mrs. Cross, she quite started with surprise. He was a short fat young man of about twenty years of age, of a most discouraging appearance. He entered with a hat stuck on the back of his head, with one hand in his pocket, and the other holding a stick across his shoulder, from the end of which hung a bundle, tied in a blue cotton handkerchief.

"Why," said Mrs. C., "you cannot be the young man we wrote to Mr. Johnson about."

"Don't know : I s'pose I am, 'cause Mr. Johnson asked me about coming up to London ; and, says I to Mr. Johnson, I says—'I'll go to Australy, if you want me to, Mr. Johnson.'"

"But did he say anything to you about Mr. Cross ?"

"Yes ; he said that was the name ; and I said I hoped he wouldn't be cross then."

"What a specimen !" whispered Mr. C. to his wife. "Do you know anything about your work, John ?" he added.

"Work ! La, yes !" said

John, "I should think I did. You'd think so if you saw me behind a team. Don't I turn up the ground just! And as for hedging and ditching, there ain't my equal in the whole county by a long chalk."

"Ah! but do you understand house-work?" said Mrs. Cross.

"Yes," said John, "I went and fresh thatched Farmer Long's cottage only last month."

"No, no," said Mrs. Cross, "do you know anything about cleaning boots and shoes, and knives and forks, helping the cook, and so on?"

"Well, I haven't been used to that kind of work," said John, "but I *can* do it, you know! Old Mother Nubbs says I'm good at anything I set my hand to."

"Very well, John, we'll see more about you to-morrow," said Mr. Cross. "Mary, show John into the kitchen."

"Rather a promising manservant, George," said Mrs. Cross, when he was gone. "I am afraid we shall have some trouble to get him into shape."

The forebodings of Mrs. Cross were quite correct. Neither the shape of John's character nor that of his body seemed capable of change. It was in vain that Mr. and Mrs. Cross tried their best to train him. One morning, as they were sitting at breakfast, John entered the room, saying, "Here's your boots."

"To whom are you speaking, John?" said Mr. Cross.

"To you, sir, sure enough," said John, pulling his forelock.

"Then remember always to

say 'sir' when you are addressing me," said Mr. C.

"Well, I will try, sir, but it's cruel hard," said John, as he went out.

"John," said Mr. Cross.

"Yes," said John, "yes sir, I mean."

"You have left the door open."

Out went John, banging the door without another word.

Mr. Cross took up his boots.

"Oh, it is too bad!" said he. Ring-ding-ding went the bell, and John entered.

"John, how often shall I have to tell you to clean the backs of the boots as well as the fronts?"

"Why, sir," said John, "where's the good? They ain't seen—be they?"

"That makes no difference, John. For the tenth time let me tell you to clean the backs of my boots. Make haste and do them."

"Well, that's another thing to remember," said John; "there is a most uncommon lot of things I have to keep in my head. Somehow I could remember the name of every horse and cow on father's farm, but I *can't* remember these here things," and out he went, taking the boots with him.

"We really cannot keep him," said Mr. Cross. "It is now six weeks since we engaged him, and he has not improved at all—we must indeed send him away."

Mrs. Cross, however, pleaded in John's favour. She said that "he was a good honest fellow," and begged her husband to try him a little longer. "I am

sure," she added, "that he means well, and tries to remember, but he finds it 'cruel hard,' as he says." Mr. C. was at last persuaded.

"We'll give him one more trial," he said, as he rose to put on his great coat.

In the evening of the same day there *was* another "trial," which was very bad for John, and worse for his master and mistress. They were sitting waiting for their tea, when John entered with the tea-things. Both Mr. and Mrs. Cross called out, "Oh!" at the same moment—they were struck in observing that one-half of the bronze urn was quite white.

"Why, sir," said John, "I've been trying all the afternoon and I *can't* get off all the brown rust; but I think I've done pretty well on the whole!"

"Brown rust! you —," but Mr. Cross knew better than to use hard names. "That," he added, "is the very best part of the urn."

"La now, is it?" said John, with a look of great amazement.

"Go to the kitchen directly," cried Mr. Cross, "and don't let me see you again till I send for you."

"I'm very sorry, sir," John began, but it was useless for John to speak—he was obliged to flee down stairs with the urn in his hands.

"Now," said Mr. Cross, "his fate is sealed. Let him return to his native air. I am sure that the series of annoyances we have endured during the last six weeks have been more than

we ought to bear. Do you remember when we made him serve at table at our last dinner party? He went up to Mrs. Patteson, saying, 'Have any more?' and when Mr. P. asked for a piece of bread, he brought it in his fingers! I gave him minute instructions for showing our friends into the drawing-room, yet, the other day, when Mr. Jenkins arrived he walked in before him with the following speech—'I say, master, here's Mr. Jenkins.'"

And Mr. Cross went on with so many instances of John's carelessness, that, when they were all summed up, his mistress thought there was no hope for him. But Mr. Cross was not hard to be persuaded; his wife had been begging of him to have more Charity and to hope all things, and she had almost induced him to say that poor John should be tried yet once more, when a most unpleasant sound—a loud crash on the stairs was heard. I'll tell you how that crash came.

John had just removed the tea-things; he had walked down stairs—most solemnly—looking with a long face at everything on the tea-board, as much as to say, "If you try to run away from me, I'll —," when *his foot slipped!* And then came the crash. The tea-service, disliking John's slow rate of motion, (John generally walked at about the same pace as a tortoise,) made a rush for the kitchen, followed by their affrighted bearer, who alighted on hands and knees, at the bottom of the stairs, rather

sooner than he expected. His first exclamation, on reaching the bottom of the stairs, was, "Hallo!" his second, "Oh, my head!" his third, "La, the tea-things!"

"What is the matter?" cried Mr. and Mrs. Cross in one breath, hastening down stairs.

"I think I've spilt the tea things, ma'am," said John; "and nearly broke my head too," he added.

Mr. Cross was down the kitchen stairs in a moment, and there a peculiar and picturesque scene presented itself. Foremost was John himself, holding his hand to his head, regarding the ruins of the tea-service with a most dolorous look on his usually unmeaning visage. If any one had asked John for "half a cup" just then, he would soon have found one. There were cups and saucers, handles of jugs, a spoutless teapot and a teapotless spout—milk, bread and butter, and all things used at tea, strangely mingled together.

"John, you shall not stay in the house another day," said Mr. Cross.

"Stop, my dear," whispered his wife. "You promised me that the poor fellow should have another month to reform himself. Let us go up stairs and talk over the matter again." And again John's mistress pleaded hard for him.

"Well, he shall have just one month to learn to mend his manners, but no more," said Mr. Cross, as he yielded to his wife. "Indeed, I think we have very much Charity," he added,

"for we have *endured* a great deal."

"But we will try to endure more yet," said Mrs. Cross, for "Charity endureth *all* things."

When Mr. Cross left the room, Mrs. Cross rang the bell, and John came up.

"O ma'am, I am so sorry, you can't think," he said, as he entered.

"I believe you, John. You are trying to be more careful; are you not, John?"

"Oh, yes, ma'am, but it's so hard."

"Perhaps it is, but I have spoken to Mr. Cross, and he says he will try you another month, and if you are not improved then, he must send you away."

John's countenance fell.

"Now, promise to be more careful and to try to mind every thing I tell you."

"Oh yes, ma'am, I will try," said John, "and I am very much obliged to you for speaking to me."

And John went out.

In the course of the next week Mr. Cross went to Glasgow for a month on business, to the great relief of John, who said to the cook, "It was a real blessing that master was going to be out of the way for a month; for he couldn't scrape on with him no-how!"

Mr. Cross had not been gone many days before another and more serious event occurred. One night, about half-past twelve, when the whole family were asleep, the cook was awoken by the loud barking of the

house-dog. Mary started, and listened, and thought she heard voices. She held her breath, and distinctly heard the words "Lend me the crow-bar!" She slipped out of bed and flew into John's room. "Oh, John, there's thieves in the house."

John gave a yawn, "Wha-at?"

"THIEVES!" shrieked Mary.

"I'll *thieves* 'em!" said John, jumping out. "Give me that poker, see if I don't lay about, just!"

He seized the poker and rushed down stairs, nearly as fast as on the occasion before mentioned. "I ain't afraid of a dozen of them," said John. He rushed into the kitchen, greatly to the surprise of two men who had just found an entrance. One fled more quickly than he had entered, but John pulled the other back by the leg, just as his body was half out of the window. "Please the pigs," said John, lifting up the poker, "down you shall go."

"No, John! don't strike him," said Mrs. Cross, entering

the room. "Let us pity him for his foolishness—Charity endureth all things."

"But ma'am, let me poker him," said John, still grasping the poker. "I don't see the fun of —. Ah, hold still, you villain," he said, as the man struggled to get away.

I do not know how John and his mistress would have settled the fate of the thief, but just at this moment a policeman entered—for the cook had sprung the rattle, and had been screaming "Murder" and "Thieves." The policeman secured the man, and the family again retired to rest. As soon as the morning came, Mrs. Cross thanked John heartily for his courage and zeal. She wrote to her husband a full account of the affair, and concluded as follows:—

"You may think how glad I am that John was not sent away, for if he had gone what *should* we have done? You will hardly send him away now, for you see our *charitable* plan so far has been for the best."

LINES FOR THE LITTLE ONES.

THE STRANGER.

Who knocks so loudly at the gate?
The night is dark, the hour is late,
And rain comes pelting down!
Oh, 'tis a stranger gone astray!
That calls to ask the nearest way
To yonder little town.

Why, 'tis a long and dreary mile,
For one o'ercome with cold and toil;
Go to him, Charles, and say,
"Good stranger! here repose to-night,
And with the morning's earliest light
We'll guide you on your way."

The Daisy.

COROLLIFLORALS.

P WE have now travelled through two sub-classes in the class EXOGENS.

1st Sub-class—Thalamiflorals.

2nd Sub-class—Calyciflorals.

To-day you may study the following outline of the

3rd Sub-class—Corolliflorals. These flowers are known by the following distinction:—

(1) They are *monopetalous*—i.e., the petals are joined together, so that the corolla is formed in one piece.

(2) They are *monosepalous*—i.e., the sepals are united, so that the calyx forms a tube.

(3) The ovary is nearly always "superior."

(4) The stamens grow from the base of the corolla (so that if the corolla be pulled off the stamens come with it).

As the plants of this order are monopetalous and monosepalous, we must not in describing them say that the calyx has so many distinct *sepals*, or the corolla so many *petals*; but that such parts have so many *lobes*, or so many *segments*.

Sub-class 3—COROLLIFLORALS.

Order 1.

VALERIANACEÆ.

Plants resembling the VALERIAN.

(*Parts.*)—This order and the succeeding one might have been included amongst the Calyciflorals. It forms a link between the *Rubiaceæ* and the *Dispaceæ*, which follow.

The SCARLET VALERIAN, now so often grown in the garden, consists of a "corymb" of bright-red flowers. (A corymb is a flat head of flowers, in which the lower or outside flowers have longer stalks than the middle ones, so that the flowers are all on the same level.) The ovary of the flower is in this case *inferior*; it contains one cell, with one seed; sometimes there are three cells, but then two are vacant. The pistil has one style and three stigmas. The calyx grows from the ovary, and varies in different species. The corolla is a funnel-shaped tube, of course "monopetalous," having generally five lobes. The stamens, like the lobes of the corolla, vary from one to five.

In size, these plants are annual or perennial "herbs," seldom woody at the base. The leaves are opposite, and without stipules. The roots of the perennial species are thickish, with a very strong, sweet scent.

(*Note.*—Some of these plants are much like the Composite flowers, but may be known from them by having *distinct* instead of "syngenesious" stamens.)

(*Varieties and Uses.*)—The *Valerianellas* are eaten as salads, and are called *Lamb's Lettuce*; the *Red Valerian* (*Centranthus ruber*) is eaten in the same way in Sicily. The root of the *Celtic Valerian*, which grows on the mountains of Austria, is procured by Eastern nations, and used to give an aromatic perfume to their baths. The roots of the *Valerian Nardostachys* (meaning "spike-shrub," from the Greek, *nardos*, a shrub, and *stachys*, a spike) is still used in India for

making the costly ointment called spikenard. This was used in the old times, and is made memorable by its connection with our Saviour. It is also used as a remedy for hysterics and epilepsy.

Order 2.

DISPACEÆ.

Plants resembling the TEAZEL.

(*Parts.*)—These plants are much like the Valerians, and were once included in the same order; they are, however, distinguished from them by having outside the calyx an involucre of long bracts, which are reflexed (i.e., bent back). This may be readily seen in the *Sweet Scabious*, which grows in the garden, or the *Teazel*, which grows in the fields. The *flowers* (or *florets*) grow in dense heads, and are even more like the Composite flowers than the Valerians. The *leaves* of these plants are not only opposite, but are often whorled. Those of the *Teazel* are *connate*—that is, the two opposite leaves are joined together at the base; they thus form a hollow cup-shape.

(*Varieties.*)—The *TEAZEL* (*Dipsacus*). This botanical name is derived from the Greek *dipsao*, to thirst, and is given because the connate leaves hold water). The plant is used for raising the nap upon woollen cloths, or “dressing” the cloths, as you have already heard. The *SCABIOUS* tribe has several genera. The *Sweet Scabious* of the garden has flowers which are dark, blackish purple, red, white, or variegated in colour. The *Scabious succisa*, or *Devil’s-bit*, grows in pastures; it is said to be so called because, in the superstitious times, it was fancied that the Devil envied the good which this plant might do to mankind, and bit away the root.

Order 3.

PRIMULACEÆ.

Plants resembling the PRIMROSE.

These plants have a “superior” ovary, which is *one-celled*. The *pistil* has a simple style, with a head-shaped (or capitate) stigma, something like a little nob. The *calyx* is five-cleft; the *corolla* also is five-cleft, with a long tube. There is a *whorl* of five *stamens*, but, as they are *opposite* the petals, they show that one whorl is deficient.* The *seeds* in the one-celled ovary are numerous, and grow around a central placenta. The *leaves* are opposite, and frequently wrinkled. The plants are *herbaceous*.

(There are no other *monopetalous* plants in Europe, with one style, which have the stamens opposite the lobes of the corolla, except such as have two or more whorls of stamens. The *Berberry* has six stamens opposite the petals, and one pistil; but this plant is not “monopetalous”; it is a “Thalamifloral.”)

(*Varieties and Uses.*)—The parts above described may easily be observed in the beautiful *Primrose*, the *Cowslip*, the *Polyanthus*, or the *Auricula*. The principal tribes of the order are:—

(1) The *Common Lysimachia* (or *Loose-strife*), with stem trailing on the ground; *Lysimachia Nummular* (moneywort), &c. These grow in moist places and woods.

* The rule is, that, when there is a whorl of five sepals in a flower, there are five petals alternating with them, and a whorl of five stamens alternating with the petals. Now, as the stamens are opposite the petals, it is inferred that they are a second whorl of stamens, and that the first, which would have alternated with the petals, is missing. This whorl may be seen in one plant of the order, the *Water Pimpernel*.

(2) The *Pimpernel Anagallis*, with stem similar to the former, growing in the fields. It is called "The Shepherd's Weather-glass," because on the approach of rain it closes its scarlet blossoms.

(3) The *Primrose*, *Conslip*, *Oxlip*, *Polyanthus*, and *Auricula*. These grow in the meadows, on banks and woods, and in gardens.

(4) *Sow-bread* (*Cyclamen*), which is so called because it is a favourite food of the wild-boar. As the fruit of this plant is ripening, the petioles acquire a spiral direction, and the ripe fruit is at last almost buried in the soil. It is abundant in Sicily, and in northern and mountainous countries.

Order 4.

GENTIANACEÆ.

Plants resembling the GENTIAN.

(*Parts.*)—The *calyx* is generally five-cleft, and is persistent; the *corolla* has five lobes; the *stamens* grow on the corolla, and alternate with the lobes. The *pistil* has one style, which is divided at the top, so that there are two stigmas. The most remarkable feature of these plants is seen in their *leaves*, which have two or four strong veins parallel with the mid-rib; they are opposite and sessile (without stalks), or their petioles form a little sheath. The *flowers* are known by their vivid colours; they are sometimes yellow or white.

(*Place, Uses, &c.*)—The order is not very extensive; the plants grow in the warm temperate countries of Europe, Asia, and South America, where they sometimes cover the sides of the hills with blossoms so intensely blue

that the eye can scarcely rest upon them. The root is the most useful part. Gentian-root is almost as strong a tonic as Peruvian-bark; indeed the name of the order is derived from *Gentino*, a king of Illyria, who first experienced its good properties.

Order 5.

CONVOLVULACEÆ.

Plants resembling the CONVULVUS.

(*Parts.*)—The *calyx* of these flowers is remarkably imbricated; it has five lobes, which seem to form more than one whorl. The *corolla* is known for its beautiful shape; and the curious plaiting into which it folds, when it closes, is observable. Some of these flowers open only during the day, others at night. The *stems* are twining, or trailing; the twining stem and imbricated calyx are indeed the two distinctions of the order. The *leaves* are simple, being either *sagittate* (arrow-shaped) or *obovate*. It may be noticed that, while the *calyx*, *corolla*, and *stamens* are arranged in *fives*, the *ovary* is a capsule, with two or four large seeds; it is well known how easily its valves separate when these seeds are ripe.

(*Varieties and Uses.*)—The Major and Minor Convolvulus, the Bind-weed, and the Dodder. Most of the genera have a milky juice, particularly those of warm climates, where the dried juice forms a resinous matter. This resinous matter is strongly purgative, and forms the drugs *Scammony* and *Jalap*. The fleshy roots of one species are eaten in the Tropics as "Sweet Potatoes," while the young leaves and shoots are eaten as pot-herbs.

GEORGE III.

GEORGE III. was the grandson of George II. He came to the throne, in 1760; he was then 22 years old. He was not so fond of Germany as George II. and George I. had been. This was because he was an Englishman. In his first speech to the parliament, he used these words, "Born and educated in the country, I glory in the name of Briton."

The nation was very glad at this speech. They had not been governed by a true English sovereign for a long time—only once since the reign of ELIZABETH. JAMES I. was a Scotchman, and so was his son, CHARLES I. CHARLES II. and JAMES II. were born in England, for they were the sons of Charles I., but they had been bred on the Continent. WILLIAM III. was born in the Netherlands; and GEORGE I. and GEORGE II. were Germans. ANNE was the only sovereign who had been born and bred in England since Elizabeth's time.

I told you of the wars in George II.'s reign. The last war we talked of was *The Seven Years' War*. This was carried on in three distinct places. In INDIA, the English were defeated, but were afterwards victorious. They thus established their *Indian Empire*. In AMERICA, also, England lost and then won. Thus was Canada added to the kingdom. But on THE CONTINENT the

English were defeated: they lost *lives, honour, and money*.

The Continental war arose from disputes about HANOVER. It was still being urged when the king died. But though George III. was no German, he could not give up the contest. Soon after he began to reign both France and Spain declared themselves the enemies of England, and war was continued.

The fortunes of England now took a favourable turn. Her arms in distant countries were everywhere successful. In the course of a few months she took from Spain the following valuable possessions—the fortress of *Havannah*, in the island of Cuba, in the West Indies, and all the *Philippine Isles*, in the East Indies. The loss of these places nearly ruined the commerce of Spain. England afterwards exchanged *Havannah* for *Florida*, in North America—a large peninsula, which you may easily see on the map.

Again, in this war England took the following French possessions—the islands of *Grenada*, *St. Dominica*, *St. Vincent*, and *Tobago*, which are in the West Indies. The results of the Seven Years' War have been called "glorious." Certainly England seemed to be the gainer. It seemed a great gain when in the beginning of the war Canada was conquered. Our country could then call

herself mistress of the whole continent of *North America*. But the same spirit of war soon proved mischievous to her interests, and you will hear directly how by another war the most valuable part of that continent was lost. Again, it is said by those who like to call war "glory," that the English took in this war twenty-five large islands; that she won by sea and land twelve great battles; that she reduced nine fortified cities, and forty forts and castles; that she destroyed more than a hundred of her enemies' ships of war, and acquired about twelve millions of plunder. But such gains were a loss, for the English paid for them by adding sixty millions to their national debt. This burden now amounted to £133,959,270!

How you would wonder if you could form any idea of how much one hundred and thirty-three millions amount to! But would you wonder at the amount if you looked back at the wars which England had fought? I think not. Let us stop and look back.

Before the "Seven Years' War," a long war was fought with France, which ended in the treaty of *Aix-la-Chapelle*. The army also had to fight with Prince Charles; and before that insurrection, expeditions had been sent to Spanish South America and other places.

In the reign of GEORGE I. more bloodshed was caused by the war with Spain, and the rebellion of the Pretender.

During ten years of the reign of ANNE the Duke of Marlborough gained bloody and expensive victories.

WILLIAM III. fought in Ireland against the banished James II., and also carried on a long war with France, which was ended by the treaty of Ryswick.

The expenses of the last-mentioned battles were the beginning of the National Debt. But before this time the nation was continually at war. Thus if you look back through two or three more reigns, you will remember Charles II.'s war with the Dutch; the rivalry of Oliver Cromwell's admirals with the Dutch admiral, Van Tromp, and others; and the war of CHARLES I. and JAMES I. against Austria and Spain, in aid of the Protestant Elector Palatine. I am sure, too, that you have not forgotten the wars with Spain, in the times of Queen Elizabeth, nor how the Spaniards intended to crush Protestantism, and to establish Popery by means of their INVINCIBLE ARMADA.

Such was the propensity for fighting which England had shown during 200 years—from the time of Queen Elizabeth to that of George III. But it is not easy to stop in a bad course. I have now to begin the history of a yet more warlike period. This debt of 130 millions was followed by greater wars, and still heavier expenses; and these wars by others which were still more fearful.

The people were now burdened with heavy taxes. They were anxious for help. The

Government looked abroad, and saw the flourishing and splendid colonies in North America. They thought, "These colonies are a part of the British Empire, why should they not pay part of our heavy expenses?" Accordingly, an Act of Parliament was passed, requiring them to pay taxes called "stamp duties." Nearly every one in England thought that this Act was "quite fair."

But the colonists of America did not think thus. They had not been accustomed to pay taxes. They did not see why they should do so. They said, "We did not *make* the expenses which these taxes are to pay for. If we had representatives in the English Parliament, and our Members of Parliament had agreed to the war, the case would have been different. But we have no representatives in England, so we did not give our consent to the taxes." Upon these thoughts the colonists became very angry. They said, "If we once allow the Government to tax us without our consent, they will afterwards do what they please with us, and reduce us to a kind of slavery." Then they refused to obey the Act of Parliament. They burned the Act publicly, and when the stamped paper arrived from England, the enraged people seized and destroyed it.

The English Government did not like then to force the colonists to pay these taxes. They took time to consider the matter. They repealed the Stamp Act which had caused such excite-

ment, but at the same time they made a declaration, that Great Britain had the *right* to tax her colonies.

About two years after these events, in 1767, the Government made new duties on all tea, glass, and colours imported into the American colonies. The Americans opposed these taxes as violently as the others. They were not therefore put in force until 1770. Then the duty on tea was the only one insisted upon. But though this duty was trifling, the Americans would not pay it. They would not allow that they who were not represented in Parliament should be taxed *without their consent*. As soon as the first cargoes of taxed tea arrived they were greatly excited. At New York and Philadelphia the cargoes were not allowed to land. At Boston a mob seized the first ship-load, and tossed a part of it into the sea.

The Government now resolved to enforce their rights. The colonists also determined to defend themselves. Both parties were not right. But instead of trying to find out the truth, they both proceeded to war.

In the year 1774 the Americans began their defence by forming a *general Congress* at Philadelphia. That body published a declaration of their rights, and to defend them they provided arms and military stores in different parts of the colonies.

In 1775 the first skirmish between the British troops and the Americans took place at LEXINGTON, near Boston. In

the Midsummer of the same year, the first great *battle* was fought at another place near Boston, called BUNKER'S HILL. In this the Americans gained the advantage; between two and three hundred British troops were killed; and the British Government were surprised to find at the end of the year that they had made no progress in reducing the colony to obedience. They sent an offer of free pardon to the colonists, on condition that they would lay down their arms, but this proposal was treated with ridicule.

In 1776 both countries prepared more actively for war. Thirteen of the colonies resolved to separate themselves from England, and formed themselves into a distinct country, called the UNITED STATES. Their small armies were placed under the command of a distinguished general, named *George Washington*, while the large armies of Great Britain were commanded by *Lord Cornwallis* and *General Howe*. During the campaign of this year the Americans were not able to face the well-appointed British armies. They suffered much misery, but they remained unsubdued, to the astonishment of all Europe, especially of the King, the Parliament, and the people of Great Britain.

In 1777, serious alarms and doubts as to the results of the contest were felt in

Britain. In the December of that year the news reached home that a large part of the army under General Burgoyne had been surrounded by the Americans, and taken prisoners.

In 1778 the success of the colonists was such, that FRANCE, the old enemy of Britain, made a treaty with them, and sent them a fleet, with troops. As the British Government became more dejected the Americans were more elated. Commissioners were sent from England almost begging for a peace, but the Americans now treated them with haughtiness. They would listen to no terms, unless their independence was first acknowledged.

In 1779 SPAIN, another old enemy of Britain, also entered into a treaty with the Americans.

In 1780 HOLLAND also became an ally of the colonists. At the same time, RUSSIA, SWEDEN, and DENMARK took measures which were indirectly opposed to this country. During the last two centuries England had risen to wealth and power. The European nations had observed and *felt* her success with jealousy. They seemed to think that now was the time to humiliate her. So tremendous was the force raised against this country that it required three hundred thousand armed men, and three hundred armed vessels, and £20,000,000 annually to protect her from her enemies.

THE ENGLISH TRAVELLER.

LEICESTERSHIRE.

"MY DEAR CHILDREN,—

"Did you ever hear of *Dishley*?

"No! I thought not.

"Of Mr. Bakewell, then?

"No! I thought not.

"Of the three rams that were sold for 1200 guineas?

"Of course you have not!

"Then you had better let me tell you all about them. In the first place Leicestershire is a great grazing county, and is very celebrated for its sheep. Mr. Bakewell of Leicestershire had a farm of 440 acres. As farmers say that the best animals are those which will yield the most profit on a certain quantity of food, Mr. Bakewell determined to try how many cows and sheep he could support on his farm.

"He so cultivated his farm of 440 acres that it yielded food enough for 60 horses, 400 large sheep, and 150 beasts of all kinds. He gave every possible attention to these animals, until they were the finest in England. Farmers and graziers came from all parts to see them. They were then so anxious to buy these animals that he sold three of his rams for 1200 guineas! Seven other rams were sold for 2000 guineas, and the rest of his flock for 3000 guineas.

"Another farmer in this county, named Thomas Paget, improved the breed of oxen;

one bull of his breeding was sold for 400 guineas.

"These things happened sixty years ago, but we now see their result. The Leicester sheep are a very large breed; they fatten at a very early age, and their wool is long; it is particularly fit for the manufacture of worsted."

W. Then I can make you a riddle about Leicester? Why is it like Lincoln?

Ion. I know what you mean. In Lincoln animals are reared on purpose to be *plucked*, and in Leicester they are bred on purpose to be *shorn*. I don't see very much in that.

L Never mind; let us continue the letter.

"Leicestershire is famous not only for its cows and sheep; it has a fine breed of horses. Many high-bred hunters and racers have been bred here; but it is found more profitable to rear *cart horses*. The fine black brewers' horses which we see in the London drays are brought from Leicestershire.

"You have heard of *Stilton cheese*, I dare say. No doubt you have tasted it. Stilton is a town in Huntingdonshire; and there these cheeses are *sold*, but they are chiefly made in Leicestershire. When making these cheeses, it requires great nicety in managing them to bring them to a proper state of ripeness. To be good, they

must be very rich and have a mild flavour. Every dairy-woman has her own secrets in making them, and she will not tell them to any one else. Thus Stilton cheeses are always sold at a high price.

"Much of the soil of Leicestershire which is not used for pastures is a stiff and strong clay; it is well fitted for the culture of beans.

"The rivers of Leicestershire are not famous: the principal are the *Wreke* and the *Soar*.

"On the latter river is LEICESTER, the capital of the county. This old town is worthy of notice; for from very early times it has done a good trade in *wool*, the produce of the county. Wool-combing, spinning, and stocking-making, particularly have been the chief employment of the people; there is also a good *lace* manufacture, and a few hands are employed in dyeing. Mind that, in future, you remember where worsted stockings are made.

"The ruins of the *Castle* in Leicester are worth noticing; the principal remains are the hall and the kitchen. One of the gateways has an arch of curious workmanship. *Leicester Abbey*, too, is an interesting old ruin: very little of it is left, but it is worth visiting. It was here that CARDINAL WOLSEY died, and here also the unfortunate LADY JANE GREY was born.

"ASHBY-DE-LA-ZOUCH is in the western part of the county. Like Leicester, it has manufactures of stockings and lace.

"BOSWORTH, or MARKET-

BOSWORTH, is a pleasant little town. Here also there is a small manufacture of worsted stockings. About one mile south of the town there is a large plain. It was formerly called *Redmore Plain*, from the colour of the soil; but in the year 1485 a battle was fought here between Richard Third, King of England, and the Earl of Richmond. Since then the name of the place has been changed to *Bosworth Field*. One of the hills surrounding this plain is called 'Crown Hill.' Here, when Richmond had conquered and Richard III. was killed, Lord Stanley took the battered crown which the latter had worn, placed it on the head of Richmond, and saluted him as king. The grammar school of this town is rather famous: Dr. Johnson taught in it as an usher when he was a young man.

"LOUGHBOROUGH, like the preceding towns, has a manufacture of stockings and lace.

"At LUTTERWORTH, again, stockings and coarse 'hosiery' are made. This town was the residence of the celebrated JOHN WICKLIFFE during a great part of his lifetime.

"MELTON-MOWBRAY is celebrated for its large cattle market. Here GEORGE VILLIERS, Duke of Buckingham, was born.

"Such are the principal particulars of Leicestershire, which I send with the memory-lesson, and remain, dear children,

"Your faithful friend,

"HENRY YOUNG."

COROLLIFLORALS.

P. LET us complete our account of the third sub-class, *Corollifloræ*.

Order 6.

BORAGINACEÆ.

Plants resembling the BORAGE.

(*Parts.*)—*Blue Borage* is a well-known weed in England; its leaves are covered with rough hairs, they are alternate, and without stipules. The *calyx* is five-cleft, rarely four, persistent—the *corolla* is five or four-cleft, and *hypogynous*—the *stamens* are of the same number as the lobes of the corolla, are alternate, and inserted upon them. The *ovary* is four-parted and four-seeded—the *style* of the *pistil* is simple, but the *stigma* is sometimes *bifid* (divided into two parts).

(*Varieties, &c.*)—The *Blue Borage*, *Forget-me-not*, and *Viper's Bugloss*, belong to this order. They are common wild flowers in England; the *Borage* has a smell something like that of a cucumber; it gives a peculiar coolness and flavour to any drink when steeped in it. These plants have mucilaginous and emollient qualities: some yield pure nitre—others a reddish brown dye—the young leaves and stalks of the common *Comfrey* have so much mucilage that they are boiled and used as articles of food.

Order 7.

LABIATÆ.

Plants resembling the DEAD NETTLE.

(*Parts.*)—These plants are so called from the Latin word, *labium*, a lip. The corolla has not

regularly arranged petals, as in the previous orders of this sub-class, but it is divided into *two lips*—the upper lip contains two lobes (or "adherent petals"), the lower lip contains three lobes. The corolla is nevertheless monopetalous, for though divided at the top into lobes, it is tubular at the base. This peculiarity is so plain a distinction, that any plant in the order may be easily known.

The *calyx* is also five-cleft; it is sometimes regular and sometimes two-lipped. The *stamens* readily distinguish the order. They are four in number—two being longer than the others; they therefore belong to the class *DIDYNAMIA* in the Linnæan System. Some species, such as the *sage*, have only two stamens. The *ovary* has four lobes.

In *size* these plants are herbs; they are rarely shrubs. The *stems* are not round, but squarish; that is, they have four sides. The leaves are opposite, and without stipules: they are sometimes divided, and sometimes undivided—they are covered with receptacles containing aromatic oil. The *flowers* are opposite and nearly sessile; they are almost arranged in whorls.

(*Note.*—This order and the preceding one, the *Borage-plants*, are "allies," for they are alike in the number of their parts. The *LABIATÆ* may, however, be known from the *BORAGINACEÆ* by their *irregular* corolla and calyx, their *didynamous* stamens, and their *opposite* leaves.)

(*Varieties and Uses.*)—This order consists of humble plants, but it is a very important and numerous one. Some species are mere weeds, with very small blossoms; but in the tropics, where

they are very abundant, many bear handsome flowers. They are largely cultivated by man on account of their aromatic qualities, especially such plants as *Thyme*, *Mint*, *Lavender*, *Marjoram*, &c. which are known as "herbs," and are very useful.

(*Varieties*.)—The principal varieties are—

(1.) The HOREHOUND tribe (*Marrubium*, from the Hebrew *mar-rob*, a bitter juice), having the stems and branches clothed with white down; they grow among rubbish, and by the way-side. Used in making lozenges for coughs, hoarseness, &c., formerly as an aperient also; has a bitter flavour.

(2.) The WATER HOREHOUND tribe—(*Lycopus*, from the Greek, *lukos*, a wolf, and *pous*, a foot) which grow in marshy soils and ditches.

(3.) The SAGE tribe (*Salvia*—from Lat. *salvo*, I save; because of the healing qualities of sage), including the Common Sage; Thick-leaved Sage; Lavender-leaved Sage, &c.

(4.) The MINT tribe (*Mentha*, from the Greek *Minthe*, the name of a nymph said to have been changed into mint by Proserpine in a fit of jealousy), including the Common Green-mint, or Spear-mint; the Water-mint; the Round-leaved-mint; Bergamot-mint; Wild-mint; Peppermint; Pennyroyal, &c.—growing in gardens and meadows, but chiefly in wet places.

(5.) The THYME tribe (*Thymus*, probably derived from the Greek *thymos*, courage or strength, because the smell of thyme is reviving). This tribe includes the Common Thyme; Fine-leaved Thyme; Wild Thyme, or "Mother of Thyme," and many other species.

(6.) The LAVENDER tribe (*Lavandula*—from the Latin *lavo*,

I wash, being used in baths and fomentations). This plant grows best, and gives out a more powerful odour in dry gravelly soil. In rich garden soil the flowers have much less perfume. In poor soils the plants will stand the most severe winter.

(7.) The ROSEMARY tribe (*Rosmarinus*, from Lat. *ros*, dew, and *marinus*, marine, because the plant grows near the sea). Like the Thyme, it grows best upon a poor, dry gravelly soil, or in wild rocky districts near the sea. Its essential oil is a powerful stimulant to the nerves, and is useful in cases of hysterics, giddiness, palsy, &c. It was so well known to the ancients for soothing the brain, and strengthening the memory, that it was used as an emblem of fidelity, and was worn at weddings.

(8.) The DEAD-NETTLE tribe, (*Lamium*, from the Greek *laimos*, the throat, because of the gaping flowers), including the White Dead-nettle, and the Red Dead-nettle.

(9.) The CAT-MINT tribe (*Nepeta*, from *nepa*, a scorpion, being used as a remedy for the bite of the scorpion), including the Cat-mint, Ground Ivy, &c.—the latter is used in the country as a remedy for colds.

(10.) MARJORAM tribe (*Origanum*, from Gr. *oros*, a mountain, and *ganos*, joy—the delight of the mountain), including the Common Marjoram, Sweet Marjoram, Pot Marjoram, &c.

(11.) HEDGE-NETTLE tribe (*Stachys*, from Gr. *stachys*, a spike—the flowers being arranged in "spikes") including the various kinds of Hedge-nettles, Betony, &c.

(12.) The BUGLE tribe (*Ajuga*—from the Greek *zugos*, a yoke, because of the calyx being equal and not two-lipped), including the Creeping, or Common Bugle (which grows in the woods), and others.

FOURTEENTH WEEK. MORAL LESSON.

MONDAY.

CHARITY

"Hopeth all things."

BY HOWARD ANDERTON.

JUDITH HORSLEY was born in the little village of Longwood. Her parents were poor, but of independent spirit. Her father was so honest a man that he would sooner go without a meal than eat one before he could pay for it. Judith had a little sister named Ann, whom she took great care of; she saved her father and mother the expense of sending Ann to school by teaching her herself.

When little Ann was nearly ten years old she complained one evening of feeling very ill. She grew worse, and in the morning the parish doctor was sent for. He pronounced her to be in a fever of the most malignant kind. When the neighbours heard of this, few ventured to go near the house on account of the danger. Amongst those who *did* call were Mrs. Barrow and her son John, who were old friends of the Horsleys. They loved little Ann very much; and they were glad to find that Judith still attended her. Not even disease in its most terrible shape could keep Judith from continuing the care of her sister. John

Barrow called very frequently to inquire after little Ann; and at length, when she recovered, John used to call to see Judith also. He had been so pleased with Judith's love for her sister that he thought he should like such a good girl to be his wife. A few months afterwards Judith promised John that as soon as he was rich enough she would be married to him.

John was a cooper by trade, and a very intelligent young man; so much so, indeed, that he was making daily progress in the confidence and respect of his master, and thus his prospects were very promising. He could cheer himself with the hope that he should ere long live with Judith in a pretty cottage on which he had set his heart, and be the happiest man in England.

However, one morning in spring, shortly after breakfast, when John was at work in his master's shop, he was astonished by the entrance of a couple of persons who commenced taking an "inventory" of the stock. His master wore

a troubled face, and at last he learned that he was insolvent; that he had made an assignment of his affairs into the hands of his principal creditor, and was about to go out of the business.

I dare say you do not quite understand what all this means; but John soon found that there was great trouble for himself. He shortly after left his master, and from that moment fortune seemed to have deserted him. Week after week passed; and although he travelled many miles in search of work, still he could get no permanent employment. At last he determined to go abroad. "Australia is the place," said he to Judith one evening when they were out together. "If I can but get to Australia I feel that I shall make my fortune."

I am not going to tell you of all that John and Judith said about Australia. The latter was very unwilling that John should go; for, she said to him, "Suppose you should never come back again!" She was at this time living in the family of Mr. Elsford, a very kind man. She begged John to ask her master for his advice, and John did so. To her surprise, Mr. Elsford advised John to go. He did more. He promised to keep Judith in his family until John should be rich enough to send to England for her; and he even lent John half the money required to pay his passage.

About three weeks afterwards you might have seen

John and Judith entering the gates of the Liverpool docks. They went on slowly and sorrowfully through the busy bustling scene—past the long rows of wine casks—past great piles of skins, and coils of rope, and many other articles—past the curious little boxes, like emigrants' moveable houses, with "Tide-waiter" written upon them—passing the busy men who seemed always trundling truck-loads of merchandise about—indeed passing everything without seeming to take any notice, until they arrived on board the ship *NEPTUNE*.

It was Judith's last visit to that ship; and you will not wonder that she was sad when I tell you that the *Neptune* was going to carry away John Barrow across the broad ocean to Australia. They stood looking at each other for a long time; neither liked to say "Good-bye!" but at length John spoke.

"Now, dear Judith," he said, "do not send me away with a heavy heart. It's bad enough to part at all, but do not mistrust me by supposing that I will not come back."

"Well, dear John," said Judith, "I don't know, but strange fancies have come into my mind lately, and I had such a dream last"—

"I'll soon shame your dreams and fancies, Judith, when I come back with my pockets well filled, and good estates in Australia. You know how much charity and love you have always shown to me—remember the sentence we

read from our Bible yesterday,
"Charity hopeth all things."

"Yes," replied Judith, "hope is all that is left me. Here, John, is my parting gift. I have written your name on the blank leaf of this Bible, and request that you will read at least a small portion of it every day."

"That I promise you," said John; "and as to the letter, you may expect to receive the first in nine or ten months, or even sooner, if we speak a ship. I will tell you"—

But their colloquy was here interrupted by an order that all were to go on shore except the passengers and crew. John and Judith bade farewell to each other, and parted.

When Judith returned to the house of Mr. Elsford, she tried hard to bear up against her lonely feelings. Her father and mother and her sister Ann, her kind master and mistress, all cheered her. They told her to look forward with hope. But the time passed away slowly

and heavily. She had waited a long twelve months, and had heard nothing of John. One morning, however, as she was going from Mr. Elsford's to her father's house at Longwood, Robert, the postman, overtook her.

"Good mornin', Judith," said he, "fine mornin'."

"Yes, it is indeed, Robert," she replied, "and pleasant for those who have as much walking as you have. Any letters for Mr. Elsford?"

"None," said Robert, "but here's one that perhaps may be more interestin' to you; it's from Australy. If you like, I will give it you, as you are going home; it is directed to your mother."

Judith, at the word "Australy," as Robert called it, was violently agitated, and almost snatched the letter from the postman's hand. She ran home to her mother with it, wondering all the way from whom it could have been sent.

(Concluded at page 225.)

LINES FOR THE LITTLE ONES.

DANGEROUS GAMES.

POOR PETER was burnt by the poker one day,

When he made it look pretty and red;

For the beautiful sparks made him think it fine play

To lift it as high as his head.

But somehow it happened, his finger and thumb

Were terribly scorched by the heat;

And he scream'd out aloud for his mother to come,

And stamp'd on the floor with his feet.

Now if Peter had minded his mother's command,

His fingers would not have been sore;

And he promised again, as she bound up his hand,

To play with hot pokers no more.

The Daisy.

COROLLIFLORALS.

Order 8.
SOLANACEÆ.*Plants resembling the NIGHTSHADE.*

(*Parts.*)—The flowers of this order have a *calyx* which is five-cleft, persistent, and inferior; the *corolla* has five equal lobes; the five *stamens* alternate with the lobes of the corolla; the *ovary* has two cells, each having many seeds; the *pistil* has one *style* with simple *stigma*. In these parts the plants are like those of order 4, Gentianaceæ, but they differ from them in having a simple instead of a divided style (see description of that order); again, the leaves of the Gentian tribe are *opposite*, while those of the Nightshade are *alternate*; the former also have *ribbed* leaves, while the Nightshade has not.

(*Varieties and Uses.*)—The plants of this order are very useful in supplying food and medicine, yet they are nearly the most poisonous plants in the whole vegetable kingdom. The principal varieties are the *Black-fruited Nightshade* (*Solanum nigrum*); *Red-berried Nightshade* (*Solanum rubrum*); the *Potato* (*Solanum tuberosum*); the *Egg-plant* (*Solanum melongena*); the *Love-apple*, or *Tomato* (*Solanum lycopersicum*); the *Deadly Nightshade* (*Atropa belladonna*); the *Thorn Apple* (*Datura stramonium*); *Henbane* (*Hyoscyamus niger*); *Tobacco* (*Nicotiana tabacum*); and others.

Order 9.
SCROPHULARIACEÆ.*Plants resembling the FOXGLOVE.*

The parts of the flower of this order are like those of the Labiateæ;

except that they have a *two* instead of a *four* lobed ovary; and the petals are even more irregular than those of the labiate plants. They have brilliant-coloured and handsomer flowers than the Nightshades; but many are, like them, virulent poisons, with strong and acid juices; indeed, all are rather suspicious.

(*Varieties.*)—The Common Foxglove (*Digitalis purpurea*); the Snapdragon (*Antirrhinum*); the slipper-shaped flower (*Calceolaria*); the Figwort (*Scrophularia*); the Eyebright (*Euphrasia*); the Toadflax (*Linaria vulgaris*); the Speedwell (*Veronica officinalis*); the Broomrape (*Orobanchæ*); and the Mullein (*Verbascum*), belong to this order.

Order 10.

OLEACEÆ.

Plants resembling the OLIVE.

(*Parts.*)—The *calyx* of these plants is four-cleft; the *corolla* is regular, and has four lobes; and there are only *two* *stamens*. The *ovary* is simple, and has two cells; each cell is two-seeded. The Common Ash, however, which belongs to this order, has *no* corolla.

(*Varieties.*)—The Olive-tree; the Common Ash; the Manna Ash; the Privet; the Lilac, and others belong to this order, which is called OLEACEÆ.

(*Uses of this Order.*)—Olive oil is procured from the fruit of the Olive, and is used for various purposes. The wood of the Olive is beautifully veined; as it has an agreeable smell, and takes a high polish, it is much used for ornamental work. The wood of

the *Ash* is useful for a variety of purposes; it is very light, elastic, and yet strong; thus it is used in making various implements. It is said that "nothing is equal to it for poles, ladders, long handles, &c. &c." The *Ash* is the most elegant of our forest trees. The *Manna Ash* yields a sugary substance called "*Manna*."

Besides these ten tribes of *Corolliflorals* there are others which are well known, but are smaller; I will therefore supply you with little more than their names.

Order 11.

BUTTERWORTS (LENTIBULARIACEÆ)

Including the *Common Butterwort*, &c.

Order 12.

RIBGRASS, OR PLANTAIN, &c. (PLANTAGINACEÆ)

Including the *Common Plantain*, which grows in waste places, &c.

Order 13.

LEADWORTS (PLUMBAGINACEÆ)

Including the *Common Thrift* (*Armeria*) and the *Sea Lavender* (*Statice*).

Order 14.

LOBELIAS (LOBELIACEÆ).

The only *British* plant known is the *Lobelia Dortmanna*, a little water-plant; the order is a very large one in the warmer parts of

the world, and includes the *Lobelia Inflata*, or *Indian Tobacco*, &c.

Order 15.

DOGBANES (APOCYNACEÆ),

Including the many varieties of *Dogbanes* (which were so called because they were supposed to kill dogs) and many other tribes. The *Periwinkles* (*Vinea major* and *minor*) belong to this order.

Order 16.

WINTER-GREENS (PYROLACEÆ)

Order 17.

JESSAMINE PLANTS (JASMINACEÆ),

Including the common *White Jessamine*, and others.

Order 18.

JACOB'S LADDER PLANTS (POLEMONIACEÆ),

Including various kinds of *Jacob's-ladder*, or *Greek Valerian*; *Phlox*, *Gilia*, *Leptosiphon*, &c., most of which are now well known as garden plants.

Order 19.

VERVAINS (VERBENACEÆ),

Including the common *Vervain*, a wayside weed, &c.

Order 20.

THE CORNELIAN CHERRY-TREE, &c. (CORNACEÆ),

Including the *Dogwood*, *Cornelian Cherry*, &c.

THANKLESS for favours from on high,
Man thinks he fades too soon,
Though 'tis his privilege to die,
Would he improve the boon.

GEORGE III.

IN 1781 the British nation saw that the Americans were everywhere successful. The English generals were quite incompetent to contend with the sagacity, the skill, and the zeal of the famous WASHINGTON. The affairs of the state were guided by the far-famed BENJAMIN FRANKLIN and others. On the 27th September in that year, Washington and his French allies took Lord Cornwallis, the British commander-in-chief, and his whole army, prisoners. This event may be said to be the end of the war, for there was little serious fighting afterwards.

In 1782 a motion was carried in the House of Commons, that the war with America be brought to a conclusion; and the ministers of the Government, who were headed by Lord North, resigned their office. It was twelve years since Lord North had forced the tax on tea upon the Americans. During that time the commerce of England had greatly suffered. ONE HUNDRED MILLIONS had been added to the *National Debt*, and great colonies, containing 3,000,000 people, had been separated from the parent State.

Under these circumstances, it was quite time that the war should cease. Accordingly, on the 3rd September, 1783, a treaty of peace was made with AMERICA and her two allies, FRANCE and SPAIN. By these

treaties the former colonies of Britain were recognised as an independent country under the name of the UNITED STATES.

In 1784 another treaty was made between Great Britain and HOLLAND, her only remaining enemy. The nation was thus wholly at peace. She was then able to look back on the last twelve years, and to learn another bitter lesson on *the foolishness of war*.

The treaty with the new kingdom of the UNITED STATES was, you may remember, made in 1783. It was fortunate for the nation that after this treaty they had a long rest from war. For a short time the people suffered much from a bad harvest, from the depression of commerce, and from the poverty brought on by the expenses of the war. But in the tranquillity of peace, the industry of the people had some chance of reward. Intelligence and thought had some opportunity to make progress. Thus the nation quickly began to prosper again, and to increase in wealth.

During the time of the American war and the remainder of George III.'s reign, many celebrated statesmen governed the country. Amongst these were the celebrated *Mr. Pitt*, who became Earl of Chatham; the *Earl of Bute*; *Mr. Grenville*, who first attempted to tax the American colonies; *Lord North* who brought on the war with

the Americans by enforcing the duty on tea; the *Marquis of Rockingham*; *Mr. Pitt*, son of the Earl of Chatham, and his rival, *Mr. Fox*; and the celebrated *Edmund Burke*.

The year 1789 came. It was six years since the conclusion of the American war. The statesmen under the government of *Mr. Pitt* were legislating for their country, when they were alarmed by a distant shock, which startled all the nations of Europe.

The shock came from France. The people of that country rebelled against their king, and put him to death. They then overturned the government and religion of the State, and declared themselves the enemies of royalty all over the world. This event was called the FRENCH REVOLUTION.

It may be worth while to mention the principal facts of the Revolution.

At this time the nobles in France paid no share of the taxes; the clergy were immoral; the king and his court were extravagant; the laws were bad, and were administered badly. The people were therefore dissatisfied. There were disturbances in all parts of the country; and the king was compelled to call a meeting of the "States-General."

In May, 1789, the States-General met. They determined that the *lords*, *clergy*, and *commons* should meet in one assembly. The nobles and clergy would not agree to this arrangement. The commons therefore met by themselves.

They declared themselves to be the Government, and they assumed the title of the NATIONAL ASSEMBLY. One of the principal orators in this assembly was MIRABEAU. The acts of the assembly were very violent. The extraordinary measures that quickly followed each other astonished the neighbouring nations. They saw the *existing laws* abolished, while the *church and her monasteries*, the *titles of the nobility*, and even the *monarchy*, fell beneath the sweeping power of the National Assembly. Thus in six months the prevailing order of things had been subverted. The king and court had no power against these measures; they were obliged to submit.

In the course of these events the people were much excited. The state prison of France was a strong place, like the Tower of London, and was called the *Bastile*. A large mob stormed this place, and levelled it with the ground. A "national guard" was appointed to keep order, and was commanded by a temperate reformer, named LA FAYETTE.

In 1790 the anniversary of the destruction of the *Bastile* was kept throughout the country with great solemnity. The king was compelled to take a solemn oath to maintain the constitution.

In 1791 the king, LOUIS XVI., the queen, MARIE ANTOINETTE, and the Royal Family tried to escape from France, but they were brought back. The king had left behind him

a paper declaring that the oaths he had taken to support the acts of the National Assembly were forced upon him, and were therefore not binding. The people then saw that he meant to effect a revolution against them. All confidence between them and himself was thus destroyed.

In 1792 the king was kept a close prisoner in the palace of the *Tuilleries*. An insurrection arose, headed by two men named DANTON and MARAT, and others; and the palace of the *Tuilleries* was stormed. About 1,000 of the king's guards were killed, and more than 3,000 of the insurgents.

The slaughter which was caused by this useless resistance of the king, only rendered him more unpopular. He was publicly deprived of his functions, and in the next year, 1793, was

tried for a conspiracy against the liberties of the State. He was sentenced to death, and beheaded, with his amiable and beautiful wife, Marie Antoinette.

These were the principal events which alarmed the nations of Europe. The French not only murdered their king, but offered help to any of the European nations who might be inclined to reform their governments in the same way. This was more than the nations of Europe would bear. AUSTRIA and PRUSSIA had already taken up arms, and RUSSIA and BRITAIN withdrew their ambassadors. War was then once more declared between BRITAIN and FRANCE.

We have now to enter on another long list of wars: but I will not begin their history now; it shall be reserved for our next lesson.

LINES FOR THE LITTLE ONES.

THE FAN.

MARIA's aunt, who lived in town,
Once wrote a letter to her niece,
And sent, wrapp'd up, a new half-crown,
Besides a pretty pocket-piece.

Maria jump'd with joy, and ran
To tell her sister the good news;
She said, "I mean to buy a fan;
Come, come along with me to choose."

They quickly tied their hats, and talk'd
Of yellow, lilac, pink, and green;
But far the sisters had not walk'd
Before a shocking sight was seen.

Upon the ground a poor lame man,
Helpless and old, had tumbled down;
She thought no more about the fan,
But gave to him her new half-crown.

The Daisy.

THE ENGLISH TRAVELLER.

HUNTINGDONSHIRE.

"MY DEAR CHILDREN,—

"When I was in Westmoreland I visited Winandermere, and Ellesmere. If you remember my description of those places you will know that the word *mere* means a lake.

"In Huntingdonshire *were* three lakes, or long pools, named WHITTLESEA - MERE, UGG-MERE, and RAMSEY-MERE. I say "*were*," because one is no more. Whittlesea, which was the largest of the three, has been drained by enterprising men. Here is an account of this undertaking, which is shortened, and slightly altered, from the ILLUSTRATED LONDON NEWS of April 26th, 1851.

"Whittlesea Mere was the most spacious fresh-water lake in the southern part of Great Britain. In 1786 it was $3\frac{1}{2}$ miles long and $2\frac{1}{2}$ broad; its average depth was from five to six feet, and in one place it had seven feet depth. About fifty years afterwards (in 1835) it was found that there was much less water in the river than formerly. The depth nowhere exceeded two feet, and many parts were overgrown with reeds.

"In 1850 the Mere was again "surveyed." It was found to be even more shallow than in 1835. The waters abounded in a great variety of fish, and it was visited by vast numbers of wild-fowl. The fisheries and fowl-catching have been cultivated with much profit. At the Holme Decoy, which was considered one of the best in the kingdom, fifty dozen of ducks per day were commonly taken in the height of the season.

"In the summer months the Cambridge Undergraduates were frequent visitors, boating up from Cambridge, and usually having a second boat, in which they had a species of cabin where they passed the night. In the winter the frozen waters of the Mere were the centre of attraction; and the "crack" skaters of the neighbouring counties met here.

"Entomologists (those who study the natural history of insects) held the Mere in high esteem, and many pounds have been gained from the capture of the various beautiful flies that glittered over its surface. Formerly, gipsies were in the habit of making their summer encampments on the borders of the Mere; they profitably employed their time by netting the brilliant "purple emperors" and "swallow-tails." On all sides, the Mere was (and, up to the present time, is) liberally fringed with sedges and reed. This "reed-shore" commonly extends to the depth of a quarter of a mile, and affords one of the greatest sources of revenue that the Mere supplies.

"In the *summer* time these reed-shores appear, at a distance, like extensive fields of corn. In *autumn* and at the approach of *winter* they are resorted to by innumerable flocks of starlings, which subsist upon the seeds of the plants, and lodge or roost among the branches. The fen-fowlers, in boats, used to take these birds by surprise, and their long guns made prodigious havoc. As the weight of such flocks of birds breaks down and partially destroys the reed, the reed-merchant tries to prevent them from settling there.

'The reed-harvest commences about Christmas, and continues up to the beginning of March. It is reaped like corn, by men who stand in boats for that purpose, and conveyed in the boats down the several dykes or lodes to its destination. Here it is carefully dried and dressed, and tied up into bundles or sheaves, and conveyed to the stacks, where it lies until wanted. The use of the reed for thatching purposes is well known; and it makes, perhaps, the best thatch that we have, as it is cool in summer and warm in winter, being less pervious to heat and cold than any other material used for the same purpose. A good reed thatch will last from fifty to seventy years, and even much longer, if the roof be of proper pitch, and the sparrows and rats prevented from making their homes therein. In the parish of Holme is a barn which has been thus thatched for more than 100 years, and still appears undamaged.

'Reeds are also extensively used in fence-making, and as the substratum for ceiling plastering, and the plastered floors that are so common in Derbyshire. The *sedge* that grows by the reeds is also used for thatching, and for brick-laying purposes. A kind of *bulrush*, vulgarly called "cat-tail," is also made serviceable; the poor people stripping off the soft woolly part to stuff their bedding with. The *turf* or *peat* dug from the upper part of the soil constitutes the chief fuel throughout the fen districts. It is cut out in squares, put into sacks, carted away, and sold in shops or hawked about through the neighbouring towns and villages, at from ten to twelve shillings per 1,000. It burns rapidly, and is generally used together with coal or wood. Peat is also used for draining purposes. These form the principal productions of Whittlesea Mere.

'Whittlesea Mere has hitherto been allowed to remain in its wild state. Its drainage is now, however, being rapidly effected. The lowering of the water was commenced in June, 1850, and for some months the depth of water was only from nine to eighteen inches. In November the water was let off into rivers, and in a day or two the Mere was dry, except in some low places. The drainage will, probably, not be finished for nearly two years, although numbers of men are constantly employed, and a steam-engine is about to be erected to facilitate the works. This undertaking shows what the enterprise of the present age will effect. The total amount of land to be reclaimed is upwards of 3000 acres.'

"The change made by this drainage improvement will be a very great one. It is said that 'after having been accustomed for so many years to see Whittlesea Mere as a flat scene, fenny, watery, and swampy, it will be startling to see the water flow into canals, the swamps become green pasture grounds, and the fens flooded over with a golden sea of ripened corn.' The flood of golden corn may be a more pleasant sight to see than the 'reed-shores,' but the reeds have been a very profitable produce. In the ILLUSTRATED LONDON NEWS there is a picture of two stacks of these reeds, which are said to be worth no less than £1,300 !

"The rivers of Huntingdonshire are not famous. The *Nen* bounds the county on the north, and the *Ouse* flows through the southern part. The county is peculiar, because the land contains so few springs un

derground ; the inhabitants, therefore, are supplied from the ponds and rivers.

"The soil of Huntingdonshire has no great peculiarities. It is very productive, except the tracts of *fen* land in the north. These used to render the air unwholesome, but the greater part is now drained. In ancient times, before the Romans came to Britain, the country was nearly covered with forest. This afforded a good hunting ground for the few Britons who were hunters. Thus, in the Saxon language, the country is called *Hunte-dune-seyre*, which means Hunter's down shire. The forests were cut down in the reign of Henry II. and Edward I., and very little remains except a few woods and coppices ; the hedge rows of this county are particularly bare of large trees.

"The animals of Huntingdonshire are not famous. In the pastures you would perhaps be amused with the contrivances to enable the sheep to rub their backs. Did you ever see a sheep scratching himself ? I think not. The cow has horns and a switchy tail, as the flics know, to their cost. But not so the sheep ; in the summer-time they are much harassed by an insect called the *tick*, which is found in the wool. The poor sheep to get rid of their tormentors are obliged to roll themselves on the ground, unless the shepherds dip them in a certain liquor which kills the ticks. But the sheep of Huntingdonshire are a privi-

leged people. They are supplied with rubbing-posts ; two short posts are driven into the ground, and a strong rail is fastened to them, which is a little lower than the height of a sheep. When, therefore, they are troubled by the ticks, they go under these posts and rub their backs. This may be a very interesting sight ; but if I were a farmer I should rather wash my sheep—the wool is not damaged then.

"The chief town of the county is HUNTINGDON. It is not very famous now ; but it may be remembered because it was the birthplace of the celebrated OLIVER CROMWELL. Formerly it contained fifteen churches ; now there are only three or four.

"There are two or three more towns which are worthy of notice.

"St. IVES stands on a slope, close to the bank of the river Ouse. Its *cattle-market* is a very large one ; it was, until lately, the second in the kingdom. The name of the town is derived from St. Ivo, a Persian missionary, who is said to have visited England in the year 600 ; about 300 years before the death of King Alfred.

"RAMSEY, a town on the edge of the fens ; STILTON, where Stilton-cheese is made ; KIMBOLTON, and a large village called GODMANCHESTER, are places worthy of notice.

"I am, dear children,

"Yours faithfully,

"HENRY YOUNG."

ARITHMETIC.

MULTIPLICATION.

P. Let us learn some MULTIPLICATION to-day, Ada. Will you tell me how much are five times 2?

Ada. No, I cannot do that.

P. Then can you tell how much are five twos?

Ada. Oh, yes. I have only to write them on my slate in this way, and add them up.

$$\begin{array}{r} 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ \hline \end{array}$$

10

You see that 5 twos are 10.

P. Exactly. And 5 twos means the same as 5 times 2. When I say to you, how much are 6 times 4, I mean how much are 6 fours. Again, 3 times 9 means 3 nines. Suppose, now, that I were to ask you how much are 4 times 8?

Ada. I should answer you very soon. I would put 4 eights in a line on my slate, and would add them together.

P. And suppose I were to ask you how much are 40 times 8.

Ada. Then I should put 40 eights on my slate, and add them together; but I should require some time to do that.

P. And now suppose that I were to ask you how much are 424 times 8.

Ada. Then I should have to put down 424 eights; but I should not like to take so much trouble; how troublesome it

must be to add together so many numbers!

P. But when men are engaged in business they often have harder questions to answer.

Suppose that a merchant had 590 bales of wool, each weighing 716 lbs.; he could not spare time to write 590 seven-hundred-and-sixteens on his slate, and add them together. So you see that there ought to be a shorter way of answering such questions, besides that of adding numbers.

Ada. Is that what you call MULTIPLICATION?

P. Yes. Multiplication is a short way of adding together numbers *which are alike*. Suppose that you want to find out how much are 5 seventeens, instead of adding them together you may proceed in this manner:—

<i>XI</i>	<i>XI</i>
17	17
5	17
—	17
35 = 5 sevens	17
50 = 5 tens	17
—	—

85 = 5 seventeens. 85

I have worked the sum both by Multiplication and Addition. In multiplying the 17 I have taken one part of the amount at a time. I have first taken 5 times 7, which are 35; I have then taken 5 times 10, which are 50. Now, 10 and 7 are 17, so that 5 times 10 and 5 times

7 are the same as 5 times 17. Thus you see that after multiplying the two parts of the number I have added them together.

Ada. But how do you know that 5 times 7 are 35? You cannot put five sevens on top of one another in your mind, and you did not do so on your slate.

P. I had committed this first to memory from a table called the MULTIPLICATION TABLE. I have there learned how much are 5 times any number under 12, or 6 times any number, or 8 times, or even 12 times any number. This table need not be printed in PLEASANT PAGES. You may learn it from almost any Arithmetic book.

Ada. Must I learn it, papa?

P. Yes, you cannot proceed with your multiplication sums until you have done so.*

Now that you know your multiplication I will give you some more examples. You know that 6 times 14 is the same as 6 fourteens added together. Let us prove this.

* It is necessary for the pupil to commit to memory, most carefully, the multiplication-table before proceeding with the following exercises. He should not only learn, but prove every part of the table. Thus, besides learning that 5 times 7 are 35, he should add 5 sevens mentally, to prove that what he has learned is correct; he will thus remember it much better.

A variety of good exercises may be formed from the multiplication-table. For instance, when the pupil knows that 3 times 2 are 6; he should discover that 3 times 4 are 12, and 3 times 8 are 24. Thus, 3 times 2 are 6; 4 is twice 2, therefore 3 times 4 must be twice 6. By the same rule, 3 times 8 are twice as much as 3 times 4. Many more useful exercises may be made from the multiplication-table.

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Ada. I learned that last week, papa.

P. True. I am now going to show a more convenient form in which to arrange your sums. Suppose that you have to multiply 146 by 5.

Ada. What does that mean?

P. That means 5 times 146; or, as we said before, 5 one hundred and forty-sixes.

64	$\begin{array}{r} CXI \\ 146 \\ 5 \\ 30 = 5 \text{ sixes} \\ 200 = 5 \text{ forties} \\ 500 = 5 \text{ hundred} \\ 7305 \text{ times one hundred and forty-six.} \end{array}$	$\begin{array}{r} CXI \\ 146 \\ 5 \\ 30 \\ 200 \\ 500 \\ 7305 \end{array}$
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The second way is not really different from the first—it is only set down in a more convenient manner. I will work it for you that you may see how the results are produced.

5 times 6 ones are 30 ones, which make 3 tens, and 0 ones over. I put down the 0 ones in the place for the ones, and keep the 3 tens to add to the tens when I have multiplied them. (You see that I have placed a little 3 for the 3 tens, under the 0, so that I may not forget it.)

Five times 4 tens are 20 tens, which, with the 3 tens made from the 30 ones, are 23 tens. Now, 10

tens make a hundred, so that 23 tens are 2 hundred and 3 tens over. (You may see again that I have placed a small 2 under the 3 tens, so that I may remember it.)

Five times 1 hundred are 5 hundred, and the 2 hundred made from the 23 tens are 7 hundred. (The sum being now finished, the small figures are not wanted, and may be rubbed out.)

Ada. I think, papa, I could work a multiplication sum if you would let me try.

P. I will give you one more example. In this you will see that there is a larger number to multiply, and that there are two *noughts* in it. You see that these are 0 hundreds, and 0 thousands.

A shepherd had four flocks, each containing 430,061 sheep; how many sheep had he altogether?

$$\begin{array}{r}
 CXI \quad CXI \\
 430,061 \\
 4 \\
 \hline
 1,720,244
 \end{array}$$

The working of this sum is not more difficult than that of the shorter ones. It may be as well for us to go over it together that you may see how to proceed when there are *noughts* in the amount to be multiplied.

222

Four times 1 sheep are 4 sheep.

Four times 6 tens are 24 tens; put down the 4 tens under the tens, and change the 20 tens into 2 hundred.

Four times 0 hundred are 0 hundred, but I must put down under the hundreds the 2 hundred made from the 23 tens.

Four times 0 thousand are 0 thousand.

Four times 3 ten-thousand are 12 ten-thousand, which may be divided into 1 hundred-thousand, and 2 ten-thousands; put down the 2 ten-thousands, and carry 1 the hundred-thousand.

Four times 4 hundred-thousand are 16 hundred-thousand, and 1 hundred-thousand make 17 hundred-thousand.

As soon as you have practised multiplying simple numbers, you may easily learn the principle of *Multiplication of Money*. I will give you one more example.

There were five brothers, and each had £4 12s. 6½d.; how much had they altogether?

£	s.	d.	£	s.	d.
4	12	6½	4	12	6½
4	12	6½			5
4	12	6½			
4	12	6½	23	12	8½
4	12	6½			2
23	12	8½			

You see, Ada, by this example, that one kind of multiplication is as easy as another. When the farthings are multiplied they may be changed into pence and added to the pence; the pence may also be changed into shillings; and the shillings into pounds.

MONOCHLAMYDÆ.

P. I have now given you a short account of three sub-classes of exogens. Here are a few particulars of the 4th sub-class, MONOCHLAMYDÆ.

N.B. The word "Monochlamyde" means "one envelope." Hitherto, the flowers we have noticed have had two envelopes, the calyx and corolla. In this sub-class the flowers have no corolla, they are therefore said to be "apetalous."

W. The first two sub-classes have polypetalous flowers, while those of the third sub-class are monopetalous.

P. Yes. You may see this by referring again to one of your old lessons. (See vol. 5, page 183.)

Order 1.

CHENOPODIACEÆ.

Plants resembling the GOOSEFOOT.

(Parts.)—These plants are so called from the peculiar shape of their leaves, which are very jagged and resemble the foot of a goose; they have no stipules; the calyx has 5 lobes; the 5 stamens are opposite these lobes; the ovary is celled, and "superior." In size these plants are herbaceous or under-shrubs.

(Varieties and Uses.)—Most of these plants are considered rank weeds; they inhabit "waste-places in all parts of the world, mostly in northern Europe." Some, however, are useful as articles of food.

The Spinach is used at the dinner-table as "greens."

The Beet supplies the well-known red beet-root, which is eaten with salad in England, and immense quantities of sugar are made

from it in France. *Mangold wurzel* (or "root of scarcity") is one species of Beet; it supplies fodder for oxen, &c. The *Salsola soda*, and the *Glass wort*, of which you have already heard, supply soda when burnt.

Order 2.

POLYGONACEÆ.

Plants resembling the BUCK-WHEAT.

(Parts.)—The calyx has from 3 to 6 sepals, the stamens are definite in number and inserted in the calyx. The ovary is 1-celled, with one ovule; it is superior to the calyx. The seeds contain farinaceous albumen, and thus resemble wheat—when ripe they may be known by their 3-cornered shape.

The parts of this order are like those of Order 1. They may, however, be distinguished from them by their leaves, which have stipules, and their 3-cornered seeds.

(Place, and Uses.)—Like the GOOSEFOOT plants, this order contains many of the commonest weeds. They overrun waste places in every latitude. The leaf-stalk of the *Garden Rhubarb* is used for pies, puddings, &c. The root-stock of several species of *Rheum*, which grow in warm countries, supplies the medicine Rhubarb. The *Dock* is a well-known English weed. The *Buck-wheat*, like wheat, is largely used on the Continent and in the East, to make bread, because of the albumen in its seed.—(See *Fireside Facts*, page 107.)

Order 3.

THYMELACEÆ.

Plants resembling the DAPHNE MEZEREUM.

(Parts.)—Calyx generally 4-lobed. Stamens 2, 4, or 8. Ovary

1-celled with 1 ovule, 1 style, and 1 stigma. *Leaves* simple, without stipules, either alternate or opposite.

(*Varieties.*) — *Daphne Mezereum*, and *Daphne Pontica* (or long-flowered Spurge Laurel).

Order 4.

LAURINACEÆ.

Plants resembling the LAUREL.

(*Parts.*)—*Calyx* 4 or 6 cleft. *Stamens* attached to calyx, with anthers opening by valves—like those of the Berberry. *Ovary* with 1 cell and 2 ovules; 1 style.

(*Varieties, &c.*)—The different kinds of Laurel; the Bay laurel, which grows only in the northern temperate countries. The laurel was employed by the ancients to crown those who excelled in learning or war; thus the word *Bachelor* (of Arts, Medicine, &c.) is derived from *Bacca-laurea*, which means laurel-berried.

All the laurels are aromatic. *Cinnamon*, *Camphor*, *Cassia*, *Nutmeg*, *Sassafras*, &c., are the produce of the tribe.

Order 5.

EUPHORBIACEÆ.

Plants resembling the SPURGE.

(*Parts.*)—The flowers are monœcious, or dicecious (see Vol. 5, Page 148). *Calyx* sometimes none, but when found is "inferior." There are no plants in Europe which will afford us a good idea of this order. The *Ovary* consists of 3 carpels; when these are ripe they separate from their axis with elasticity.

(*Varieties.*) — The Common Spurge; the Common Box; the herb Mercury; the Castor Oil plant (*Palma Christi*); the Cassava Plant, and the *Croton tiglium*,

from which we get the purgative Croton Oil. *Caoutchouc*, or Indian-rubber, is obtained from the milky juice of some species.

Order 6.

URTICÆÆ.

Plants resembling the STINGING-NETTLE.

(*Parts.*)—Flowers monœcious, or dicecious. *Calyx* 4-lobed; *stamens* 4, opposite the lobes of calyx; *ovary* with 1 cell, 1 seed, 1 style, and a stigma with a bunch of filaments. *Leaves*, alternate, with stipules, generally covered with hairs or stings. In size these plants are herbs, shrubs, and trees.

(*Varieties.*)—The Stinging Nettle; Pellitory; Hemp; Hop plant; Fig Tree; Mulberry Tree; Bread-fruit Tree; the Banyan Tree; and the poisonous Upas Tree.

Order 7.

PIPERACEÆ.

Plants resembling the PEPPER VINE.

(*Parts.*)—These plants are so much like Endogens, that it is a question whether they belong to that class, or are EXOGENS. The parallel veins in the leaves, and the one cotyledon in the seed are the features of an Endogen. The flowers and stalk, on the other hand, are Exogenous.

The flowers are arranged in long clusters or "spikes." The ovary has one seed, which contains an aromatic pungent quality called *piperin*. These ovaries are picked, and, when dried, are called "pepper-corns." The pepper-corns when ground, are called *Black Pepper*; but they may be stripped of their husks, and they are then called *White Pepper*. There are two tribes of plants in this order.

FIFTEENTH WEEK. MORAL LESSON.

MONDAY.

CHARITY

"Hopeth all things."

JUDITH's mother was out at market when she arrived at the cottage, so she sat down to wait for her. Anxious moments! for although the letter did not bear John's handwriting upon it, yet she felt sure that it must contain intelligence of him.

At last her mother came in, and the letter was opened. It was from Judith's uncle, a brother of Mrs. Horsley, of whom she had heard so little that she had forgotten his very existence. He had gone over to Australia some twenty years before, and he had by this time worked his way into a good position in the colony.

"Get me my spectacles, child," said her mother. Judith obeyed her with all speed, and the old woman having adjusted them, sat down in the arm-chair near the window to read the letter. What the first part told her is of no consequence—it merely mentioned the writer's health, but as she read further she started, and exclaimed, "Oh, the villain!"

"Who is a villain, mother?" said Judith.

"Don't ask me, my dear," she replied.

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This alarmed Judith; she looked eagerly upon the letter, and caught the name of Barrow. Her curiosity being excited, she read, with a terrible fear, that part of the letter which had caused her mother's exclamation. It was to this effect, that Richard Horsley (her uncle) had been attacked and robbed by three men, when he was riding home to his farm. One man only was apprehended, and his name, said the writer, was BARROW. Then followed a description sufficiently resembling the appearance of Judith's lover to warrant her mother in at once fixing the identity.

"Well, Judith," said her mother, "you had better try and forget that bad man; and look here, this shows it is he: Richard goes on to say, that it came out in the evidence, that he had only lately arrived in the colony. Ah! it is a good thing he is gone out of the country, for he is a bad one in his heart, I know, and I think you have had a fortunate escape."

Judith could scarcely be said to have been listening to her mother's words. She was like

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one who dreams. She sat looking out of the lattice window, and her heart sank within her. She had sat very long after her mother had finished reading, and found no relief; it was not until her father came home and read the letter, that she felt more light-hearted. "After all, Judith," he said, "you know it may not be the man—there is more than one person of the name of Barrow in the world."

That night Judith spent a longer time than usual over her Bible; she looked long at the passage which John had marked; she read over and over again the words, "Charity hopeth all things," and determined not to believe that John had done wrong until she had heard from him herself.

In the course of time Judith did receive a letter from John. He told her but little of his success, yet he bade her look forward with hope to the time when he should send for her, or come himself to fetch her.

I have not time to tell you of all the doubts and fears that Judith felt. For a long period no more letters arrived from Australia; yet there were many reports in the village about John Barrow; it was said that he was a very bad man, and that it was quite certain that he had been doing wrong in Australia. Still Judith hoped; she received a second letter from him, but this did not give a more encouraging account than the first,—and this was the last letter that came. Five years passed away, and month after month was spent in hope and

expectation, which was now getting very faint indeed.

At length the mother of Judith declared that she was "out of patience" with her. She could not understand how Judith could still believe in such a good-for-nothing man. "Why, can't you see, Judith," she said, "that the man does not care about you, when you have not heard from him for two years and a half? You know, too, how good a young man George Webb is. He is rich enough to get married, and he wants you to go and live with him, and be Mrs. Webb."

"Mother," said Judith, "George Webb may be a very worthy man, but he cannot be my husband; I am under a promise to John Barrow which cannot be broken without sin. I do not believe *yet*, that John is guilty. No! you are not quite sure that he has done wrong. I will hope a little longer. Good bye, mother!" she said, as she started for her master's house at Greenhill, "let us *hope a little longer*."

The way to Greenhill lay along a path which Judith had often taken with John before he had left England, and lowly in station although she was, yet was her heart moved by the gentle force of association. But what would to many have been a walk of sadness and foreboding, was to her a walk full of returning happiness and quiet trust. She had been thinking deeply of her parting with John on that evening, and especially of his charge, that she should keep within her

heart that charity towards him which "hopeth all things."

And so, when she came to the little rustic bridge which led into a wood, and saw the sun's golden face looking his parting look between the trunks of the trees, and heard the note of the nightingale, and through an opening in the leaves saw the mild young moon, all things of the happy past times so vividly returned to her heart, that she felt as though John Barrow would himself appear, and complete the picture. And there, in the midst of so many things which brought his good qualities back to her mind, and with the remembrance of his last words to her in her heart, unbelief in him had not a space to breathe.

Thus she walked on, trustful in him, and happy, without one shadow on her soul, until she came to the end of the wood, and then across a field-path up to the brow of a gentle rising, which overlooked Greenhill farm. She stayed there a moment to look once more at the setting sun, which lit up all nature with its beautiful but fleeting light.

"Yes, John *will* come back," she said, "I *know* he will; he is not capable of the things which have been brought against him. Yes, I feel that he will come back."

She said this aloud, still gazing upon the landscape, her eyes filled with tears of trustful joy, and she would have continued her walk, when some one pronounced her name. Whoever it was, he had run through

the wood after her, and was now trying to overtake her. It was dusk, and she could not distinguish his face, but the voice had that in it which made her tremble.

Fearful as to who it might be, she quickened her steps, and would have evaded her pursuer, but looking back at the right moment, she saw his face by the light of the sun, as he emerged from the wood. It was JOHN BARROW!

Yes! it was John. But I am not going to describe to you their meeting. All that now remains may be soon told. On hearing of the reports which had been spread about him, John expressed the greatest surprise, and proved them to be false. He had not been near the part of Australia where the robbery of Mr. Horsley was committed. He had written many times, but as he had been living far away in "the bush," his letters had been lost in the transit. He had come back from Australia a rich man. He had saved sufficient to buy a large farm there, and, in addition, he brought over a considerable sum of money to England. This he settled on his mother and Judith's parents, and so rendered their old age easy and smooth. He was quickly married to Judith, and some who had sorrowed at his supposed guilt, had the satisfaction of dancing at his wedding. Judith deserved all the happiness she felt. Armed with the charity which "hopeth all things" of another, she had done battle with every calumny, and had her rich reward.

MONOCHLAMYDEÆ.

P. We will now finish our sketch of the *Monochlamyds*.

Order 8.

CORYLACEÆ.

Plants resembling the OAK.

(*Parts*.)—The plants of this order, and those of the two following ones, are often arranged in one large order under the name *AURANTACEÆ*. *Catkin*-flowers. A catkin is like a spike, because it consists of several flowers growing on one long flower-stalk; but it is different from a spike, because all the flowers fall off together.

The order may then be easily known—1st, by its *catkins*; 2dly, because the plants are "*monœcious*," that is, there grow on the same plant flowers which have pistils only, and flowers which have only stamens; 3rdly, the ovary is surrounded by a thick *involucrum*. The bracts of this involucrum are so fleshy, that they form what is called a cupule. What we call the *cup* of an acorn is its "*cupule*," formed by the involucrum of bracts. The *husk* of the hazel and filbert, again, is a cupule.

The flowers which are staminate have from five to twenty stamens. The pistilliferous flowers vary in the number of their styles and stigmas. The *leaves* are simple, alternate, and have stipules. They often have parallel veins proceeding from the mid-rib to the margin.

(*Varieties*.)—The chestnut tree (*Castanea*); beech tree (*Fagus*); oak (*Quercus*); hazel-nut (*Corylus*); filbert, hornbeam tree, &c.

These trees are highly useful on account of their valuable timber.

Order 9

SALICACEÆ.

Plants resembling the WILLOW.

The plants of this order differ from the foregoing in their flowers and seeds. Like those of the *oak*, &c., they are not only without *petals*, but they seem to have no *sepals*. Each stamiferous flower consists of a little *bract* protecting one or many stamens; the pistilline flower also consists of a bract, on which is set a one-celled ovary containing many ovules. The fruit opens by two valves which discharge a multitude of small seeds, covered with fine hair or wool, like the seeds of the cotton plant.

(*Varieties*.)—The various kinds of *Willow*, the *Poplars*, the *Aspen tree*, &c. These trees have softer timber than those of the preceding order; the twigs of the willow (called *osiers*) are used for basket-work, &c.; the wood of the poplar is of little value.

Order 10.

BETULACEÆ.

Plants resembling the BIRCH.

The flowers, leaves, &c. of these trees much resemble those of the willow tribe. The order includes the *Common Birch*, the *Silver Birch*, the *Alder*, &c.

Order 11

ULMACEÆ.

Plants resembling the ELM.

(*Parts*.)—The flowers of these trees are never in catkins; the *calyx* is divided, bell-shaped, and irreg- lar; the *stamens* are definite

in number; the *ovary* is superior, and two-celled; the *ovules* are solitary; the *pistil* has two stigmas.

The *leaves* of this order, and of the birch trees have veins running straight from the mid-rib to the margin. The leaves of both orders also have stipules; those of the birch tree are deciduous.

(*Varieties and Uses.*)—The *Common Elm*, *Witch Elm*, &c. Elm wood is tough and coarse, but is durable if often put in water or damp earth; it is thus used for coffins, coffin-boards, carts, &c.

Order 12.

CONIFERÆ.

Cone-bearing plants resembling the PINE.

(*Parts.*)—The *cones* which we find on the pine tree and others of the order are their principal distinctions. These organs are so different from the flowers of the preceding orders, that botanists hesitate to place this order in the class *Exogens*. The order forms a link between the Flowering Plants (*Phanerogamia*) and the Flowerless Plants (*Cryptogamia*).

On examining a cone we find

that it consists of many thick hard *scales*, which may be considered as the cases for the seeds, or ovaries. These are fastened together until the ovule within is ready to receive the pollen from the stamiferous flowers. The scales then open, and at the bottom of each opening two ovules may be seen. These ovules are not enclosed in carpels; the order is therefore truly called "naked-seeded," and belongs to the division *Gymnospermia* in the Linnæan system.—(See vol 5, page 117.)

The flowers are arranged in catkins. In some trees they are *monœcious*, and in others, *diœcious*.—(See vol. 5, page 143.)

(*Varieties.*)—Various kinds of *pin*es, and fir trees; the Scotch fir; the spruce fir; the Larch; the cedar of Lebanon; the cypress tree; the yew tree; and the Juniper bush.

Besides the foregoing twelve orders, there are many others; but few of them are important. The *CROWBERRIES* (*Empetracæ*); the *BIRTHWORTS* (*Aristolochiacæ*); the *GALEWORTS* (*Myricacæ*), and the *STARWORTS* (*Callitrichacæ*) are some of the best-known in England.

TELLING STORIES.

The child who tells a wicked lie,
To save himself from trouble,
Does but deceive himself thereby,
And make his error double.

The secret path which he hath trod
May hide his faults from man;
But the all-seeing eye of God
Evade he never can.

And God hath said He'll punish lies,
And that severely, too;
And God is truth; then fear, be wise;
For what God says, He'll do.

Class 2.—ENDOGENS.

(Plants which have (1) *monocotyledonous seeds*, (2) *stems* growing inwardly, (3) *leaves* with longitudinal and parallel veins, (4) parts of the *flowers* arranged in threes.—See vol. 3, p. 100.)

P. WELL, Lucy! we have finished the little outline of the CLASS EXOGENS. You have heard of its four *sub-classes*, and their orders.

W. You told us of 20 orders of *Thalamiflorals*, of 20 orders of *Calyciflorals*, of 20 orders of *Corolliflorals*, and of 12 orders of *Monochlamyds*. Seventy-two altogether.

P. And I can do little more than tell you of the orders in the class Endogens.

These plants are not divided into *sub-classes*, but are all arranged in one group. I did not intend to say anything about them, for many of the orders are little known to us, and are not of importance to man. But I have changed my mind. I will read to you a passage from one of my favourite books. You will then see that even for the sake of *one* order, it will be worth while to know something of these Endogens.

"There is one order, however, which surpasses all others in the benefits which we derive from it. This is not, as might be imagined, an order consisting of lofty trees, whose stems and branches afford valuable timber, whose fruits serve as wholesome and nutritious food, and whose juices are valuable as

medicines; but a tribe containing few save humble and apparently insignificant plants, undistinguished either by the beauty of their flowers, the fragrance of their odours, or the delicacy of their leaves; and having nothing in their general aspect which could afford the slightest indication of their value. This order is that of THE GRASSES, which affords to man the most nutritious of all vegetable substances. We shall hereafter find that it ranks very low in the scale, considered in regard to its structure alone; and it is interesting to observe, in this as in so many other instances, the apparently insignificant means which the All-Wise Creator employs to effect objects of the greatest magnitude."

L. We learned about the grasses and corn plants in our Object Lessons in "Fireside Facts," but I should like to see them arranged in their proper place in the vegetable kingdom.

P. Then here is the list of the various orders of Endogens.

Class 2.—ENDOGENS.

Order 1.

ALSIMACEÆ.

Plants resembling the WATER PLANTAIN,

Including the Water Plantain (*Alisma Plantago*) and the Arrow Head (*Sagittaria sagittifolia*), &c. These plants are found in ditches and running streams in Britain.

Order 2.

BUTOMACEÆ,

Including the **FLOWERING RUSH** (*Butomus umbellatus*), and its allies. The *Flowering Rush* is found in ditches and river sides. It has very acrid properties, but the horizontal stem of some species is fleshy, and is eaten as food by the Tartars and Chinese.

Order 3.

NAIADACEÆ,

Including the **POND WEED** (*Potamogeton natans*) and its allies, which are found in rivers, ditches, and swamps, near the tropics, and as far north as Iceland.

Order 4.

ORCHIDACEÆ.

Plants allied to the common
ORCHIS,

Including the bee-orchis, the fly-orchis, the man-orchis, the lizard-orchis, and other kinds, resembling splendid butterflies, insects, grinning monkeys, opera dancers, spiders, and other animals. Some of them have tuberous roots, which are highly nutritious; a substance like sago and arrow-root, named *salep*, is procured from the tubers of a species in Turkey and Persia. It is supposed to contain more nutriment in the same bulk than any other vegetable substance, and is used as portable food by travelers in deserts and other solitary places. It is said that an ounce of *salep*, mixed with an ounce of the animal jelly called "portable soup," is sufficient for a man's daily food.

One of the Orchidaceæ supplies *vanilla*, a substance used to flavour chocolate and to perfume snuff.

Order 5.

SCITAMINEÆ.

The GINGER PLANT and its allies.

The ginger plant is a sort of reed or rush, growing in tropical countries. The rhizoma, or *root-stock*, is used as a spice on account of its hot, aromatic, and pungent flavour. The root-stocks of the **TURMERIC PLANT** are used in making curry powder; they also afford a beautiful yellow dye. The seeds of the **CARDAMOM** are used in medicine as cordials.

Order 6.

MARANTACEÆ.

The ARROW-ROOT PLANT and its allies.

These plants grow principally in the West Indies and tropical South America. The nutritious substance which we call arrow-root is the starch contained in their tubers.

Order 7.

MUSACEÆ.

Plants resembling the PLANTAIN.

The banana and plantain are the two most important plants of this order. They grow principally in the tropics, where they form the entire food of some of the inhabitants. It is said that three dozen good-sized fruits of the banana are sufficient to support a man for a week.

Order 8.

IRIDACEÆ.

The CORN-FLAG and its allies.

The principal plants in this order are the various kinds of *crocus*, such as the spring *crocus*, the saffron *crocus*, the sweet spring *crocus*, and the cloth of gold *crocus*.

cus; the corn-flag (*Gladiolus communis*) and the iris, which is so beautiful an ornament to our gardens.

Order 9.

AMARYLLIDACEÆ.

The NARCISSUS and its allies.

The daffodil (*Pseudo-narcissus*), the jonquil, the narcissus, the snow-drop (*Galanthus nivalis*), and the snow-flake.

Order 10.

LILIACEÆ.

Plants resembling the WHITE LILY.

The principal plants of this order are the various species of tulips (*Tulipa*), the lily of the valley (*Convallaria*), the white lily (*Lilium candidum*), the orange lily (*Lilium bulbiferum*), and other kinds of lilies—these form the first division of the order called the TRUE LILY TRIBE.

The hyacinth, garlic, onion, chives, and common asparagus (*Asparagus officinalis*), form the second division, called the ASPHODEL TRIBE.

The pineapple, the American aloe, and others, form the third division of the order, named the PINEAPPLE TRIBE (*Bromeliaceæ*).

Order 11.

COLCHICACEÆ.

Plants resembling the MEADOW SAFFRON.

The meadow saffron (*Colchicum autumnale*), and the white hellebore (*Veratrum album*), are the two principal plants of this order; the former grows in the meadows. In the autumn it sends up white or purple flowers from the earth, without leaves; and it afterwards sends up the leaves and the seed-

vessel to be ripened in the spring. It is highly poisonous.

Order 12.

PALMACEÆ.

The various kinds of PALMS.

The palm trees were called by Linnaeus the princes of the vegetable kingdom, while the lilies were designated as the patricians or nobles. Their straight towering stems sometimes reach the height of 200 feet, or more. The common cane, which trails along the ground, has a stem of 500 feet and more. A single bunch of the stamiferous flower of the date palm contains about 12,000 blossoms, and another kind has been known to bear more than 200,000 in one cluster.

(*Varieties.*)—The date palm, the cocoa-nut palm, the sago palm, the cabbage palm, the doum palm, and others. It is supposed that there are about one thousand species.

The order PANDANÆ, or screw pines, is an ally of the palm tribe. These plants are so called from the spiral arrangement of their leaves. The upper part of the trunk is thicker than the lower part, and it is supported by roots which branch out from the sides and grow downwards into the ground.

Order 13.

TYPHACEÆ.

The BULRUSH and its allies,

Including the common bulrush, the bur-reed, &c., which are found in ditches or ponds, or on the banks of rivers in Great Britain.

Order 14.

ARACEÆ.

The ARUM and its allies,

Including the wake-robin or (as it is called by children) lords-and-

ladies; the dragon arum of the gardens, and the scented flag-rush. These plants are very common in the country hedges; they are known by the purple spots on their leaves, and their peculiar flowers, which are surmounted by a long fleshy spadix.

These plants also have highly acrid properties. This may be easily proved by biting the spadix of one of the "lords and ladies." One kind, called the dumb cane, which grows in the West Indies, when bitten, causes the tongue to swell so much that it cannot be moved in the mouth. The root-stock (rhizoma) of the common wake-robin and the other species, is large and tuberous, and when the poisonous property is removed by washing and boiling, its starchy matter affords most nutritious food. These plants are, therefore, cultivated in the Isle of Portland (in Dorsetshire), and the starchy produce is sold in London as Portland sago.

Order 15.

CYPERACEÆ.

The Common Sedges and their allies.

These plants may be known from the grasses, by having stems which are solid and four-cornered, instead of round and hollow. They also are not divided and knotted at the joints.

The order is almost as useless as the grasses are useful. The three most useful plants are the *club-rush*, the *papyrus*, and the *cotton grass*. The former, and many other plants of this order, are often mistaken for true rushes. The club-rush is employed in making mats and chairs, and its pulp forms the wick for the tallow candles called "rush-lights." The papyrus was famous for its use to the ancient Egyptians. Its *inner bark* was their chief material for writing upon: thus, even in the present

day, we give the name *paper* to our writing materials. The leaves were and are still employed to make the small boats which are seen on the Nile. The stalks were used to make ropes, &c. The root-stocks of most of the sedges contain soft pulpy nourishment.

Order 16.

GRAMINACEÆ.

The various kinds of Grasses.

A description of these grasses may be seen in "Fireside Facts," where the palms are also described. (See Fireside Facts, pp. 102, 69.) Their own importance may be understood from their well-known uses and the paragraph at the beginning of our lesson.

The principal varieties are the *cat's tail grass*, the common grass of the meadows;

The *florin grass*, which is useful to the farmer, because it will grow in *wet* places and in peaty bad soil, where better grasses will not thrive;

Sweet vernal grass, growing in dry pasture: it assists in giving the sweet smell to hay.

The *woolly soft grass*, which grows by the road-side and in hedge-rows; and the *creeping soft grass* which grows in bad pastures and fields. (Both these common grasses are of bad quality and are disliked by cattle.)

The *common reed*, which grows in marshes, rivers, and ponds; its straw is made into thatch.

The *cock's foot grass*, which is a coarse, harsh grass, growing in sandy countries. It is valuable because it is earlier than the other grasses; it is the first grass that sheep are able to graze upon.

Meadow foxtail grass.—This is another of the earliest grasses, and is also one of the best. There are many other varieties of grasses.

Besides these grasses, there are others which grow to a larger size;

their seeds are so large that they afford food for mankind and cattle. The principal varieties are the common oat (*Avena sativa*), common wheat (*Triticum vulgare*), spelt (*Triticum spelta*), Egyptian wheat (*Triticum compositum*), rye (*Secale cereale*), barley (*Hordeum*), rice (*Oryza sativa*), millet, maize or Indian corn, rye grass, darnel grass, &c.

The grasses are not only useful as food; their spreading fibrous roots are of service in binding loose sandy soil, so as to render it fit for cultivation. They are also used to give firmness to railway embankments and other banks. The sand-reed and the couch-grass (*Triticum repens*) are often employed for this purpose. (See vol. 4, p. 52.)

Lastly, among the tropical grasses, there is one large kind called the Bamboo tribe. Their uses to the people in whose country they grow are very remarkable. It is said that "to the Indian savage the bamboos afford almost all that he wants, except the food which he derives from his rice or his maize. With their lightest shoots he makes his arrows, the fibres of the wood form bow-strings, and from the larger stems he fabricates a bow; a long and slender shoot affords him a lance-shaft, and he finds its hardened point a natural head for the weapon. With the hardened stems he builds the walls and roof of his house; its leaves afford him an impenetrable thatch; split into narrow strips it gives him the material for weaving his floor-mats, and other articles of domestic convenience; its fibre furnishes him with twine, and its leaves provide him with paper, when he becomes sensible of the utility of such a material. Would he commit himself to the waves, the stems form the hull of his boat, which, by a few skins stretched over it is rendered water-tight; they also give

him masts, and the slips of wood become cordage, or are woven into sails. Even in more civilised countries, such as China, India, and Japan, they are applied to a great number of useful purposes. Water pipes are often made of them; and they are used in the construction of fences, in building houses and boats, and in the manufacture of various articles of furniture."*

Order 17.

HYDROCHARACEÆ.

Plants resembling the FROG-BIT.

The frog-bit is sometimes called the lesser water-lily, and is found in many ditches and ponds in England. The water-soldier is another plant of this order.

Order 18.

JUNCACEÆ.

The TRUE RUSHES, &c.

These plants much resemble the lilies in their flowers; some possess distinct leaves, but others are humble, leafless plants, with stiff, slender, and long stems. The plants which are commonly called rushes are really sedges.

Order 19.

JUNCAGINACEÆ.

The ARROW-GRASSES, &c.

These plants grow in marshes and meadows, and much resemble the water plantain.

Order 20.

LEMNACEÆ.

Plants resembling the DUCK-WEED.

These plants form the lowest order in the lowest class of the flowering plants. They are little green floating scales which consist of stem and leaf, mixed together.

* Dr. Carpenter's "Vegetable Physiology."

CRYPTOGAMIA,

OF FLOWERLESS PLANTS, ETC. ETC.

W. HAVE you finished the course of Botany - lessons, papa?

P. We have finished our account of the PHANEROGAMIA, or *Flowering plants*. The other sub-kingdom, the CRYPTO-GAMIA, or *Flowerless plants*, is a very interesting one; you may remember that these plants not only have no flowers, but they have no cotyledons to their seeds. Indeed their organs of reproduction are not

called *seeds*—they are termed "*spores*."

The nature of these plants, particularly of their reproductive organs, is not yet completely understood. They have therefore been arranged differently by different botanists. The arrangement of De Candolle has been adopted by *Dr. Lindley*; but another one is given by *Dr. Carpenter*. The latter is very simple and short. I will therefore copy it for you.

1st Division.

ACROGENS.—*Stem and leaves distinguishable;*

Structure generally vasculo-cellular.

- CLASS 1.—*Filices*, or *Ferns*. Spore-cases in groups on the surface or at the edges of the leaves; vascular tissue in the stems.
- CLASS 2.—*Lycopodia*, or *Club-mosses*. Spore-cases solitary at the bases of the leaves; vascular tissue in the stems.
- CLASS 3.—*Musci*, or *Mosses*. Spores clustered round a columella in the centre of a capsule with an operculum; vascular tissue generally wanting.

2nd Division.

THALLOGENS.—*Stem and leaves indistinguishable;*

Structure entirely cellular.

- CLASS 4.—*Hepaticæ*, or *Livermorts*. Spores contained within a capsule, which is destitute of operculum (a lid), but usually elevated above the surface of the thallus or frond.
- CLASS 5.—*Fungi*, or *Mushrooms*. Terrestrial plants, generally vegetating on decaying organic matter; their thallus (the part which bears the organs of fructification) usually filamentous, and their fructification *external* to it.
- CLASS 6.—*Lichenes*, or *Lichens*. Terrestrial plants, nourished by air and moisture alone; the fructification *imbedded* in the thallus.
- CLASS 7.—*Algæ*, or *Sea-weeds*. Aquatic plants, deriving nourishment from the surrounding medium through their whole surface—their fructification *imbedded* in the thallus.

P. Now that you know *what* are the principal *sub-kingdoms*, *classes*, *sub-classes*, and *orders* of the Vegetable Kingdom, the next question is, How are you to study them?

W. I should like to do that. I mean to try and cultivate in my garden one plant in every order which we have heard of; and whenever I go for a walk in the fields I will look for new plants, and will examine their stamens, petals, sepals, leaves, and stalk, to see which order they belong to.

P. That is the proper way to gain a knowledge of these orders. But I must first show you how to *keep* the knowledge which you thus gain. The best way to keep an account of the plants around, is to register them in a book. The next time we go out for a walk, if you will remind me, we will call on the bookseller, and ask him to make *five* large books.

W. Oh, thank you, papa! I suppose that there will be one each for Lucy, Ion, Ada, and me, and one for you.

P. No. The first book will be called "Thalamiflorals," on the cover of the second we will print the word "Calyciflorals," on the third, "Corolliflorals," on the fourth, "Monochlamyds," and on the fifth, "Endogens." These books are to be of *quarto* size—about 10½ inches by 9 inches—each is to contain about sixty leaves. The binder is to stitch in at the back of the book a long piece

of paper between each leaf; you will then be able to paste thin substances on the leaves without making the front part of the book thicker than the back.

L. You mean, papa, that he is to make a guard-book like the scrap-book which we paste our pictures in?

P. Yes; when the books are sent home we will divide them according to the number of orders which each class contains. For instance, in the class Thalamiflorals there are about *twenty* orders which are well known in Britain. After counting off a few pages at the end of the book for Thalamifloral plants, which do not belong to those orders, we will divide the remaining pages into twenty divisions. We will allow the largest number of pages to the largest orders.

L. And what are we to do on those pages?

P. You are to write at the top of each page the *distinctions* of the order for which it is to be used.

Let us take the first order of the Thalamiflorals for an example—the *RANUNCULACEÆ*. We shall write the following heading in each page belonging to that order; we shall then rule a line down the centre of the page, and on each side of it we shall arrange the parts of the plants in the different tribes. Such a collection of plants is called an *herbarium*.

PAGE OF BOTANY BOOK

(Or "Herbarium").

Order I.—RANUNCULACEÆ.—*Distinctive features :*
 (1) *Pistil*, generally with numerous distinct carpels; (2) *Sepals*, which are deciduous; and (3) A clear, acrid, and often poisonous juice.

Parts.—*Sepals*, 3, 5, or 6, deciduous. *Petals*, 3, 6 to 15. *Stamens* indefinite and hypogynous. *Pistil*, with numerous distinct carpels. *Leaves* much divided, with the petiole forming a sheath which half clasps the stem—sometimes with stipules. *Juice* clear, acrid, and nauseous; sometimes poisonous.

1. CROWFOOT TRIBE.—*Here arrange the leaves, sepals, petals, stamens, &c. of the different plants in this tribe, such as the Meadow Buttercup, the Pilewort, the Celery-leaved Crowfoot, Water Crowfoot, &c.*

2. HELLEBORE TRIBE.—*Here arrange the parts of the different genera in this tribe—showing the difference in the petals of the Hellebore, Columbine, Marsh Marigold, Larkspur, Monks-hood, &c.*

L. Do you mean to say, papa, that you are going to stick the parts of the plants on the paper?

P. You shall hear. Let me ask you to look at the heading—you see that I do not write in the first lines *all* the particulars of the order. By distinctive features I mean not only those which distinguish the order from others, but its *most remarkable* features by which it may be known readily. In the account of the "parts" you see that these features are repeated, because that paragraph affords a full description of the order.

W. Now will you tell us what we are to do, papa?

P. Yes: you will first write the description of each order as a heading on *all* the pages appropriated to that order. When you have thus headed

all the pages in the five books, with descriptions of different orders, you may go into the garden or field and look for plants. When you have found the plants, you are to compare them with the descriptions on your pages, so as to learn in which order to place them.

W. That will be very interesting; I shall like to arrange every plant that I know in its proper order and place.

Ion. I shall begin with the plants I know best—with the Sweet-William, and roses, and pinks, and wallflowers, and buttercups, and daisies; and I will find the places of the columbine and larkspur; the lavender and the lily, the tulip and the poppy. I know where to place many of these already.

W. And I shall do the same; we shall make a good-sized

collection with the plants which we know.

P. Wait a minute, I have not told you of all that you will require. You will be able, with the assistance which you may get from "PLEASANT PAGES," to supply a few plants for each order; but when you go into the fields or to another part of the country you will find many plants of which you do not know the names. In order to learn their names you will require a *Botanical Dictionary*, or some larger work than PLEASANT PAGES.

W. If you will tell us what book we should get, papa, we will save up our weekly money and buy one.

P. There are a great many good books published now. One of the best is THE VEGETABLE KINGDOM, by Professor Lindley. Another very large book is DON'S GARDENER'S DICTIONARY, published by Mr. Bohn, of London. This book contains a most comprehensive account of almost every species of plants in the first three subclasses of Exogens. Another work which would delight you very much is that by Dr. Carpenter, entitled VEGETABLE PHYSIOLOGY AND BOTANY. I have already read to you many extracts from this beautiful little work—you will find it very useful in making out your descriptions of those orders which I have not described for you.

L. But you have not yet told us all that we want to know, papa. When we have found the plants, how are we to examine

all the minute parts, and fasten them in our books?

P. All that you will require for examining the plants is a small microscope, or pocket-lens (which you can purchase of any optician) and a few quires of paper for drying the specimens. The proper paper for the purpose is manufactured by Messrs. Bentall & Co., of Halstead, Essex.* Or you may use *pink blotting paper* if you have no other.

L. How shall we use it?

P. I will tell you. You must first take care to collect your specimens in *dry* weather. Do not afterwards put them in water to keep them fresh; by doing so you render all the parts more moist, while your object should be to take away their moisture, and to make them quite dry.

You should, if possible, preserve *whole* plants, which can be done when they are not very large. You must first hold your blotting paper before the fire until it is so hot that it is nearly scorched, then place your plant upon it, arranging its leaves as naturally as you can; you must press your thumb on any stubborn stalks, and spread the flowers out very carefully. When this is done, place half a dozen sheets of blotting paper on the plant, and spread out another flower upon it. Having thus placed half a dozen plants on the top of one another between blotting paper, put the blotting paper

* Recommended by Prof. Lindley, in his little work, "School Botany."

under a screw-press, or a very heavy weight. After two or three days, according to the sizes and nature of the plants, they are to be taken and placed in fresh *hot* blotting paper. After three more days' pressure, if the plants are small, you will find that the blotting paper has absorbed all their moisture; and that they are dry enough to be fastened with gum in their proper places in your herbarium.

L. May we use any other substance for fastening on the plants?

P. Yes. *Isinglass*, *Gum tragacanth*, or *paste*, if it contains a little *corrosive sublimate* to keep it from becoming mouldy. So you may now save up your money, buy your tools go to work, and make a fine collection.

L. I shall be quite glad to begin. Such work will be very interesting.

P. Yes, you will find it so. You will not be able to preserve the *colours* of your flowers, but you can examine their *structure* during the long winter evenings. Botany is a pleasant study, because the subjects for examination are generally within reach. You may cultivate in your own small gardens at least *one* of the plants in each order; then what an interesting garden that will be! Each flower as you examine it will be a lesson to you on the wonderful skill and wisdom of our Great Creator. Let us often thank Him! He has not only revealed to us His holy word; He has given to us the beautiful Book of Nature to read, and delight in.

TEACHINGS FROM THE FLOWERS.

Your voiceless lips, O flowers, are living preachers,
Each cup a pulpit, every leaf a book,
Supplying to my fancy numerous teachers,
From loneliest nook.

'Neath cloistered boughs each floral bell that swingeth,
And tolls its perfume on the passing air,
Makes Sabbath in the fields, and ever ringeth
A call to prayer;

Not to the domes where crumbling arch and column
Attest the feebleness of mortal hand,
But to that fane, most catholic and solemn,
Which God hath planned;

To that cathedral, boundless as our wonder,
Whose quenchless lamps the sun and moon supply,
Its choir, the winds and waves—its organ, thunder,—
Its dome, the sky.

There, amid solitude and shade, I wander
Through the green aisles, and, stretched upon the sod,
Awed by the silence, reverently ponder,
The ways of God.

HYMN.

Words by MRS. LUKE.

Music by C. A. HOWELL.

1st Ver. I think when I read that sweet sto - ry of old, When
 2nd Ver. I wish that his hands had been placed on my head, That his

3rd Ver. Yet still to his foot-stool in prayer I may go, And

Je - sus was here a - mong men, How he
 arm had been thrown a - round me, And that

ask for a share in his love; And

p.
 called lit - tle chil - dren as lambs to his fold - I should
 I might have seen his kind look when he said, "Let the

if I thus ear - nest - ly seek him be - low, I shall

f.
 like to have been with him then!
 lit - tle ones come un - to me."

see him and hear him a - bove:

SIXTEENTH WEEK. MORAL LESSON.

MONDAY.

CHARITY

"Never faileth."

I WISH you had seen the little cottage at the corner of the village where I went to school. I don't mean the new brick cottage which stands there now, but the wooden cottage which stood there in former days.

About twenty years ago, MICHAEL COLLIN, the new teacher of the infant school, came to live here with his brother William; and on the third evening after his arrival in the village he was sitting near his garden gate, and was enjoying a quiet hour. The orange-coloured light which shone on the walls and windows of the house, and on the pages of the book he was reading, reminded him how pleasant is "the still soft evening hour" which the poets sing about. The only sounds in that quiet hour were the clipping noise which his brother made as he trimmed the garden with a pair of scissors, and the distant hum of the country people who came out for a game on summer evenings, as many country people like to do.

"I think that these villagers are a rather noisy set," said Michael; "the bawling they make sounds very much like quarrelling: I suppose they do it to strengthen their lungs."

"You will not have so charitable an opinion of them when you know them as I do," said his brother. "We scarcely ever know what *peace* is in our village; we have drunkenness, quarrels—but I need not say anything, you will know too well soon. See, there is some disturbance now!"

"Yes," said Michael, "there is certainly a great crowd; see how they are running about. Look at those two men!"

"Ah, they are Old Joe and Sandy, the brewer's men. They are at it again."

"You don't mean to say that they are fighting?" said Michael; "yet they are, certainly."

"Certainly," said William. "Those two men quarrel or fight with each other at least three times a week."

"But," exclaimed Michael—and then he stopped—he could not bear the sight. He was going to say that it was impossible to bear it, and that he would go and stop them, when he remembered that he was at present only a stranger in the place, and that they would think that he was interfering. "It is no business of mine," he said to himself, "and I'll go in-doors and try to for-

get them. Why should I risk the danger of taking part in their brawls?" These thoughts passed through the mind of Michael more quickly than I can relate them. He had turned away his head and was going in-doors, when his conscience stopped him. "Courage, Michael," it said; "it is a business of yours: you are guilty if you can prevent evil and do not. Do you not love these poor people? have you not become a teacher because you wish to do them good? Have you not charity? Courage! courage! Arm yourself with charity! go boldly in amongst them. CHARITY NEVER FAILETH."

"I can't bear it, brother," said Michael; "they mustn't fight; I must teach them better." So he laid down his book and ran towards them. Now Michael had really very little of the quality vulgarly styled courage, so he ran quickly to keep up his spirit: all the time he repeated inwardly, "Charity never faileth," until the crowd, which had seen him running towards them, were startled by his bounding into their midst, and placing himself between the two combatants.

Now he was truly "in the middle of the matter," without having had time to think of the danger. He found himself standing between the two most fierce and desperate men of the village. Both were bigger than himself, and both were excited did the people, who stood around, with rage; but neither spoke; nor staring in silence, and wondering what would come next.

"Now don't fight, good friends; you mustn't, indeed," said Michael. "You must never do such things."

"Take him away," cried one or two of the crowd, who were provoked at this interference.

"Don't you talk to *we*," said Old Joe: "go home to your mother, or I'll ——" and then he said some bad word, which I am sure you would not like to hear.

"Come; out of the way," cried Sandy, "let me get at him."

"No, no," replied Michael, "I cannot let you fight him. You mustn't fight; if you want to strike him, you must hit me first — he's my friend."

"Come, none of that 'ere nonsense," said Old Joe, gruffly. "Get out of our way, and let us fight it out."

"No! I say I'll not move," cried Michael again, for his courage was now excited. "I'll stop here as long as either of you. If you want to hit Sandy, you must knock me down first — he, too, is my friend."

"Hurrah!" said the crowd, who now understood Michael's "charity." "Hoo-o-oray!" shouted the boys; "there sha'n't be no more fighting!"

"Yes there will be," said Old Joe. "Come, move off, once more. We can't *both* be your friends, you know."

"There you are mistaken," said Michael. "All men are my friends; and I mean both of you to be friendly to me for a long time. So leave off to oblige me, will you?"

And so they did.

You may imagine the rest of the scene. While the lookers-on asked each other, "Who is this stranger?" Michael went back to his brother William.

"I do not think that you will make these people obey you very often," said William.

"I cannot make them obey me," replied Michael; "but I should like to *guide* them. I can only do this by showing them charity. Oh! how delightful it would be to teach charity to *all* the poor people of this village—to teach love to those who hate each other; to teach industry to those who are idle; to make those who are ignorant read and learn; to make the dirty people clean, and the drunken people sober! I will try. I will begin with the children. To-morrow morning they shall have a lesson on charity."

"Well, I hope you will succeed," said William, "once more."

"You *ought* to hope," said Michael, again; "for 'Charity hopeth all things.' I hope; for I know that charity is a part

of God's holy spirit; that is why it never faileth."

I should like to tell you how Michael Collin worked at his plans of reform—how the next morning, as he went to his school, he met Old Joe and Sandy, the brewer's men—how they treated him with great respect, and made apologies to him for having been rude—how Michael gave lessons of charity to the children, and taught them to love each other—how they learned to love every animal in the village, and even the flowers—how the parents of the children were surprised to see that they had left off quarrelling and fighting; and in time they themselves became less quarrelsome. To describe all these things to you would, however, take a very long time. I can only say now that after Michael had laboured hard for three years in doing good, much evil had been conquered; much drunkenness, dirtiness, idleness, and ignorance had fled before the spirit of charity. You shall hear more about him next week.

(Continued on p. 257.)

SCHOOL.

We go to school to learn the rule
By which we ought to live;
And how to pray that God each day
His special grace may give.

Then surely they who stay away
When they can school attend,
Can neither care for books nor prayer,
Nor making God their friend.

GLOSSARY.—CONCLUSION.

P. HERE is a little GLOSSARY. It is to be learned by heart. You may learn 6 or 8 words for each lesson. You are to spell the words, and say their meanings.

W. What is a "glossary," papa?

P. You may answer this question yourself if you look into your lesson on Etymology

for the Greek word *glottis*, and its derivatives. This glossary will be useful to you for reference; but as you will probably find a large glossary in your new botanical book, I shall only give you the principal terms found in the lessons in PLEASANT PAGES, such as you will want for immediate use.

GLOSSARY

OF THE BOTANICAL TERMS USED IN THE PREVIOUS LESSON S.

Divisions.

PHANEROGAMIA — (from the Greek *phaneros*, evident, and *gamos* marriage, or gender).—Plants bearing flowers.

CRYPTOGAMIA from *crypto*, I conceal, and (*gamos*).—Plants not bearing flowers.

EXOGENS (from *ginomai*, I became, and *exo*, without).—Plants with stems growing, by increasing outwardly—the 1st Class of Phanerogamia.

ENDOGENS (from *ginomai* and *endon*, within).—Plants with stems increasing inwardly—the 2nd class of Phanerogamia.

THALAMIFLORALS (from *thalamos*, a couch, or receptacle).—Plants having the stamens of their flowers inserted into the receptacle.

CALYCIFLORALS (from *calyx*, a cup).—Plants having the stamens inserted into the calyx.

COROLLIFLORALS (from *corolla*, a little crown or garland).—Plants having the stamens inserted into the corolla.

MONOCHLAMYS (from *monos*, one, and *chlamys*, a covering).—Plants without a corolla, having only one covering, the calyx.

Root.

Tuber; a fleshy root (or underground stem), like the potato; the *eyes*, so called, are its buds.

Corm, a variety of the tuber, such as the root of the crocus.

Rhizoma; a fleshy root (or underground stem), such as the root of the Iris.

Fibres; the minute branches of the root.

Spongioles; minute organs for absorbing fluids at the ends of the fibres

Stem.

Runner; a prostrate stem, trailing on the ground and putting forth roots at its joints.

Sucker; a stem growing from the bud of a stem underground, as in asparagus, rose-trees, &c.

Trunk; the main stem of a tree.

Branches; the first divisions of the trunk.

Twigs; the small divisions of the branches.

Bark; the skin of the trunk.

Liber; the inner bark.

Medulla; the pith.

Nodule, or *Node*; the joints of the leaves and stems.

Spines; buds in which the leaves have not been developed, and which have become hardened and pointed.

Buds.

Bud; a little projection from the stem at the node, within the angle formed by the junction of the leaf and stem: it is composed of scales, and is the part from which the branch is formed.

Bulb; an underground bud, with fleshy matter, such as the part which is generally called the *root* of the hyacinth—the real roots are the fibres which grow at its base.

Leaves.

Leaf; an expansion of the stem.

Petiole; the leaf-stalk.

Lamina; the leaf-blade (the broad flat part).

Ribs; the principal parts of the frame-work of the lamina. (The *mid-rib* is a continuation of the petiole.)

Veins; the smaller parts of the framework of the lamina.

Reticulate; the network arrangement of the veins, as in a rose-leaf.

Parallel; the side by side arrangement of the veins which grow from the petiole to the point, as in the grasses.

Parenchyma; the cellular tissue of which the leaf is composed.

Cuticle; the skin of the leaf.

Stomata; the pores of the leaf.

Sessile; without a stalk.

Stipule; a small scale like a leaf, growing at the base of the petiole.

Simple; leaves composed of one piece are simple, however much they may be divided.

Compound; leaves which are

composed of *distinct pieces*, are compound.

Leaflet; one of the divisions of a compound leaf.

Alternate; where leaves do not grow from the same point in the stem, but one above another, they are alternate.

Opposite; two leaves growing opposite each other from the same point in the stem, are opposite.

Verticillate (or *Whorled*); when more than two leaves grow from the same point on the stem they are said to be verticillate.

Serrate; with notches at the edges, directed forward like those of a saw.

Crenate; with edges having rounded notches.

Entire; with smooth undivided edges.

Dentate; with sharp-pointed teeth at the margin.

Sinuate; with a waved margin.

Acuminate; very much tapered to a point.

Emarginate; notched at the point.

Cuneate; wedge-shaped.

Tendril; generally a prolongation of the mid-rib, as in the leaf of the pea.

Sheath (or *Vagina*); a petiole which is thin and rolled round the stem (as in the straw of corn, &c.)

Linear; line-shaped.

Lanceolate; lance-shaped.

Oval; with the breadth increasing regularly in the centre.

Orbicular; nearly circular.

Ovate; egg-shaped.

Obovate; the egg-shape reversed. It must be remembered that one end of an egg is thicker than the other.

Cordate; heart-shaped.

Sagittate; the shape of the head of an arrow.

Hastate; halbert-shaped.

Palmate; with five lobes united like the fingers of the hand.

Digitate; with five divisions like the five fingers.

Pedate; with five divisions, arranged more like the toes of a bird's foot.

Ternate; with three leaflets. *Pinnate* (meaning "winged"); with more than three leaflets; the leaflets being arranged in rows on each side of the petiole, like wings.

Bi-ternate; when the leaflets of a ternate leaf are again divided each into three parts.

Bi-pinnate; when the leaflets of a pinnate leaf are again divided, each into two parts.

Tri-pinnate; when the leaflets of a bi-pinnate are again divided into two parts.

Perfoliate; when the base of one leaf, or of two opposite leaves clasp the stem (form a sort of cup round it), the leaf or leaves are called "perfoliate"; as in the *honeysuckle*.

Succulent; fleshy; filled with pulp.

Flower-stalk.

Peduncle; the flower-stalk.

Pedicles; the small flower-stalks growing from the peduncles.

Bract; a small leaf growing on a peduncle, or pedicle.

Spathe; a leafy bract, which is large enough to enclose one flower (or more) before opening; as in the *Narcissus* (see vol. 4, page 231).

Involucre; a whorl of bracts, as in the carrot, &c. (see vol. 4, page 231.)

Inflorescence; the manner in which flowers are arranged on their flower-stalks.

Receptacle (or *disc*) the enlarged end of the flower-stalk,

on which the calyx, corolla, petals, and ovary grow.

Capitulum; a flower-head (as in the daisy), where all the flowers are *sessile*, and grow on the receptacle.

Umbel, when the pedicles all grow from one point (as in the *geranium*).

Compound umbel, when each stalk of the umbel is again umbellate (as in the carrot and all "umbelliferous" plants).

Spike; when a row of *sessile* flowers grow from one peduncle, as in the lavender, wheat, &c.

Raceme; when a row of stalked flowers grow from one long peduncle, as in the currant blossom.

Panicle; a kind of compound raceme, in which the stalk (pedicles) of the raceme again have branches, as in oats, &c.

Corymb; when the flowers of a raceme are all on the same level, as in the candytuft.

Cyme; when a level corymb is made up of the flowers of a *panicle*; as in elder blossom.

Spadix; the flower when enclosed in a spathe.

Catkin (or *amentum*); a spike of imperfect flowers; as in the willow.

Solitary; when one flower grows on a simple peduncle, as the peony.

Flower.

Calyx; the flower-cup, or whorl of *sepals*; being the 1st or outside whorl of the flower.

Corolla; the whorl of *petals*, being the 2nd whorl of the flower.

Stamens; the little organs which form the 3rd whorl of the flower.

Carpels; the organs which form the 4th whorl of the flower, and make up what is called the ovary.

Ovary; the seed-vessel, which is generally made up of carpels;

but sometimes has no divisions.

Parts of the flower.—The Seed and Ovary.

Ovules; the imperfect seeds found in the ovary.

Foramen; the minute opening in the ovule, through which the germ enters, and renders the ovule a perfect seed.

Germ; the little part of the seed which becomes the new plant: it is derived from the pollen of the stamens.

Radicle; the part of the germ which grows downward and forms the root.

Plumula; the part of the germ which grows upwards, and forms the stem and leaves.

Cotyledons; two fleshy parts in the seed, which contain nourishment for the little germ while it is beginning to grow—(the cotyledons of a bean or pea may easily be seen). On taking off the skin of the seed it divides at once into two cotyledons.

Albumen; an organ which is found in seeds when the cotyledons are thin and leaf-like, and without nourishment. The albumen then contains the nourishment in a distinct form.

Seed; the organ of reproduction, containing the before-mentioned parts—viz., the germ, cotyledons, and albumen, surrounded by a skin.

Erect ovules; those which rise upward from the base of the ovary.

Pendulous ovules; those which hang from the top of the ovary.

Mono-cotyledonous; having one cotyledon, as wheat.

Di-cotyledonous; having two cotyledons, as the lupin.

Dissepiments; the parts which form the divisions of the ovary.

Carpels; the divisions formed by the dissepiments, when the carpels are *syn-carpous*.

Syn-carpous; the carpels growing together (being completely united).

Apocarpous; the carpels apart.

Placenta; the part which attaches the ovules to the carpels.

Parietal placenta; *placenta* joined to the wall of the ovary, as in the heartsease.

Central placenta; *placenta* joined in a central column in the ovary; as in the pink.

Interior ovary; an ovary which seems *beneath* the calyx, because it is surrounded by sepals which grow out from the top.

Superior ovary; when the ovary is *above* the sepals, because they grow from the receptacle beneath it.

Pistil; the central column of the flower which rises from the top of the ovary.

Style; the stalk of the pistil containing hollow cells which may easily be formed into a tube (sometimes what appears to be one style consists of several styles united in one column, as each carpel of the ovary generally has its own style).

Stigma; the fleshy top of the pistil (containing the opening which leads to the tube of the style)—stigmas without styles are said to be "sessile."

Parts of the Flower.—The Stamens.

Filament; the stalk of the anther.

Anther; the head of the filament containing the pollen.

Pollen; a powder in the anther composed of minute grains. (These grains pass down the tube of the pistil into the ovary, where they enter the imperfect ovules)

(see foramen) and form the germ of the seed.

Pores; little openings at the extremities of the anthers, through which the pollen passes out.

Valves; openings in anthers which do not open by pores.

Hypo-gynous; situated beneath the pistil.

Epi-gynous; situated upon the pistil.

Peri-gynous; situated around the pistil.

Definite; having a fixed number, such as 3, 5, 6, or 12.

Indefinite; not having a fixed number, being very numerous (more than 20).

Parts of Flowers.—The Corolla and Calyx.

Tubular; forming a tube or sheath.

Campanulate; bell-shaped.

Rotate; with a short tube, and a spreading border, like the spokes of a wheel.

Hypocrateriform; salver-shaped.

Labiate; with the petals so united as to form two lips.

Regular; with the petals or sepals all of the same size.

Æstivation; the arrangement of the flower in the bud.

Valvate æstivation; when the edges of the sepals meet each other exactly; as in the Mallow. (The Mallow also has a *twisted æstivation* in the bud.)

Imbricate æstivation; when the sepals overlap each other at the edges, as in the Dog-rose.

Inferior calyx; when the

calyx is situated upon the receptacle beneath the ovary.

Superior (or adherent) calyx; when the sepals of the calyx adhere to the ovary, or are growing around it — like the crimson sepals of the Fuschia.

General Terms.

Mono-sepalous, — *petalous* — *carpous* — *spermous*; having one sepal, petal, carpel, or seed.

Poly-sepalous, — *petalous*, — *carpous*, — *spermous*, — *adelphous*; having many sepals, petals, carpels, seeds, or bunches.

Mon-adelphous, — *androus*, — *æcious*; in one bundle; with one stamen; having only flowers of one sex on the same plant.

A-petalous, — *sepalous*, &c.; without petals or sepals, &c.

Gamo-petalous, — *sepalous*, &c.; when the edges of the petals or sepals are united so as to form a tube.

Permanent; remaining for some time like the sepals of the Buttercup or Poppy.

Deciduous; falling off.

Fugitive; falling off quickly, like the petals of the Gum-Cistus.

Syngenesious; growing together.

Spines; short branches which have not been fully developed, and have become hardened and pointed.

Prickles; hard sharp substances growing on the bark of the stem, such as those on the Rose-tree. (They may be known from spines, because they do not grow out from the stem, they only grow from the bark, and may be broken off.)

GEORGE III.

IF I were to continue the history of the French Revolution I should have to describe to you some of the most awful scenes of violence, cruelty, robbery, murder, and disgraceful disorder that were ever recorded.

But I would rather not do this. These events, I am thankful to say, do not belong to English History. To describe them, I should tell you how the power fell into the hands of the lowest and most wicked characters—to tell you of the four infamous leaders, *Danton*, *Marat*, *Robespierre*, and *Carrier*—to tell how immediately after the king's death guillotines were erected for cutting off the heads of the people—how for more than two months fifty persons a day were put to death, mostly without trial—how 1,085 persons were executed in two days—how the wretch *Carrier* is said to have cast 10,000 men into prison; and, because he could not guillotine them fast enough, drowned 4,000 in one night—how, indeed, it became impossible to say how many persons were executed, so that the whole country reeked with the blood of those slain; and those dark days of dreadful cruelty were called "*The Reign of Terror*."

I should also have to tell you how the reign of terror was brought to a close by the deaths of *Danton*, *Marat*, and *Robespierre*, and the promotion of

the famous NAPOLEON BONAPARTE to the command of the army. The accounts of those dreadful times are, however, too terrible for the ears of young people: you shall hear of the part which ENGLAND took in the wars against France,

At the beginning of the war, it was confidently expected that the French Republic could not stand a single campaign against Britain and the other Powers. Accordingly after alliances had been made with Austria and Prussia an army was sent into the Netherlands, under the command of the Duke of York. These troops and those of the allies were, however, defeated. The French drove the combined armies out of Belgium; and as there was an unusually hard frost, they invaded Holland by the ice which covered the Rhine, and conquered that country also. The English returned home in disgrace. They also lost 10,000 men in attempting an invasion of France; they lost a considerable quantity of shipping, and added between twenty and thirty millions to their annual expenses. The only advantage gained by Britain was on the sea. The French fleet was severely defeated by Lord Howe, on the 1st June, 1794.

The efforts of the French against their enemies were now of a more extraordinary character. The fury of the whole nation was aroused

against their enemies. They became a nation of soldiers. At one time their army numbered more than 1,000,000 men. These in the various battles were killed by thousands, but their places were immediately supplied. A method of raising troops called the conscription was adopted. By this means whoever was chosen to fight for his country was obliged to do so.

The leader in all these extraordinary measures was Napoleon Bonaparte, the general whom I have before mentioned. In 1791 he was only a captain in the artillery, but in the campaigns of 1793, which you have just heard of, his great abilities were first discovered.

In 1794, 1795, and 1796, the English did not take any active part in the war. During this time Bonaparte had established his renown. Although only twenty-six years old, he was appointed commander of the army intended for the invasion of Italy. The confidence in his character shown by the French was the more surprising because at that time he had never seen a regular engagement in his life. At the head of a large army he then overran the northern part of Italy, and separated it from Austria. In this war he defeated 80,000 Austrians; he carried the bridge of *Lodi*, on the *Adda*, in face of a tremendous fire of artillery, entered *Milan*, the capital of Austrian Lombardy, and performed feats of valour which aroused the enthusiasm of all the generals and soldiers under his command.

In 1797 the fury of the war had not abated. Wherever Bonaparte carried his arms he was victorious. The Spaniards and Dutch dared not contend with him, but entered into an alliance with France. A French fleet had been sent to invade England, but had been driven back by bad weather. The French intended to make another attempt. They were intoxicated by the success of Bonaparte, and had ordered the English ambassador to leave Paris: this was equal to a declaration of war. Nearly at the same time AUSTRIA also made peace with France. Britain was therefore left to carry on the contest single-handed.

In this contest the success of the British was little better than before. At sea they defeated the French allies. The Spanish fleet was defeated in the battle of CAPE ST. VINCENT; and a victory was gained over the Dutch fleet in the battle of CAMPERDOWN. But this was all. The English armies were of no avail in checking the progress of Bonaparte.

In 1798 Bonaparte continued his successful career. He overran and conquered Switzerland, and prepared again to attack Austria. But the governors of his own country now began to fear his ambition. Partly with the view to keep him at a distance, they sent him to conquer and colonise Egypt. They thought that a French colony established in that country would be convenient for attacking the British Empire in the East Indies. You can under-

stand why the French would wish to do this. You may remember how they lost Pondicherry, and all their East Indian possessions, in the reign of George II. Bonaparte succeeded in subduing the country, but after landing his troops, he left his fleet in the *Bay of Aboukir*. The English commander, Admiral Nelson, set sail for Egypt. He arrived there on the 1st of August, 1798, at sunset. He immediately attacked the French fleet, and after a dreadful engagement, which continued until morning, nearly all of the enemy's ships were captured or destroyed. This event is known as the **BATTLE OF THE NILE**.

In 1799 the Duke of York attempted to drive the French out of Holland, and entered that country at the head of 35,000 men. He failed utterly, and was obliged to purchase permission to return to England, by agreeing to surrender 8,000 of the French prisoners in England. In this year also, while Bonaparte's generals were gaining most bloody victories in Europe, he returned from Egypt to France. Finding that the government were jealous of him he dissolved it, and caused himself to be made ruler of the country, under the title of "FIRST CONSUL."

In 1801 most of the northern countries of Europe were compelled to be the allies of France; Britain was therefore involved in war with them also. A dreadful attack was made upon COPENHAGEN by Admiral Parker and Lord Nelson. In this year

the battle of ALEXANDRIA, in Egypt, was fought; the French were conquered by Sir Ralph Abercrombie, and they lost 3,000 men. They surrendered on condition of being allowed to return, with their arms, &c., to their own country. Thus ended the attempt of the French to colonise Egypt for the purpose of subduing India. Peace was at length longed for by all parties; and on October 1st, the *preliminaries* (or first proposals) for a treaty between England and France were signed.

In 1802 the peace with France was settled, but not until six months after the signing of the preliminaries. During this time the country had been in a state of anxious suspense, and the peace was now joyfully welcomed. The *treaty* was signed at Amiens, and was therefore called the **TREATY OF AMIENS**.

The "war of the French Revolution" was thus ended; but, as in the American war, the cost had been enormous. The losses had, as before, been far greater than the gain. Britain had obtained possession of several islands and colonies in the East and West Indies, such as Trinidad, and others; she had also taken vast numbers of ships at sea; but the British army had been nearly everywhere defeated on the land, and the amount of the National Debt had increased to 500 millions of pounds! The increase during the reign of George III. had already been 400 millions.

THE ENGLISH TRAVELLER.

CAMBRIDGESHIRE.

"MY DEAR CHILDREN,

"CAMBRIDGESHIRE is another of the low, damp, fenny Eastern Counties. I should think that by this time you have noticed how marshy the eastern side of England is. If you have not, get out your map.

"In the first place there are Sussex and Kent in the south-eastern part. These counties are an exception; they are dry, chalky, and healthy—thus we find that they were much visited by the ancient Gauls, who crossed the English Channel; *they* would not have come very often if they had found these parts to be damp. These counties formed the Saxon kingdom of Kent.

"In the second place, cross the river Thames to the opposite shores, the county of Essex, and there the lowlands begin. From Barking-creek up northward to Colchester (I hope you are *looking* for these places on the map) there are farmers whose cattle feed on the marshes. Perhaps you remember that many *calves* too are reared here for the London market. Essex formed part of the kingdom of the *East Angles*.

"Thirdly, the shores of Norfolk and Suffolk are damp, dreary places. Ask any person who remembers travelling in a stage-coach from Yarmouth to London, whether he ever saw such a dull, flat, desolate part in his life. You did hear of some cliffs

in Suffolk, but they were *clayey* cliffs, which are crumbling away and are being undermined by the waves of the ocean.

"The fenny parts of Cambridgeshire are like those of Norfolk and Suffolk; they are also like the flats and fens of Lincolnshire, which you see is more northward. Norfolk, Suffolk, and Cambridgeshire formed part of the kingdom of the East Angles. Poor East Angle!

"Now, I have a reason for calling your attention to these marshy counties. They are all parts of a large tract of flat land called the BEDFORD LEVEL.

"You ought to know something about the Bedford Level; its history is remarkable. The counties included under that name are Northamptonshire, Cambridgeshire, Huntingdonshire, Lincolnshire, Norfolk, and Suffolk. The length of this tract of land is about sixty miles, and its breadth about forty miles.

"One part of the Bedford Level, the southern division of Lincolnshire, is called Holland. It is supposed that before the invasion of the Romans, when Britain was so woody, this part was covered by the sea, and that the Romans reclaimed it by embankments. It is proved, too, that this much of the Bedford Level was once a forest, and afterwards a stagnant morass. Long before the land was flooded by

the sea many parts had been inhabited, and were overwhelmed by some violent cause. In Norfolk roots of trees have been found many feet under ground. They were fixed in the ground just as they grew, and the trunks lay beside them. Some roots have been found *eighteen feet* below the surface. Near the Ouse, in Norfolk, furze-bushes and nut-trees were found *pressed flat down* seventeen feet below the surface, with nuts still sound lying in them. Eighteen feet is the length of three tall men placed one on top of another.

"Again; some men were digging a deep drain near Whittlesea Mere, and when they had dug to the depth of eight feet they found a perfect soil with the grass lying upon it just as it had been mowed. In Lincolnshire a smith's-forge, remains of several ancient *tan-vats*, a large quantity of horns, and some soles of peculiarly sharp-pointed shoes (such as were worn in the time of Richard II.), a cart-wheel, and other things were found. Some of these articles were sixteen feet below the surface.

"You can now imagine what remarkable changes must have happened in this Bedford Level. In the fourteenth century (in the times of Edward II., Edward III., and Richard II.) the water was kept from these counties by means of embankments and dams. There were many instances of the 'sea-banks' being damaged and broken down; of people and cattle being drowned; of numerous

small craft destroyed; and of the surviving inhabitants living in great distress. It is said that the greater part of the Lincolnshire district was composed of an unhealthy stagnation of putrid and muddy waters, which in some places stood from ten to twenty feet deep. Where the earth was not covered with water it was spongy and boggy. In the *summer* the inhabitants of the fens could only communicate with each other by means of boats; and in the *winter* there was ice, which, however, was not hard enough to admit of traffic on its surface. The inhabitants were then completely isolated—often they could scarcely get food for soul or body."

"Such were some of the troubles of the poor people of the Eastern Counties. No wonder that many people as well as myself should *still* say that the country is dreary and dull.

"I wish I had time to tell you of all the troubles and expense which have been incurred in the improvement of this land—how many rivers pass through this level on their way into the sea—how there are three main outlets for these rivers, and that these have often been nearly filled up with sand washed in by the sea—how the great rivers have, therefore, often overflowed their banks—how high embankments have been made as a defence against the rivers and the sea, and the earth of these embankments has been too loose and sandy and has crumbled away. I should like to tell you how

these misfortunes have happened again and again; and still, with the words 'Try again' for their motto, the English people have persevered—how in the reigns of Henry VI. and Henry VII. great sums of money were spent to no purpose; how another great attempt to drain the land was made in the reign of Elizabeth, and another in the reign of James I., and how, at last, in the reign of Charles I., a more effectual effort was made by the Earl of Bedford; so that in compliment to him these counties have been called the Bedford Level.

"And so on. You don't know what a long history it would be to tell you how this great piece of the map was saved from being coloured blue. I should have to tell you how in three years £100,000 was spent; how, again, £300,000 was spent, and then more and more money; and how there is a 'corporation' to levy taxes for preserving the land, and for repairing the sluices, ways, rivers, cuts, drains, passages, banks, canals, dykes, moats, and all other kinds of waterworks to which such various names are given. But enough: the subject is, you see, a very watery one; let us return to Cambridgeshire.

"There is little to notice besides the *fens* in the *soil* of this country. I read a few years ago that there were still 150,000 acres of fen-land not reclaimed, but there will not be much fen-land soon. There are extensive rabbit warrens

in this county, but they are not of great importance.

"The capital of Cambridgeshire is a good companion city to Oxford. Like that city, it is a renowned and ancient seat of loyalty and learning. Like Oxford, it has a University, consisting of many colleges and other buildings. The seventeen colleges of Cambridge, and the dates of their foundation, may be seen in the following list:

PETER HOUSE	1257
CLARE HALL	1326
PEMBROKE COLLEGE	1343
GONVILLE AND CAIUS	1348
TRINITY HALL	1350
CORPUS CHRISTI	1351
KING'S COLLEGE	1441
QUEEN'S COLLEGE	1446
CATHARINE HALL	1475
JESUS COLLEGE	1496
CHRIST'S COLLEGE	1505
ST. JOHN'S COLLEGE	1511
MAGDALEN COLLEGE	1519
TRINITY COLLEGE	1546
EMMANUEL COLLEGE	1581
SIDNEY SUSSEX	1590
DOWNING	1805

"There are other buildings belonging to the University, such as the SENATE HOUSE, the Library and Schools, the Botanic Garden, the Pitt Press, and the Observatory, Addenbrooke's Hospital, and the Fitzwilliam Museum.

"The town of Cambridge contains fourteen parishes. The churches of these parishes, the ancient religious houses which are *not* connected with the University, and the University with its colleges, form together so many objects of interest, that I should have to write many letters, to describe them all. I shall therefore not attempt it.

"The other towns of this county are ELY, which is celebrated for its splendid old cathedral; WISBEACH, and MARCH. NEWMARKET is a town situated partly in Cambridge, but the principal part is in Suffolk. ROYSTON is another important town, but the principal part is in Hertfordshire.

"The principal rivers of the county are the NEN and the OUSE, with their tributaries, the Cam and the Lark. Will you look on the map and tell me on which rivers the towns I have mentioned are situated?

I send you to-day three memory lessons; namely, those of Leicestershire and Huntingdonshire, for which I had not space in my former letter; and that of Cambridgeshire.

"Your faithful friend,
"HENRY YOUNG."

LEICESTERSHIRE.

(Position.)—*Leicestershire is one of the Midland Counties, being surrounded by NOTTINGHAMSHIRE, LINCOLNSHIRE, NORTHAMPTONSHIRE, WARWICKSHIRE and DERBYSHIRE.*

(Rivers, Soil, &c.)—*The principal rivers are the SOAR and the WREKE. Leicestershire is noted to be the chief grazing county in England, being celebrated for its fine sheep, its oxen and horses, and its Siltton cheese.*

(Towns.)—*The towns of this county are noted for wool-combing and stocking-making. The principal are LEICESTER, ASHBY-DE-LA-ZOUCH, MARKET BOSWORTH, MELTON MOWBRAY, LUTTERWORTH, and LOUGHBOROUGH.*

HUNTINGDONSHIRE.

(Position.)—*HUNTINGDONSHIRE is situated at the west of CAMBRIDGESHIRE, and is at the east of NORTHAMPTONSHIRE and BEDFORDSHIRE.*

(Soil and Rivers.)—*The northern and eastern parts of this county are a continuation of the fens of Cambridgeshire. In these fens are three large pools or "mires"; the largest, named "Whittlesea Mere," has lately been drained of its water. There are few springs underground; the principal rivers are the OUSE and the NEN.*

(Towns.)—*The capital of Huntingdonshire is HUNTINGDON; it is celebrated as the birth-place of Oliver Cromwell. The other places of note are ST. IVES, RAMSEY, STILTON, and GODMANCHESTER.*

CAMBRIDGESHIRE.

(Position.)—*CAMBRIDGESHIRE is surrounded by the following counties:—NORFOLK, SUFFOLK, ESSEX, HERTFORDSHIRE, HUNTINGDONSHIRE, LINCOLNSHIRE, and NORTHAMPTONSHIRE; it is one of the Eastern Counties of England.*

(Soil and Rivers.)—*This county forms part of the great Bedford Level. Much of its large tracts of fen-land have been rendered serviceable by various means of drainage. The principal rivers are the NEN, the OUSE, the CAM, and the LARK.*

(Towns.)—*The chief towns are CAMBRIDGE, the capital, which is famous for its University; WISBEACH, MARCH, and parts of ROYSTON and NEWMARKET.*

RECAPITULATION.

P. We will not say good-bye to our Botany lessons until you have answered the following questions:

QUESTIONS, 2ND SERIES.

(Continued from page 117. First series on page 29, vol. 4.)

19. Name the order and class of the plants which supply us with bread.

20. From which order do we get our coffee?

21. Which order supplies us with cocoa?

22. Which order does the tea plant belong to?

23. Which order supplies us with sugar?

24. Give me the name, order, sub-class, class, and sub-kingdom of each of the plants from which we derive the following substances—*Pepper, mustard, cinnamon, cloves, nutmeg, peppermint, ginger, rice, barley, oats, cocoa-nut, tobacco, allspice, malt, hops, arrow-root, sago, acorns, chicory, caraway-seeds, manna, and mace.*

25. Tell me the name, order, sub-class, class, and sub-kingdom of the plants which supply us with the following substances:—*Peas, potatoes, turnips, onions, leeks, water-cresses, celery, beans, parsnips, asparagus, cucumbers, melons, cabbage, radishes, cress,*

parsley, fennel, mint, sage, thyme, cauliflower, Jerusalem artichokes, tomata, lettuce, endive, beet-root, and mangold-wurzel.

26. Tell me the name, order, sub-class, class, and sub-kingdom of the plants which supply us with *rhubarb, jalap, castor-oil, senna, camomiles, Peruvian-bark, laudanum, and ipecacuanha.*

27. The same particulars of the plants supplying *gum Arabic, Indian rubber, olive oil, palm oil, camphor, turpentine, cotton, linen, hemp, rushes, nut-galls, and cork.*

28. The same particulars of the plants which supply us with *gooseberries, apples, walnuts, almonds, raisins, wine, grocers' currants, French-plums, hazel-nuts, oranges, plums, elder-berries, apricots, cherries, grapes, dates, and pears.*

29. Give the same particulars of the plants which supply us with *deal-wood, rose-wood, beech, ash, oak, elm, &c.*

30. Also of the plants from which we get *saffron, logwood, madder, cochineal, indigo, otto of roses, salt of lemons, &c.*

31. Also of the following flowers:—*Rose, tulip, lily, pink, laburnum, peony, sweet William, lupin, candy tuft, chrysanthemum, larkspur, hyacinth, buttercup, and daisy.*

THE LARKS.

SEE the sweet larks,
They soar so high;
Now seem their wings
To touch the sky;
They sing and mount,

And as they fly
Through air's light way,
So sweet their song,
They seem to say,
"Praise Him who made us."

SEVENTEENTH WEEK. MORAL LESSON.

MONDAY.

CHARITY

"Never faileth."

P. You heard how the school-master made so many friends in our village. But there was one man, the richest man in the village, who would not be reconciled to Michael. Mr. Dives, the brewer, hated schools. He called Michael Collin a hypocrite. The latter once called on Mr. Dives to ask if he would let to him a piece of waste ground which was on the other side of the play-ground wall. "You see, sir," he said, "I want to give my pupils a taste for gardening. I should like to teach them to cultivate their lands. We will pay you a good rent." The only reply that Michael received was that "if he didn't get out of the house at once, he should be kicked out." "I tell you once more," said Mr. Dives, "that I hate your schools, and your improvements, as you call them. You have so tamed the people that there is no spirit in them. I hear that more than fifty of them have left off drinking beer. Now, I'll tell you something else. The ground which your school-room is built upon belongs to me, and next year the lease will be out. On the very day that the lease expires I'll shut up your school, and in

less than a week I will pull it down. There! you may know what to expect."

"I am afraid, Michael," said his brother William, "that there is no chance for you—there is no one in the village who is rich enough to build you another school-room. Besides, nearly all the land in the parish belongs to Dives."

"I am not afraid," said Michael. "I will make him my friend yet. I will show him more and more kindness, until he learns to love me."

But Michael did not succeed with Mr. Dives. The latter declared that he would worry him out of the village. Whenever Michael's brother interceded for him, Dives exclaimed most violently that he would never have anything to do with him. "I tell you, once for all," he exclaimed, "that I dislike your brother and his school too, and I will never encourage him. It's of no use for him to be civil to me. This day fortnight the school-room will become my property, and then—but I have told him what to expect."

There now seemed to be no hope for Michael Collin. The villagers promised to send him

as many children as he could teach in his own cottage, but they saw that he could not there form a school large enough to support himself. He had tried every means to conciliate Mr. Dives, but he could not gain an opportunity of speaking to him. Only ten days were wanting to the day for closing Michael's school, when a new event happened.

In the middle of the night all the village was quiet, for the villagers and Michael and Mr. Dives also were asleep. Soon after Mr. Dives awoke and jumped up in his bed, for he thought he heard a noise in the house; he listened and found that there was a noise in the village also. There were many villagers running about, there was a strong smell of smoke in his room, and everywhere the people cried "FIRE!"

In two minutes Mr. Dives was dressed; and he was out of doors just in time to see that the left wing of his own house was in flames. The brewery and stables too were burning. Men were bringing out the horses, and the sound of wheels in the distance told that the county engine was coming. At the same moment he remembered that his son, his only child, who was but five years old, was in the burning house. He rushed forward madly, calling to the men to leave the horses and follow him. But it was of no use. Before they had time to cross the yard, or reach the house, the roof fell in. The flames were almost extinguished for a moment, and

the father saw before him a smoking mass. As the flames sprang up once more the water from the engine poured down upon them, but it was of no use; even the father himself dared not venture into the burning mass, although he knew his son to be underneath.

All that night the fire still burned, but the father cared not to notice it. He saw by the morning light that the engines had saved the best part of his house, and that not all of the brewery was burned. But he cared little for these things. He found that the servants who slept in the same part of the house as his son had escaped without trying to save him.

He sat in despair in a room in the part of his house which was not burned; he was crying aloud for his son, and almost wishing that the house would fall upon him, when he saw old Joe and Sandy his two most honest servants coming towards him. His first words were to ask them for his boy, but they declared that they had not seen him; they were going on to tell him how the fire broke out when one of the firemen came in to tell the master that his son was found. "I expect, sir, that he is quite safe," he said, "for just as we came up with the engine two of us saw a man rushing out of the house with a little boy in his arms; but I will go, sir, and fetch him."

While they were gone, Mr. Dives heard that the fire had been caused by one of his men, who had come home intoxi-

cated, and had gone with a lantern into the stable to sleep there.

"And who was it that fetched the engine so quickly?" said the master.

"Deed, master," said old Joe, who was rather fond of boasting; "you may well say that it came quickly. We two set off directly we saw the smoke. Bless you, sir, it don't take much to wake me *now*. Yes! if it hadn't a'been for Mr. Michael Collin, the schoolmaster, sir, we might have been as tipsy as Robert last night; then the house might have been burned down." "Ah!" said Mr. Dives; but at this moment his little son bounded into the room, led by the fireman and another person, whose head and face were much burned, and were tied round with linen bandages.

In the delight he felt at embracing his child, Mr. Dives did not notice any one; but as he looked up to the fireman, the latter pointed to the person beside him—"Here, sir," he said, "is the gentleman who saved your son."

The head and face of this person were so burned, and so wrapped up in linen that Mr. Dives could not tell whom he was speaking to. "I am sure, my good friend," he said, shaking hands with him, "that I can never repay you for your services."

"Thank you," said the stranger; "you need not do that—I only did my duty. I am very thankful that the dear child is safe."

"But before you go, friend, pray tell me your name," said Mr. Dives, as the stranger turned to leave, "for I shall feel grateful to you all the rest of my life."

"I see, sir, that you do not recognise me," was the reply; "my name is MICHAEL COLLIN!"

I cannot explain exactly how Mr. Dives felt when he heard this name; he fell back as though something had hurt him. It was not that he was hurt really; but the hatred that he felt to Michael and his school was hurt; it seemed to be all killed at one blow.

And so it was. I need hardly say whether or not Michael was allowed to keep his school-room. As he went home to his brother's house he felt pretty sure about it. "Ah," he said to William as he finished the account of Mr. Dives, "I told you that if I could only get the chance of showing him a kindness I would make him my friend. Charity *never* faileth."

"I like that tale," said Willie, as soon as it was finished; "it is something like that of Mr. Brown, the shoemaker."

P. Yes; most of our tales have lately had nearly the same meaning. When you hear that charity suffereth long, that it beareth all things, and that it endureth all things, or that it never faileth, you may know that it is sure to make us friends at last. But I cannot help keeping you one minute more. Just wait, Willie, while I show you how Michael Collin

learned in a better sense, that charity never faileth.

It was six months after the fire, and a great change had come over Mr. Dives. It was found that he and Mr. Collin were by this time the best friends possible, and he had often been seen in Michael's school. On the very day which I speak of he was actually engaged in the piece of ground adjoining the play-ground, and was marking out the children's gardens. The school had prospered wonderfully of late. The charity which Michael had taught Mr. Dives had sprung up and brought forth fruit. He had been doing all kinds of good deeds which had quite astonished the villagers. Without knowing it he had already taught charity to many people who used to call him cross.

When Michael went to sleep that evening he had a dream in which he learned the *full* meaning of our text. While he slept he seemed to see an angel. "See this vision," said the angel, "and know how everlasting is charity."

And he looked and saw the worst characters of the village. Sandy and Old Joe, and every one who had been wicked or idle, seemed happy, and was working hard, or doing some kind action. There was a spirit of joy diffused throughout the village, which had before been so miserable.

"Look again, look into the future," said the angel.

And this time Michael saw a numerous company of people who had altered the village

very much. They had enlarged and improved the houses; they had built a church and a small hospital. There was an almshouse being erected by the roadside on which some builders were fixing an inscription—he could distinctly see the name of *Dives* on the tablet, and a young man, who much resembled Mr. Dives' son was standing directing the work.

"This," said the angel, "is the next generation—look again!"

This time the village seemed to be in the hands of another race. He scarcely knew the place before him; he had just time to observe that there were two other schools besides his own—that the hospital had grown—that there were other places of worship besides the church—that there were two large factories—and that a railway was being constructed; but the angel seemed to lead him through so quickly that he could scarcely see clearly; he felt himself to be rising higher and higher, until he lost all consciousness. Then he seemed to be outside the gate of heaven.

"Look again!" said the angel.

And now there seemed to glimmer confusedly in the distance many hundreds of angels. Many familiar voices came from thence; he seemed to see the form of *DIVES*, and to hear his voice: there were the spirits of those whom he had known to be very bad men, even the spirits of Old Joe and Sandy were there, but they were refined and beautiful, and they

were speaking words of love and charity.

"This," said the angel, "is only the beginning of their joy. Their happiness will go on increasing for ever; many of the next race, and many more of the generation after them are coming here. Yes! and while they keep amongst them the spirit of charity which *you* have taught, the numbers of those who are added to the kingdom of heaven will increase in each generation. See!" said the angel, as the vision became brighter, "how charity never faileth—see how much **ONE MAN** can do when God gives him His Spirit."

"And thank God," he said

to Michael, "that thou art the man that hath done this."

Stay again, Willie! Stop and think. *You*, too, may do all that Michael did if you will ask God to give you charity, and will thereby teach it to others.

W. I should like to do so. I see now why charity never faileth. It is like the widow's cruise of oil. That never failed! Though Elijah gave much away, he had plenty left.

L. And I think, too, that charity is like the *water* which Jesus talked about to the woman of Samaria. He said it was a well of water springing up unto everlasting life.

BED-TIME QUESTIONS.

DID I this morn devoutly pray
For God's assistance through the day?

And did I read his sacred word,
To make my life therewith accord?

Did I for any purpose try
To hide the truth, and tell a lie?

Did I my time and thoughts engage
As fits my duty, station, age?

Did I with care my temper guide,
Checking ill humour, anger, pride?

Did I my lips from aught refrain
That might my fellow-creature pain?

Did I with cheerful patience bear
The little ills that all must share?

For all God's mercies through this day,
Did I my grateful tribute pay?

And did I, when the day was o'er,
God's watchful aid again implore?

Home and Colonial Hymn Book.

BIRDS.

GENERAL DISTINCTIONS.

L. I REMEMBER your promise, papa. You said that when our *Botany* lessons were finished, you would continue the course of *Natural History*.

P. Yes. We have talked of only one class of vertebrated animals, the Mammals. I have yet to give you a very slight outline of the remaining three classes—*Birds*, *Reptiles*, and *Fishes*.

W. If we are going to hear about birds, papa, please let us have a bird to talk to us; I like the animals to give their own histories.

Ion. And there is Ada's parrot up-stairs!

Ada. Yes. I have taught her to talk. I'll fetch her.

Here she is! I have told her what we want—and—

Parrot. Pretty Poll!

Ada. Hush, Polly! If we trust you to give us an account of yourself and the other birds that you know, will you speak the truth? What will you tell us?

Parrot. What's o'clock.

P. If you trust, Ada, to your Poll's memory, I am afraid we shall not learn very much. You will find her clock to be too slow, or else too fast. It will want winding up every five minutes. No, no; you had better let me be the interpreter as before. I can tell you all that her wise head would say, if she could.

Ion. Yes, we all agree to that.

P. Then I am a parrot for the next hour and a half! Here begins.

Parrot. I am a MAMMAL.

Ada. No, you are not.

Parrot. I think you are contradicting me, Miss. I am a mammal—for four reasons:—1st, mammals have an internal skeleton; 2dly, they have red blood; 3dly, they have four limbs; and 4thly, they have a mouth opening horizontally. Now, I have these four things; therefore I am a mammal. There's a syllogism!

Ada. Yes; it is very silly. Because reptiles, and fishes, and all vertebrated animals have those distinctions. They only show that you are a "vertebrated animal."

Parrot. But here are two better reasons to show that I am a mammal. Mammals have warm blood, and they live on the land. I, too, have warm blood and can live on the land; therefore I am a mammal.

Ada. Yes, you may be like a mammal in many particulars, but that does not show that you are one. What a — what do you say, Willie, when any one thinks too much of himself?

W. "Conceited."

Ada. Yes; Miss Poll is very conceited. Now, Miss, I'll give you four reasons why you are not a mammal:—1st, you can fly in the air, and no mammal can do that—the bats only

flutter; 2dly, you are covered with feathers; 3dly, your two fore limbs are wings; and 4thly, your young ones (if you have ever had any) were born in eggs, which you hatched with the heat of your body. I learned all this, a long while ago, in a book called "PLEASANT PAGES."*

W. You had better let me make a note before we go on any further. If we fix the matter in black and white she cannot deceive us again.

(Note).—BIRDS.

Birds resemble mammals, because they are *Vertebrated Animals*; that is to say, they have red blood; an internal framework; four limbs; and a mouth which opens horizontally.

Birds also resemble mammals because they have *warm* red blood, and can live on the land, but they differ because they fly in the air, have wings, are covered with feathers, and lay eggs; they therefore form a distinct class.

W. There! I say that that is a much more honest way of stating the case.

Parrot. Perhaps it is; but you are dishonestly stealing my time. You repeat, and repeat, like a — oh, I forget.

It is not so very easy to *fly*, I can tell you. Try it! You'll find as you try to draw your body upward to the sky, that there is a power drawing you downward to the earth. I'm not a learned parrot, but I think that the power is called *attraction*. Can't understand it very well; but I know that

the earth *has* attractions for most birds. They say that men didn't know anything about the earth's attraction until SIR ISAAC NEWTON told them; but for my part I found out plenty as soon as I could fly—there were the berries, and seeds; the—

W. No; that is not right. I see that you *don't* understand. The attraction that draws your body toward the earth is a very different thing; it is called the *attraction of gravitation*. It is something like the invisible power which you find in a magnet.

Parrot. Yes, that is it. The power is certainly invisible; for when I used to fly so high that the red berries, &c., were out of sight, I still had to contend against the earth's attraction with my wings. By the way, I found, as many men have found on this earth, that the nearer I mounted to heaven the less powerful was the attraction of the earth.

W. Yes; but that is a *Moral Lesson*, not *Natural History*. When are we going to learn about the birds?

Parrot. Now. So without more digression I'll come to the point. When men and quadrupeds practise locomotion—don't you consider that a rather hard word?—they raise their limbs only a few inches and then rest them; but birds, in contending against the attraction of the earth, have greater difficulties.

Then the question for you to consider is, "*If we birds have to contend against the gravi-*"

* See Vol. i. p. 313.

tation of the earth, what do we require more than mammals?

Answer. 1st. We require much more activity.

2dly. You know that a heavy body falls to the ground sooner than a light one; thus we require *lightness of body*.

3dly. You know that a thin paper kite which has a large surface, will keep up in the air longer than it would if folded up to a small size. Thus birds require, as well as kites, that *their bodies should have a large surface*.

And 4thly. We require certain means for *preventing the heat within the body from escaping* (you will know why soon).

You see, then, that as we birds are placed in different circumstances from those of mammals, we require a *difference of construction* to suit those circumstances. Let us proceed, in the next place, to observe how these four requirements are supplied.

W. (*aside to Lucy*.) What a sermon the parrot is preaching! He seems to have been brought up in church.

Parrot. The first requirement, *activity of motion*, depends greatly upon the temperature (heat) of the body. You have learned, in your Natural History lessons, that this temperature depends upon *respiration*, or breathing. You know that when the carbon from the impure blood which flows into your lungs unites with the oxygen from the air which it finds there, *heat* is produced.

W. Yes; we have heard that several times.

Parrot. Then if you could look inside me you would find a curious provision. I have not only lungs filled with air-vessels and containing air, like yours, but I have air-cells in every part of my body. Not only are these air-cells in the tissue of my flesh, but even in the minute blood-vessels, which we call the capillaries. You know that air always contains oxygen; just think, then, how much oxygen my body must contain! And when you remember that this oxygen combines with the carbon of the blood and causes heat, then think how very warm I must be!

W. I understand that. The respiration causes heat, and the heat causes more activity. I feel more active when my blood circulates quickly.

Parrot. But there is something more — these air-cells answer a double purpose. I said, secondly, that we require *lightness of body*. You can easily understand that as my body contains so much air, it must be very light. Not only are there air-cells in the blood-vessels and tissue of my flesh, but even my *bones* are hollow. I have also a cavity in my chest, as you will hear soon.

Ion. Now tell me how the third —

Parrot. Allow me, a minute: I had almost forgotten something: — The barrels of my feathers are hollow tubes; they are pierced at the end, so that I can fill them or empty them with air at my pleasure. Thus they also assist in giving *lightness of body*.

Thirdly, a *great extent of surface* is required that I may more easily rise in the air. I will pull out one of my feathers for you to examine. Here it is.

W. I will hold it in my hand.

Parrot. It has, as you see, three parts—the *barrel*, the continuation of the barrel, which is called the *stem*, and the thin *laminae* which grow from the stem. Mammals are, you know, covered with hairs. Hairs are appendages of the outer skin or cuticle. Feathers much resemble hairs, for they also grow from the cuticle. They are much like hairs, but their structure is more complicated.

Suppose you notice the laminae of this feather! Draw your thumb and finger upward from the barrel to the point, will you? You observe that the laminae seem to hold together more closely. Now draw your thumb and finger downward, in the opposite direction; you see that the laminae separate.

L. They do, but not very easily. Here are three or four which seem as if they were *tied* together.

Parrot. So they are. That is what I wish you to notice. If you pull off one of the laminae you will see that its edge is fringed with minute barbs or hooks; these are hooked on to the barbs at the edge of the next lamina, and this is the reason why they will not separate.

W. But I do not see anything so remarkable in that.

Parrot. I did not say that the circumstance is remarkable. I merely want you to notice

that when I unfold my wings, and spread out my feathers, these laminae *cover a great extent of surface*. At the same time you may see that they are exceedingly light and elastic; and yet, being hooked together by their barbs, they are strong enough to resist the air.

Ion. That is very good. Now for the fourth particular. What means have you for *retaining heat within the body*?

Parrot. In flying through the cold air the heat caused by respiration is liable to escape. Have you not had a lesson on a polar bear?

W. Oh, yes. And we learned that the warmth of his body does not escape into the cold air around him, because he is covered with white hair; and white things are *bad conductors of heat*.

Parrot. That is true; and the feathers which cover my body are also bad conductors of heat. You see, then, that these feathers answer a double purpose, just as the air-vessels do:—they give great extent of surface, and they retain the warmth of my body.

W. I understand all that very well, but you had better let me make a note before we proceed.

(Note.)—As birds have to fly, they require four distinctions which are not necessary for mammals: two of these are supplied by means of air-vessels within the body; the other two are supplied by the feathers outside the body.

Parrot. I should like to tell you more about my feathers. But, really, I'm getting rather tired.

W. So are we a little—but go on.

Parrot. Then I may just say that the feathers of my wings differ in *size*. Your papa has in his study the framework of a bird's wing. If he will show it to you in your next lesson you will find in it the bones of the humerus, or upper arm, those of the lower arm, and hand. The feathers which grow from the hand are longer and stronger than the others, and are called *primaries*; those growing from the lower arm are called *secondaries*; and the small weaker feathers, which grow from the upper arm, are called *tertiaries*; the feathers on the shoulders are called *scapulars*. I should like

to describe to you the varieties of feathers—the stiff feathers, without lamina, which are like porcupine's quills, such as you see in the wing of the Cassowary or the tail of the Penguin. There are feathers light and soft, such as those in the wings and tail of the Ostrich; and others which are mere down, such as those of the Eider Duck.

And oh! if I could describe the splendid *colours* of some feathers!—of feathers more splendid than the richest flowers, and more sparkling than precious stones!

I had a fine coat once—but there! I am so sleepy. "Fine feathers ma-a-ake—f—f"—ah!—good night!

LINES FOR THE LITTLE ONES.

THE BABY.

BEHOLD! a little baby boy,
A happy babe is he;
His face how bright, his heart how light:
His throne his mother's knee.

Now in her face with laughing eye
I see him gaily peep,
And now at rest, upon her breast,
He gently sinks to sleep.

His tiny hands are white and plump,
And waking, or asleep,
Beneath his clothes his little toes
How cunningly they peep.

Oh! many things are beautiful—
The bird that sings and flies
The setting sun, when day is done
The rainbow in the skies.

But there is one more beautiful,
Gay, tender, sweet, and mild,—
A baby boy, with heart of joy,
A loved and loving child.

MRS. WELLS.

THE ENGLISH TRAVELLER.

BEDFORDSHIRE.

"MY DEAR CHILDREN,—

"If any one should ask you 'which town in England is the most celebrated for its charitable institutions?' you may answer BEDFORD.

"Suppose we begin with *Harpur's Charity*. In the reign of Edward VI. there lived an alderman of London, named Sir William Harpur. He founded a free school for the instruction of the children of the town in grammar and good manners. They learned grammar, no doubt, that they might *speak* properly, and good manners that they might *act* properly.

"To support this school Sir William left the corporation thirteen acres of land, which then yielded about £150 a year; should there be any overplus, it was to be given in alms to the poor. But this land was in the parish of *St. Andrew, Holborn, London*. Its value since the days of its owner, 300 years ago, has changed wonderfully; for it was worth £13,500 per annum in 1833. What it is worth now, in 1853, I cannot say, for the value of property in London still increases. Thus, as you may suppose, there is plenty of 'overplus' for alms to the poor.

"Instead of the *one* free school, there are *many* schools supported by Harpur's Charity. The principal are a *grammar-school*, containing 80 boys, 'on

the foundation;' a *commercial school*, containing nearly 150 boys; and a *national school*, containing 350 boys. There are also a national school for girls, an infant-school, a hospital for poor children, alms-houses, blue-coat hospital, &c.; all of which are paid for out of the funds of this charity. With all these institutions to support there is still an overplus, which is distributed in various ways. In the year 1834, for instance, £500 was given away for 'marriage portions;' £712 10s. was given to apprentices when bound to learn different trades; £623 more was also expended on apprentices; £84 was given to young women going out to service; £290 to apprentices on leaving service; and £500 was distributed to the poor.

"But there are other charities besides those of Sir William Harpur. The *General Infirmary* is a noble building, which was founded principally by Samuel Whitbread, Esq. There are a *charity school* for 20 children, *Christie's alms-houses* for eight poor persons, and a very large *lunatic asylum*.

"The churches and chapels of Bedford are also famous. It is supposed that almost half the inhabitants are 'dissenters'; that is to say, they do not attend the Church of England. There are chapels belonging to the Independents, Methodists, Baptists, Moravians, &c., and

a synagogue for the Jews. The *Old Independent Meeting House* was established in 1650. It is very celebrated; for one of its ministers was the famous JOHN BUNYAN, the author of '*The Pilgrim's Progress*.' I believe that the chair in which he sat is still preserved in the vestry of the chapel as a relic.

"The town of Bedford is, on the whole, a very pleasant one. It is situated on the river Ouse, which divides it into two parts. There is a handsome stone bridge of five arches. Although the charities of the town are celebrated, and the schools are generally in most excellent order, yet they do not produce unmixed good. I remember reading of this town in a 'Poor Law Commission Report' some time ago. It was said that vast numbers of poor people are drawn by these charities; and that many choose rather to depend upon such charity than upon their own labour.

"The poor people of Bedfordshire, especially around the capital, are employed in making thread-lace; others are engaged in making straw-plait. The women and children are chiefly engaged in the latter employment. Even very young children, when not more than five or six years old, learn to earn money by plaiting straw, but their earnings are not very great. In one place a little boy and girl were sitting at their work outside a cottage door, and I asked their mother how much

money per week their labour produced. Her reply was, that they sometimes earned 3d. and sometimes 4d. between them.

"There are not many important towns in Bedfordshire besides the capital. DUNSTABLE is famous for its straw-plait; I dare say you may have worn a hat or bonnet made of Dunstable straw. Luton also is famous for its straw-plait. AMPHILL and BIGGLESWADE are towns of note.

"There is little in the soil or produce of this country which is remarkable. In the neighbourhood of WOBURN much *fullers' earth* is found. Part of the *butter* used in London is the produce of the Bedfordshire farms.

"I send you herewith the memory-lesson on the county, and remain,

"Dear children,

"Your faithful friend,

"HENRY YOUNG."

BEDFORDSHIRE.

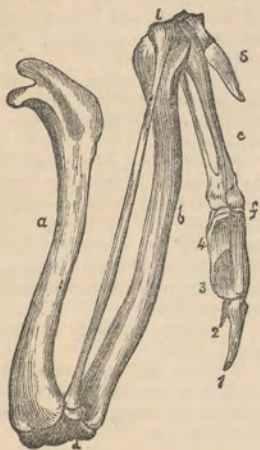
(Position, &c.)—BEDFORDSHIRE is bounded on the north by HUNTINGDONSHIRE, on the south-east by HERTFORDSHIRE, and on the south-west by BUCKINGHAMSHIRE.

(Rivers and Towns.)—The principal river in this county is the OUSE. The chief towns are BEDFORD, famous for its charitable institutions; DUNSTABLE, AMPHILL, BIGGLESWADE, and LUTON. Thread-lace and straw-plait are manufactured and sold in these towns.

BIRDS.

GENERAL DISTINCTIONS.

P. HERE is the framework of a wing, which your friend, the Parrot, spoke of on Tuesday:—



FRAMEWORK OF A BIRD'S FORE-LIMB, OR WING.

a, upper arm; b, lower arm; c, hand; d, elbow; e, wrist; f, knuckle; 1, 2, 3, 4, rudiments of fingers; b, rudiment of thumb.

You may see that the wing has an elbow-joint, a wrist-joint, and all the parts of the hand, although these are mere *rudiments*. The thumb is, you observe, at a long distance from the rudimentary fingers.

The feathers of the *tail* are useful to birds to direct them in their flight. They use them as a rudder, to change the

direction of their course. But here is Mrs. Parrot; let her proceed.

Parrot. I am quite ready; and I have brought with me, in my cage, a *breast-bone* of a friend of mine who died some years ago; you will find it worthy of notice.

It is my intention to-day to show you one or two of the *internal* parts which render birds different from animals. If you begin with the framework of my *head*, you will observe that I have two jaws; these are called *mandibles*. They have not any teeth, but they meet in a point, and form a *beak*. You can judge of the food which a mammal eats by the form of its teeth; so you can tell whether a bird eats flesh, or grain, or insects by its beak. The beak is generally the only organ which a bird uses to pick up its food. My beak is my *hand*. I dare say you have noticed this.

Ada. Yes; you generally pick up your food with your beak.

Parrot. Generally. Now, suppose, Miss Ada, that you were a bird, and had to throw your beak about in various directions; what sort of a *neck* would you require?

Ada. A very bendable one.

Parrot. You mean *flexible*. And birds have very flexible necks. A mammal has generally only *seven* vertebrae in

the neck, but nearly all birds have *twelve*, and some have necks containing more than *twenty* vertebræ. What a flexible handle to his beak the *Swan* has! the *Heron* too, and the *Stork*, and all the birds that walk on stilts.—But there! we shall talk of these things when I mention the *orders* of birds.

W. I have heard that birds can turn their heads round better than mammals can.

Parrot. That is quite true, Master Willie. Look at the description of your own framework, and you will see that your head is fixed on the vertebræ of your neck by a pivot that has only a *semi-rotary* motion. Now, a bird can turn his head round completely—as you may see when he goes to sleep.

W. Is there anything particular in the parts of your trunk?

Parrot. Yes. Examine my body next. The *vertebræ* of my *back* are different from yours. Instead of being *more* flexible, they are less so. They are so joined together that they are *immoveable*.

Ada. What is that for?

Parrot. To give firmness and strength, to be sure. If you had a pair of great wings fastened to your body, and you had to flap them up and down very quickly, you would require a very strong place to fasten them to.

Ada. Yes, or else I should shake my body all to pieces.

Parrot. Perhaps you would. Now, we find that there is not

such solidity in the spine of birds that live upon the earth. The Ostrich and Cassowary do not fly, and we find that the vertebræ of their backs are flexible, like those of mammals.

There are other bones worth noticing in my trunk. You may remember that the *ribs* of mammals are joined to the breast-bone by cartilage. (See vol. i. page 213.)

W. I remember. My ribs expand and contract with the motion of my lungs when I breathe.

Parrot. True; but *my* ribs do not move in that way; they are not fixed to the breast by cartilage, but by bone. The cavity of the chest is, therefore, always of its full size, and contains more air than it otherwise would.

L. And your body is therefore lighter.

Parrot. But the most remarkable part of my trunk is the breast-bone, or sternum. Look at it—



W. How different that is from mine! (See vol. i. page 196.) My breast-bone is long and flat.

Parrot. You have here the breast-bone (*a*), the collar-bone (*b*), the shoulder-bone (*c*), and the *coracoid*-bone (*d*). The breast-bone is, as you see, like the keel of a vessel. This keel gives power to the muscles which draw down the wing, for these muscles are attached to it. In those birds which can fly swiftly, the keel projects very much; but in those which cannot fly, the keel is scarcely developed. In the Ostrich, for instance, the breast-bone is almost flat. If you look at the collar-bone, you will see that instead of two bones, as you have, they are joined in one. I dare say that when you have eaten chicken for dinner you have noticed this bone; it is called the *merry-thought*.

W. I see you have marked the shoulder-bone with a *c*. They are very long and narrow, much more so than mine; but I have not any bone like the one you mark *d*.

Parrot. No, that is an extra bone. It is not found in mammals. It is called the *coracoid*-bone. The *coracoid*-bones are, you see, fixed to the ends of the collar-bones; they form, with the collar-bones, two buttresses, which keep the shoulders apart. These buttresses are very strong, and the upper arm-bones of my wings are fastened to them.

Ion. Now, you have talked to us about your fore-limbs and body. Are the legs of birds

different from those of mammals?

Parrot. The difference in their framework is not remarkable; but you may notice that the number of our toes is never more than four. Three of these toes are directed in front, and one is turned backwards. Some birds have three toes, and others only two.

I think I have shown you the most remarkable points in my framework. Are you tired?

W. No, not yet. Is there anything worth noticing inside you?

Parrot. Yes; my stomach has not all the advantages that yours has.

Ion. What advantage has my stomach?

Parrot. Just this:—It is, you know, the duty of the stomach to reduce your food to a pulp. When you eat your food it is first chopped up into small pieces by your teeth; but I have no teeth!

W. I had forgotten that. Then I suppose that your stomach chops up the food, and digests it too.

Parrot. Yes. The food I eat passes down the gullet into the first stomach, which is called the *craw*, or *crop*. Here it is stored up, like the nuts in the cheek-pouches of the monkey, or the grass in the paunch of the cow.

Ion. I have noticed how full the crop of a chicken is after it has pecked up a great quantity of corn.

Parrot. The food is passed from the crop, little by little, into a second stomach, called

the *ventriculus*. This contains the gastric juice which moistens the food. It is then passed onward into a third stomach, which is called the *gizzard*. This gizzard, especially in birds which feed on grain, contains powerful muscles, which grind the food to a pulp. Some birds assist the gizzard in its action by swallowing gravel.

W. Yes; I suppose that the stones of the gravel answer the purpose of teeth.

Parrot. I suppose so. The gizzard of the Ostrich has immense power; it is said to dissolve even iron and glass. However, the birds which eat animal food have much weaker gizzards.

But I am afraid it would cost a long time to describe all my internal organs. Enough. I intend to tell you something of the senses of birds—of the Hawk and others—and their wonderful power of sight. You would like to hear how the birds build their beautiful nests

with their beaks—of their wonderful power of song—and of their curious habit of emigration. I think, though, that I have talked quite long enough. Perhaps you will make up your memory-lesson.

Ada. Yes; I mean to write it.

BIRDS.

Birds differ from mammals because they are formed to fly in the air, and their young are born in eggs.

In order to fly they require great activity, lightness of body, great extent of surface, and provision for retaining heat in the body. The first two requirements are provided for by means of numerous air-vessels; while the others are supplied by the feathers which cover the body.

The construction of the chest, the ribs, the spine, the breast-bone, and collar-bone, all contribute to assist the bird in flying; while the jaws, the neck, and the stomach differ from those of mammals.

LINES FOR THE LITTLE ONES.

FRIGHTENED BY A COW.

A VERY young lady,
With Susan the maid,
Who carried the baby,
Were one day afraid.

They saw a cow feeding,
Quite harmless and still,
Yet scream'd, without heeding
The man at the mill;

Who, seeing their flutter,
Said, "Cows do no harm,
But send you good butter
And milk from the farm."

The Dairy.

EIGHTEENTH WEEK. NATURAL HISTORY.

MONDAY.

BIRDS.

ORDER 1.—BIRDS OF PREY. (*Raptores.*)

Parrot. Good morning, Master Willie! Do you know that Miss Ada and I, and these friends of ours, have been waiting for you for a long time?

W. Friends, indeed! Why, whom have you brought with you? Here is an eagle! And here are a crow, a woodpecker, a stilt, and a penguin.

Parrot. Quite true. And so without waiting for any more of your remarks, I shall call on my friend—at least, I won't say friend—my—the GOLDEN EAGLE, I should say, will address the meeting.

Golden Eagle. I am the king of the birds, just as the lion is the king of the beasts. I must say that it's rather *infra dig.* to be called out to give Natural History lessons.

W. What is an "*infra dig.*?"

Eagle. That is Latin, young gentleman. Get your dictionary. I have no objection to the diffusion of useful knowledge, and as the requisition submitted by your messenger was signed by a numerous and respectable body of constituents—

W. Ah! that is true.

Eagle. I have therefore, at considerable inconvenience, at-

tended on the present occasion.

Ion. What part of the world have you come from?

Eagle. I have travelled this morning from Norway. How you would like to go and see my palace! If I could only condescend to carry you on my back! Then we would mount through the bright sunshine, through dense damp clouds, until we reached the silent top of a high cliff—on a cliff so high that you are far away from all sounds, where you look down on the quiet rolling clouds, and look up on the bright glaring sun. Do go! When we reach there you will find my abode amongst the crags on the stony ledge of some precipice, which no man can ever reach by his own efforts.

You will find my palace to be built of sticks, twigs, rushes, heath, &c., and you will be welcomed by three eaglets—two princesses and a prince—who are now under the care of their mamma.

Ha-ha! ha-ha! I wish you could have visited me in Germany, where I lived a bachelor's life! My *eyrie*, as they call an eagle's nest, was situated in a

forest, near the summit of a lofty tree. And a pretty roving life I led then! When the shepherd counted his sheep he would find that one was *not* to be found; the farmers missed their ducks and their hens; the part-ridges and the hares often missed themselves; while the kids, young fawns, and roebucks were too often missing from their homes. They never returned to their disconsolate friends to give an account of themselves, which was quite an unaccountable thing; at least, it was unaccountable until the natives of the district came one day to make inquiries at my nest. Now, I never understood arithmetic until these people began to count. I mounted to a place of safety, and I saw them count out from my "bachelor's crib" the skeletons of *three hundred ducks and forty hares*. Besides these there were hundreds of large bones, the remains of deer, sheep, and other animals, whose bodies were too large to be carried away entire.

I never went back to that nest, but soon afterwards I got married; and now—but I must make haste with my story; I promised to take home some dinner for the children.

Ion. How will you get it?

Eagle. On my way home I shall perhaps see a flock of sheep. I can see from an immense distance; and when I have selected a nice young lamb I shall dart down upon it with a terrific *swoop* or *rush*. The whole weight of my heavy body will fall upon it, and with

one fell stroke of my foot I will dash it to the ground, or break its spine, or fracture its skull. That's the way I get my dinner!

L. And a very bad way too. In the first place, how can you tell whom the sheep belong to? And, secondly, it is a very cruel way.

Eagle. There, miss! I'll excuse you for talking so, because you don't know better. The sheep miss, belong to *me*! all that I can carry away are mine. The deer, too, are mine, and every other animal that I have need of. What right have mankind to them more than I have, I should like to know! Hav'nt I an *appetite* as well as yourself? And was not I made to eat?

I dare say you have heard how the King of Beasts pounces upon his prey. Did you not read in PLEASANT PAGES of the lion springing on the zebra? But he is obliged to steal upon his prey cautiously—to sneak up to it—to hide himself behind a rock—and to do many more unseemly things.

W. And you, too, steal upon your prey by hovering over it, at a great height. So that there is no such great difference between you.

Eagle. Indeed I may say, too, that *you* also steal upon your prey. Suppose that your man of prey—what do you call him?—butcher—wished to kill the lamb that I mean to carry off, would he not delude the little one into his slaughter-house and kill it with a base knife? No, no! there is no such great difference between *you* and the lion as

there seems to be. Man may kill his prey, but the lion does it in a noble manner; and the eagle does the deed with a nobler grace than either.

With what swiftness and grace does he rush downwards! I should like you to see the *Bald-headed Eagle* of America when it fights with the Fish-hawk for its prey. I once saw a Fish-hawk rise up in the air with a large fish. A Bald—

L. Yes; but I told you before I do not like to hear of such things—they are very cruel.

Eagle. Cruel, indeed! And is it not as cruel to stick sheep with a knife? What birds of prey are as cruel as your race are? Bah! there's not such a difference as there seems to be. When you are as old as I am you will know better.

W. And pray how old are you?

Eagle. I am in my 104th year now! but that is not a great age for an eagle. Some of our tribe are much older, and—(but here the speaker was interrupted by the chair).

Parrot. Being the president of this assembly, I feel it my duty, with great deference to the noble and learned speaker, to call his attention to the business of the meeting. The order of the day is, that each speaker describe the order of birds to which he belongs.

Eagle. I will not detain the meeting, but I beg to explain. Having offered to you an account of my habits, I now come forward to call your attention to my *parts*. Behold me!



The Golden Eagle.

W. (*Aside.*) Let us examine him regularly—his body, then his head, and then the limbs.

Eagle. My body is, you see, longer than that of birds in general; just get a tape rule and measure me—you may! I'll not consider it a liberty. Now you see that I am three feet in length—that is a much larger body than yours, Master Willie. I'll next spread out my wings for you. There, you find that I measure *eight feet* across. I can also tell you that the extent of my wife's wings when they are opened is nine feet, and her body is three feet six inches long. My body is, too, very tough and muscular. My *legs*, you see, are worthy

of notice—they are short, but very robust. I will put out one of my feet for you to examine.



In the first place, you see that the feathers of my legs grow down to the toes. These are four in number; and one of them is turned backward; they are armed with long and crooked talons, which are retractile, like those of the cat-tribe: I need not say that they are strong. Look at them! These talons are as sharp as those with which the lion seizes his prey!

You have noticed the size of my fore-limbs, or *wings*; they also have great strength, which is necessary for carrying off large animals through the air.

Now have the goodness to notice my *head*. You see that the *bill* is very strong; it is curved, with sharp edges, and a sharp point.

W. Yes. Look, Lucy, at the top part—I forget what you call it.

Eagle. The *mandible*, Miss. Yes; my upper mandible is larger than the lower one; it curves over, you see, and forms

a pointed hook. The edge, too, is notched, so that there is a sort of tooth projecting on each side. Now what part of the king of beasts do these notches and hook remind you of?

W. They remind me of the long sharp canine teeth with which he tears his prey?

Eagle. Exactly; and I use my bill in the same way. The points which I have led you to notice may be found in nearly all birds of the order to which I belong.

Ada. What name is given to your order?

Eagle. I have not yet told you, Miss, because I think you will be able to *make* a name for it when I have introduced its different tribes to you.

Our order is divided into three tribes. In the first tribe are myself (the GOLDEN EAGLE), the *Imperial Eagle*, which is employed by Tartars in chasing antelopes, wolves, foxes, hares, &c., the *Ernes*, or *Sea-eagles*, the *Osprey*, or *Fish-hawk*, and the *Griffins*.

The FALCONS also belong to my tribe. They have not so powerful a flight as we Eagles, but they are more swift. A Falcon has been known to fly 1350 miles in twenty-four hours, which, allowing for its rest at night, makes about 80 miles per hour. The Falcons, again, have wings more pointed than ours, and can fly *against* the wind, and can wheel about more easily than we can. As they fly so well, they seldom stoop to the earth to attack animals, but they pursue birds of rapid flight, such as ducks, pigeons,

and snipes, and follow them for many miles. Their easiest prey, however, are the heavy-flying birds, such as partridges, pheasants, and quails. The principal falcons are the *Peregrine Falcon*, the *Jer Falcon*, the *Lanner*, *Merlin*, *Kestrel*, and others.

Another group belonging to my tribe are the *Hawks*. Hawks have shorter wings than falcons; they do not fly high and stoop down upon their prey; but they *dart* along the ground almost in a straight line, just as an arrow would if shot from a bow. They thread woods, glens, and ravines, and fly chiefly at birds found near the ground, such as pheasants and pigeons; they often attack hares. The farmers in this country will tell you how daring and persevering hawks are—how the *sparrow-hawk* will pursue its frightened victim through open windows, into rooms, barns, and churches, without caring for man. The *Goshawk*, the *Sparrow hawk*, the *Buzzards*, and *Harriers*, belong to this group. You may also include in it the *Kite*, which "*sweeps through the air in wide circles, sailing on its outspread wings*;" it sometimes mounts to such a height that it is almost invisible.

Now, children, tell me what name you would give to this tribe? It is, you see, composed of three families—*Eagles*, *Falcons*, and *Hawks*?

Ion. I should call it THE EAGLE TRIBE.

Eagle. True! so should I; and that would be a proper name for it, seeing that I am

"the king of birds." But only think of the perversity of the men who write Natural History books! Do you know that they call this great division of our order the *FALCONIDÆ*, or *Falcon tribe*? Of course I think it an error.

The next tribe are the *VULTURE TRIBE*. These birds have *bills* which are larger and straighter than ours, and not notched. Their *head* and *neck* are bare of feathers; and instead of having their legs covered with feathers down to the toes, their *tarsi* (or shanks) are bare. You will see that there is a good reason for this soon. They are not such swift or strong fliers as we are, nor do they *kill* their prey; they feed on carrion—the decomposed flesh of dead animals.

On account of their habits the vultures are useful in hot countries, where the putrid flesh of dead animals would poison the air around. Here they principally abound; but oh! it is a shocking sight to see the filthy creatures! Suppose a vulture to find a dead camel—he plunges his naked claws into the carcase, thrusts his head and neck deep into the soft putrid flesh; and gluts and gorges himself until he is quite full.

W. Now, I understand why the vultures have naked necks and legs; for, if those parts were covered with feathers, how very dirty they would become!

Eagle. True; and you may see, too, why the vultures do not fly as well as we do. In the first place, they *need* not

—they eat their food where they find it, and do not carry it off to their nests; then, in the second place, they often cannot. They fill themselves with food until the craw forms a large protuberance, and then “they remain for some time in such a state of stupidity that they may easily be approached, and knocked down with a stick.” How can a vulture fly well when it is in such a state?

The principal species of this group are—the *Tawny Vulture*, the *Egyptian Vulture* (or *Pharaoh's Chicken*), the *Condor*, and the *King Vulture*. The *Secretary Bird*, which lives in the dense thickets of Southern Africa, and feeds upon serpents, may also be included amongst the vultures. This tribe is called the *VULTURIDÆ*.

Ion. Thank you. Perhaps you can tell us next of the third group.

Eagle. I will just mention them. The two tribes which I have spoken of are *diurnal* birds of prey; but the next tribe are *nocturnal*. Do you know what the Latin word *nox* means?

W. Yes; it means night: and *nocturnal* means *nightly*. What birds of prey are *nightly*?

Eagle. Owls are. And—but of course you have seen an owl—I need only add, that in the third group are included (1) the *Typical Owls*, such as the common *Barn Owl* and others; (2) the *Horned Owls*, such as the *Eagle Owl*, the *Great Snowy Owl*, and the *Burrowing Owl*; and (3) the various *Hawk Owls*: that these animals live as the rats do, in ancient ruins, old church towers,

and barn-lofts; and even in the deserted burrows of rabbits, marmots, and other rodents: that they eat small mice, moles, reptiles, insects, hares, rabbits, birds, &c.: and that they form the *Owl Tribe*, or *STRIGIDÆ*.

You now know what are the principal animals in my order. In what are they all alike?

Ada. They all eat flesh.

Eagle. That is right; and thus you see what is the most suitable name for the order. We are called the *RAPTORES*, or *BIRDS OF PREY*.

W. Thank you. Now I can make a little memory lesson.

Memory Lesson 26. BIRDS.

Order 1. RAPTORES. (Birds of Prey.)

The *Birds of this order resemble the carnivorous order of Mammals, in being fitted to prey upon others. They have powerful sharp bills, which are hooked, and in some cases notched, for tearing the flesh of the animals they feed on. They have muscular bodies, great strength and length of wing, and are furnished with strong hooked talons, which are sometimes retractile, like those of the cat tribe.*

The order includes three divisions:—1. The *FALCONIDÆ* (or *Falcon tribe*), in which are the families of *Falcons, Eagles, Hawks, Kites, and Buzzards*. 2. The *VULTURIDÆ* (or *Vulture tribe*), in which are the families of *Vultures*. (These two divisions are “*diurnal*” birds of prey.) 3. The *STRIGIDÆ* (or *Owl tribe*), which are “*nocturnal*” birds of prey.

BIRDS.

ORDER 2.—PERCHING-BIRDS. (*Insessores*.)

Parrot. THE meeting of yesterday having been adjourned until to-day, I have to introduce to your notice Mr. Carrion Crow:—



The Carrion Crow.

Carrion Crow (coming forward). The duty—indeed, I should say the *heavy responsibility*—devolves upon me of representing the highly important and wide-spread order of Perching-Birds.

In one respect I am something like the Editor of PLEASANT PAGES—I am very fond of reading Dr. Carpenter's books. In Carpenter's "Zoology," which I now hold in my—claw, is an account of myself. Allow me to present it to you.

"The intelligence of the crow is much above that of the generality of birds."

That is *very* true.

"It often shows a great deal of sagacity in its natural actions"—

That must mean in all my actions; for I never do an *un-natural* action.

"—and it possesses an unusual degree of docility."

That depends upon circumstances—but I will not make remarks. The remainder of the description you may depend upon.

"The crow tribe are usually of a courageous and active disposition; but are at the same time extremely vigilant and cautious."

"The crows have more than any other birds the power of adapting themselves to a variety of circumstances; thus the wide extent of their distribution is accounted for."

And the fact that crows have a wide extent of distribution will account for the circumstance of my having observed so much. I can tell you the names of *all* the principal Perching-Birds, for I have lived a long time, and have seen very much. Here begins the history of the birds which belong to my own order.

Once I was walking in a newly-ploughed field; and very disconcerted I was. I looked in vain for grubs, slugs, and worms; I would have been glad even of some carrion—the carcase of a small bird that might have died by accident—or I would not have minded pecking a few grains—when, as I was grumbling to myself, I saw a *Magpie* with a straw in its mouth. *Ca-a-aw!* I exclaimed; that bird is not unlike me; and I began to think. Not having eaten anything for a long time, I was in the mood for contemplation.

W. And why did you think that the *Magpie* was like yourself?

Crow. In the first place, it had “four slender and flexible toes, with long, slender, and slightly-curved claws;” the hinder toe was placed on the same level with the front ones, and was long; so that the foot was fitted for grasping and perching. Thus I found that, like myself, it spent much of its time on the trees. The whole form of my body and wings had almost led me to suppose that we belonged to the order *Raptores*, or birds of prey, which the *Eagle* has described; but there were three things against us: first, we had the inveterate habit of *perching*; secondly, though our claws are sharp, they are not *retractile*; and, thirdly, we cannot resist the temptation of eating a little vegetable food now and then, when we are hungry, which the birds of the first order never condescend to do.

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Ion. And when you discovered that you could not belong to the order *Raptores*, what did you do?

Crow. From that time I became a student. I set to work to find out what order I did belong to, and to notice other birds. The three particulars which I had observed in myself and the *Magpie*, I also found in the *Sparrow*, the *Rook*, the *Jackdaw*, the *Bullfinch*, the *Starling*, *Chaffinch*, *Goldfinch*, *Linnet*, *Lark*, *Swallow*, *Bird of Paradise*, *Canary-bird*, *Tomtit*, *Thrush*, *Blackbird*, *Redpoll*, and an amazing number of other little songsters. All of these I have since proved to belong to Order 2, the *Perching-Birds*.

W. Do you mean to say that all those birds would eat carrion as you do?

Crow. No, no. I ought to say that my tribe are almost the only carrion-feeders in the order. “Some eat *winged insects*; others eat *grubs* and *worms*, as I do; others, *soft, pulpy fruits and berries*; others, *seeds*; others, *vegetable juices*; others kill and eat *young and small birds*; and others eat food of a *mixed character*.”

I may tell you, too, that the *habits* of all these birds are different. Most of them live in the trees or in bushes; and they have great skill in the art of nest-building. One or two build on the ground, others *burrow* in the sandy earth, and others fasten their nests to houses and chimneys. They generally furnish their dwellings with a great number of eggs,

and from them they sometimes produce two broods of young ones in the year.

You may notice, lastly, of the perching-birds, that nearly all have beautiful voices, and a great taste for singing. In fact, if you look amongst the names I have mentioned, you will see that the songsters of this country belong almost entirely to our order. Have you not heard the melodious warblings of the Lark, the Blackbird, the Thrush, the Canary, the—but I will not anticipate. Even my own voice—

W. Ha-ha!

Crow. You may laugh, sir! but how do you know that your taste is a correct one? I have been spoken of as "hoarse," but such words are ignorance; I have never known what it is to have a cold. I—(But the personal allusion to his voice seemed to have caused such mortification to the speaker, that he was unable to proceed.)

L. I think, Mr. Crow, that it was very rude of Willie to laugh at your voice. I think that the cawing of the rooks and crows is the sweetest music of the country.

Crow. Very true! But now I must complete the account of my order.

After I had observed these birds for a long time, I was able to arrange the order into four divisions. I noticed, first, that a great number were *graminivorous* (seed-eating), or *omnivorous* (eating various foods); and, secondly, that all these were alike in the form of the beak.

W. What sort of a beak have they?

Crow. Here is the beak of an omnivorous bird; or you may look at *my* beak, which is much like it.

You see that the margin of this beak is not notched; it is therefore said to be *entire*. The shape of the beak is that of a *cone*. Now, the Latin word for beak is *rostrum*; therefore the division which consists of birds with cone-shaped bills is called *CONIROSTRES*.

I may add concerning the *Coniostres* that they are distinguished by the form of their feet as well as their bills. Their feet are so constructed that they can walk on the ground almost as easily as they can perch upon branches. Do you know why that is?

W. Yes; because the insects and grubs which they eat live in the ground.

Crow. True. The second division in the order consists of birds which feed on *small birds* and *insects*. Here is one of their bills.

It is, you see, like that of a bird of prey, and has a *notch* or *tooth* in the upper *mandible*. The Latin word for tooth is *dens*; therefore the division of tooth-billed birds is called *DENTIROSTRES*.

Here is the bill of a Hum-



ming-bird—a member of the



third division. Most of these birds suck up vegetable juices for food; so they do not want notched bills. This bill, you see, is long and slender. From the Latin word *tenuis*, slender, we call the slender-billed perchers **TENUIROSTRES**.

The birds of the fourth division have gaping beaks. Here is the bill of a Swallow that I once knew. I have often seen



her darting through the air with her bill wide open! This bill used to serve her as a trap to catch the swift insects when flying. The Latin word for divided, or gaping, is *fissus*. The division of perching-birds with gaping bills is therefore called **FISSIROSTRES**.

W. If you have time, Mr. Crow, we should like you to tell us about the birds which belong to each tribe.

Crow. I will do so with pleasure.

TRIBE I.—CONIROSTRES.

The first tribe, **CONIROSTRES**, contains many important families. That to which I belong is called the *Crow* family, or **CORVIDÆ**. The principal members are myself and the *Hooded Crow*, the *Rook*, the *Jackdaw*, the *Maggie*, the *Jay*,

and the *Chough* or *Red-legged Crow*.

The second family of the tribe contains the *Starling*, the *Australian Bower-bird*, the *Grakle*, and others. The *Grakle* is very useful in the Indian Isles, because it feeds upon locusts, which are so destructive in those countries. These birds have not much voice of their own, but they may be taught to sing, and even to talk. They all feed upon worms, insects, grubs, &c.; and they are, in fact, something like miniature Crows—their bills are perhaps more slender. They are called the *Starling family*, or **STURNIDÆ**.

The third family of **Conirotres** is a very large one. How frequently I have observed them in the fields, woodlands, hedgerows, and groves; or, in the summer evening, have sat and listened to their beautiful song! They are all little creatures, and feed mostly on grains and seeds; they are therefore provided with hard bills, and are known as the *hard-billed warblers*. The principal are—the *Red-poll*, the *Linnet*, the *Lark*, the *Buntings*, the *Sparrow*, the *Hawfinch*, the *Bullfinch*, the *Goldfinch*, the *Canary*, the *Tanagers*, and the *Crossbill*. They form the family of *Finches*, or **FRINGILLIDÆ**.

I may add respecting this family that scarcely any of them migrate, for I suppose you know that many birds leave the country during winter for warmer climates.

L. Then how do they live during the hard winter?

Crow. I will tell you. You have heard in many former lessons that fat is necessary to supply *carbon* for respiration. You may remember how, when the autumn comes, the hedgehog, and many other animals that are *torpid* during the winter, eat an abundance of food before they go to sleep.

Ion. I remember; and when they wake up in the spring they are very lean.

Crow. True. Now, in the autumn, when the berries and grain are ripe, all the little birds become very fat. They cannot lay up a store for the winter, as the squirrel can; but they store up the nourishment within their bodies.

W. Which is a very good plan, because it then cannot be taken away from them.

Crow. No; but this fatness, like too much of a good thing, often turns out for their misfortune. The nourishment which would support them during the winter is also good for the support of *man*! Just at this time of the year man finds them to be useful as *articles of food*. In the neighbourhood of Dunstable, for instance, immense numbers of *Sky-larks* are taken and killed, and sent to the London market; more larks are brought over from Holland, where many *Buntings* are also fattened for food. I certainly think it is a very hard case for the birds to be used for such a purpose.

L. Very. Yet, do you know, that their fat does not always supply heat enough to resist the cold? I read a long time

ago, in some work (I forget its name), of a naturalist who found a number of small birds which had all huddled together to keep one another warm; but it was all of no use—the cold was too strong for them, and they perished.

Crow. Ah! I never heard of that. The other families of *Coniostres* are—the *Birds of Paradise* (PARADISEIDÆ), and the *Hornbills* (BUCERIDÆ)—but I must hasten on to the second tribe of our order.

TRIBE 2.—DENTIROSTRES.

The *Tooth-billed Birds* live almost entirely on animal food. This you would suppose to be the case from the notches in the upper mandibles of their beaks. They not only eat insects and worms, but some feed on small birds and reptiles.

The first family contains the *Nightingale*, the *Blackcap*, the *Wood Wren*, the *Golden-crested Wren*, the *Wheat-ears* and *Stone-chat*, the *Hedge-Sparrow*, the *Titmouse*, the *Wagtails*, and others. These very much resemble the *Finches* of the tribe *Coniostres*; but, as they do not eat hard grains, their notched beaks are not hard; and these families are known as the *soft-billed Warblers*, or SYLVIIDÆ.

The second family of *Dentirostres* contains the *Common Thrush*, the *Golden Thrush*, the *Blackbird*, and the *Mocking-bird*. They are called the *Thrush family*, or TURPIDÆ.

The third family contains the

various *Fly-catchers*, and is styled MUSCICAPIDÆ.

The fourth family contains the various birds called *Chat-terers*, which are known as the AMPELIDÆ.

The fifth and last family contains the largest and most rapacious of the Dentirosres. They are called *Shrikes*, or Butcher-birds (LANIADÆ). The notch in their bill is more marked than in those of the other families; and they are just as much allied to the Birds of Prey as the Crows (of the tribe Coniostres) are. Ah! the Butcher-birds certainly are cruel creatures! I once saw a sight which I shall never forget. I saw a Shrike flying down from its nest, which was built upon a very high tree; she settled on a perch, and sat motionless, watching for her prey. After a long time, a small, quiet bird was seen hopping about on a hedge, and she suddenly darted down upon it. When she had seized and killed it, she had the cruelty to stick it upon a large thorn, which she fixed through the poor thing's body. She then amused herself by tearing it to pieces with her sharp-toothed beak, eating now and then a piece at her leisure. I have since found that this is quite a common thing with some Shrikes; that some take their prey home to their nests to be eaten—no one knows how; that others even attack young rabbits, striking the back of their skull with their bills, while others prowl about in the bushes and under-wood, stealing great quantities

of eggs, and killing poor birds who may be sickly or weak. Bah! this is too inhuman an act to be talked about; let us talk of the third tribe. I wouldn't be a Shrike!

L. Not for the world, I suppose?

Crow. No, indeed.

TRIBE 3.—FISSIROSTRES.

This tribe includes the *Goat-sucker* family (CAPRIMULGIDÆ), such as the *Whip-poor-Will* and the *Night-Hawk*; the *Swallow* family (HIRUNDINIDÆ), such as the *Common Swallow*, the *House Swallow* (or *Martin*), the *Sand Martin*, and the *Swift*.

You would like very much to hear about this interesting family—of the rapid flight of the Swifts, which keep on the wing for sixteen hours together, and fly at the rate of 100 miles an hour.

W. That is at the rate of 1,600 miles per day!

Crow. Yes. Think, then, how many countries they could traverse if they continued in a straight line. You may suppose how light of body these little creatures must be. The Black Swift spreads out its wings to the extent of eighteen inches, yet it does not weigh more than an ounce. I should like to tell you of the *edible birds'-nests* built by the Swallows of Java;* but we must talk of the other families.

The third family of the Fissirostres are the *Todies* (TODIDÆ); but the only members that visit the temperate

* See Fireside Facts, page 88.

parts of the world are the *Rollers*; the others are found in tropical climates.

The fourth family are beautiful birds. How well I remember my first acquaintance with one of its members! It was on a sultry afternoon, when I was sauntering about amongst the shady trees by a river-side; for I had nothing particular to do. I was watching the running water, and the shadow of an overhanging bough, which seemed to dance on the surface, when, as I looked, a beautiful bird, with a brilliant green coat, which was very smooth and glossy, settled on one of the branches. He was a round, podgy-shaped fellow, with a body rather large, small feet, a shortened tail, a short thick neck, and unusually long bill. As he stood still looking intently in the water ("you vain creature!" I thought, "you are admiring your beautiful self;" but I forgot that the water was in motion), I had time to observe that his bill was four-sided, and dagger-like. He was pointing it downwards to the water, and was as motionless as a cat watching for a mouse, when suddenly he was gone! So quickly, that I could not see him, he had plunged headlong into the water; and in less than a minute he was up again with a *minnow* between the mandibles of his beak. Then he was very busy! He was all bustle and motion! Without holding it loosely, he let the fish pass through his bill until he fairly held it by its tail. He then shook it, and

struck its head smartly against the branch three or four times, until it was dead. He was then going to gulp it down at one mouthful, when he appeared to alter his mind. He thought it seemed a tender fish, and he carried it off to his little ones at home.

Ada. Where did he live?

Crow. In the bank—

W. What! in the City?

Crow. No—no; in the bank of the stream; his nest was situated in a hole. I have found that the Kingfisher, after it has eaten, disgorges the bones and scales, and other parts of its prey which are undigestible. The *Puff-birds* and the *Jacamars* of South America also belong to this tribe, which is called the *Kingfisher* tribe, or *ALCEDINIDÆ*.

The fifth family of *Fissirostres* are the *Bee-eaters*, or *MEROPIDÆ*. They are found in *Australia* and other parts of the Eastern Hemisphere. One, the *Common Bee-eater*, sometimes comes over to England during the summer; it is of a beautiful sea-green colour, with a golden-yellow neck, and a half-collar of black. It not only eats bees, but wasps.

TRIBE 4.—TENUIROSTRES.

The families of the slender-billed birds are mostly foreigners. The principal are—(1) the *Humming-bird family*, or *TROCHILIDÆ*; the humming of this family is caused by the rapid motion of their wings; (2) the *Sun-birds*, or *CINNYRIDÆ*, which are noted for their sparkling plumage and rapid move-

ments; (3) the *Honeysuckers*, or *MELIPHAGIDÆ*; (4) the *Hoopoes*, or *UPUPIDÆ*; (5) the *Creepers*, or *CERTHIADÆ*, in which are included the European *Wrens*, the *Nuthatch*, the *Lyre-tailed Bird* of Australia, and others. Some of these families are highly interesting; but I feel, at this protracted hour of the evening, that I should be intruding too much on—(Here the Crow was interrupted by a clapping of hands, a thumping of feet and umbrellas, and other sounds, and a general rising from their seats on the part of Willie, Ada, and the rest of the company—all of which signs meant "Yes, he would be intruding"—and the meeting abruptly terminated.)

The following memory lesson was written by Papa after the meeting had gone to bed.)

MEMORY LESSON 27.—BIRDS.

Order 2.—INSESSORES.

(Perching Birds.)

The birds of this order are

known (1) by having four slender and flexible toes, with long and slightly-curved claws, which are fitted for grasping; (2) they are smaller than the *Raptores*; (3) they are granivorous and omnivorous; and (4) most of them have beautiful powers of song.

The order is divided into four tribes.

1. The Cone-billed birds, or *CONIROSTRES*, including the families of *Crows*, *Starlings*, *Finches*, *Birds of Paradise*, and *Hornbills*.

2. The Tooth-billed birds, or *DENTIROSTRES*, including the families of *Soft-billed Warblers*, the *Thrushes*, the *Fly-catchers*, and the *Shrikes*.

3. The Cleft-billed birds, or *FISSIROSTRES*, including the families of *Goat-suckers*, *Swallows*, *Todies*, *Kingfishers*, and *Bee-eaters*.

4. The Slender-billed birds, or *TENUIROSTRES*, including the families of *Humming-birds*, *Sun-birds*, *Honey-suckers*, *Hoopoes*, and *Creepers*.

THANKFULNESS.

ALMIGHTY King! whose wondrous hand
Supports the weight of sea and land;
Whose grace is such a boundless store,
No heart shall break that sighs for more.

Thy providence supplies my food,
And 'tis thy blessing makes it good;
My soul is nourish'd by thy word,—
Let soul and body praise the Lord!"

MULTIPLICATION.

Ada. I CAN understand multiplication now. Will you please give me some examples?

P. Yes; but before doing so I may as well mention one or two names which are given to the different parts of a multiplication sum. In the last sum, the part multiplied, the £4 12s. 6 $\frac{1}{2}$ d.—is called the **MULTIPlicAND**; the number 5, by which you multiply, is called the **MULTIPLIER**; while the number which is produced by multiplying the multiplicand is called the **PRODUCT**.

Exercise 14.—MULTIPLICATION.

If three bags contain 189 marbles each, how many do they contain altogether?

There are eight windows in one house, and each contains sixteen panes of glass; how many panes of glass are there altogether?

Our clock struck *thirteen* nine times; how many strokes did it strike?

Four boys went out for a walk, and each walked 14 miles; how many did they walk altogether?

659	642	396
2	2	2
1318	1284	792
896	378	974
5	7	9
4480	2646	8766
486	687	758
3	4	5
742	597	609
10	12	8

4276	64321	75268
4	6	3
9468	43256	74879
7	9	10
45687	63875	47389
11	9	12

Multiply 87546 by 4

— 7
— 9
— 6
— 3
— 5
— 10
— 11
— 12

Exercise 15.—COMPOUND MULTIPLICATION.

What do 4 lbs. of butter come to at 1s. 1d. per lb.?

What do 6 lbs. of tea come to at 5s. 3d. per lb.?

What do 7 gallons of spirits come to at 6s. 9d. per gallon?

Patrick gets 1s. 9d. per day; how much is that in 6 days?

A grocer bought 12 cwt. of sugar, for which he paid £3 9s. 7 $\frac{1}{2}$ d. per cwt.; how much did he pay in all?

I bought eight dozen pair of gloves at 2s. 3d. per pair; what did the whole cost me?

A farmer bought 12 cows; they cost him £9 12s. 6d. each; how much did they all come to?

Bought 11 barrels of herrings at £1 8s. 7 $\frac{1}{2}$ d. each; what did the whole cost?

Sold eight oxen, and gained upon each £2 11s. 7 $\frac{1}{2}$ d.; how much did I gain?

Bought 11 loads of hay at £3 17s. 7 $\frac{1}{2}$ d. each load; how much did they come to?

FRIDAY.

PLEASANT PAGES.

ARITHMETIC.

A farmer paid in rent £246 16s.
6d. every year; how much did he
pay the landlord in the course of
nine years?

£ s. d.
64 7 4½
2

128 14 8½

79 18 4½
5

£ s. d.
57 16 8¾
4

231 6 11

43 14 7½
7

£ s. d.
7 17 11½
8

78 16 7¾
11

68 10 11½
8

£ s. d.
87 12 4½
10

67 16 10¼
9

39 19 6¾
6

THE BEGGAR-BOY.

I'm a poor little beggar, my mother is dead;
My father is cruel and gives me no bread:
O'er London's wide streets all the day long I roam,
And when night comes on, I have not any home.

I would not be idle, like some wicked boys,
So I got me a basket with trinkets and toys;
Nobody was e'er more industrious than I,
Nobody more willing to sell if you'll buy.

In summer, gay flowers and nosegays I sell,—
Sweet cowslips, and roses, and jasmines to smell:
Watercresses for breakfast, fresh gather'd and green,
From bad weeds and hemlock pick'd careful and clean.

But alas! 'tis in vain that I mournfully cry,
And hold out my basket to all who pass by;
I fancy they're thinking of other affairs,
For they seem not to notice me or my wares.

Oh, had I a coat, if it were ever so old,
This poor trembling body to screen from the cold;
Or a hat from the weather to shelter my head,
Or an old pair of shoes, or a morsel of bread.

In the evening I wander, all hungry and cold,
And the bright Christmas fires through the windows behold:
Ah, while the gay circles such comforts enjoy,
They think not of me, a poor perishing boy!

NINETEENTH WEEK. NATURAL HISTORY.

MONDAY.

BIRDS.

ORDER 3.—SCANSORES. (*Climbing-birds.*)

THE adjourned meeting of said, call upon my acquaintance, Ada and her friends having assembled, the parrot presided.



Ada's Parrot.

The parrot, on rising to his perch, said that the standing order for the day was—the consideration of the third order of BIRDS. I shall therefore, he

6

The wood-pecker hereupon gave two or three loud taps with his beak. He admitted that he belonged to the third order, and knew most of its members; but he added, I have been privileged to hear the introductory address of an able and learned friend, the parrot. After such eloquence I should, I am sure, feel it to be quite out of place for me to attempt any description of our order while he is present.

The parrot now came forward with a profound bow. (*See cut.*)

I must say, he began, that my feelings on the present occasion are of no common order. I cheerfully take upon me the duties which have been so modestly declined. You all know that I am exceedingly fond of talk.

The birds of our order may be at once known by their claws. Look at those of my friend the woodpecker, or my own claw. You see that we are able, whenever we wish, to turn one of our toes backward; then we have two behind

U

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and two in front. We are also able to cling firmly to a perch, but we are not well able to walk on the ground, or to fly. We are adapted rather for living on the trees, where we spend most of our lives. In other respects the birds of this order are much unlike each other. They differ in their food and appearance.

Look at my friend the woodpecker, how unlike myself he is! The first time that I met him I was in a thick wood, and was perched on the top of a decayed old tree. I was startled by hearing a tapping noise; and if I had learned to talk as I do now, I should have said "Come in!"

Ada. Which would not have been suitable.

Parrot. Perhaps not; but when I looked about I saw the woodpecker walking up a branch which was almost perpendicular. I wondered he did not fall, but then I noticed that his two hind toes prevented him from slipping backwards. He was further kept up by his stiff tail, which formed a famous support for his body to rest upon. It just answered the purpose of a stick, such as a traveller often takes with him when journeying up a mountain.

W. Yes; when you are walking up a hill, if you push behind with a stick it helps you up very much. And then, when a heavy cart is being dragged up hill, if you put a little stone underneath the back part of the wheel, it prevents it from rolling downward.

Parrot. And the wood-

pecker's tail answered the same purpose. I noticed his *beak* as he tapped. It was not hooked like mine, but was more wedge-shaped; it seemed to answer the purposes of a hammer and a chisel.

Ada. But please tell me what he tapped the tree for.

Parrot. To find out whether it contained any insects. He seemed to know that the branch was not sound, and that the rotten bark was loose. So when he had tapped, he listened to discover whether there were any insects between the bark and the wood. There *were* some! His tapping noise had frightened them, and he heard their motions as they tried to run away. He pecked at the bark, and quickly chipped off a piece, as easily as a carpenter would with a chisel. The insects, too, had made haste; most of them had crawled underneath the bark further up the branch. But if they thought that they had then escaped they were mistaken, for the woodpecker thrust his tongue *underneath the bark* to catch them.

Ada. What was the good of doing that?

Parrot. Why, his tongue was covered with a sticky slime; it was also very long, and was armed with barbs, like the teeth of a rake. When he withdrew it from underneath the bark it had many insects sticking to it.

L. That is a curious way to catch insects! It reminds me of the account of the *Ant-eater*, in the 8th order of Mammals.

Parrot. Yes. I should add that I once called on my friend

the woodpecker, and was surprised at his *nest*. His establishment was quite unfurnished, and was merely a hole pecked in the soft wood of an old tree. Mrs. Woodpecker had laid two or three eggs, but there was nothing soft between them and the bare wood.

The various kind of *Woodpeckers*, the *Wryneck*, and others, form the Woodpecker-family of climbing-birds, or *PICIDÆ*.

The second family of climbing-birds are the *Parrots*. Our family feed principally on fruit, seeds, and honey. Like the woodpeckers we thrive best in the tropical and warmer temperate climates. Our beaks are not like those of the woodpecker; see how short and curved mine is!—the *upper* mandible is peculiarly hooked. My claws, too, are worth noticing. Unlike birds in general I sometimes use my claws for *holding my food to my mouth*. You know, too, how firmly I can grasp with them. Their “prehensile” power is such that I am quite remarkable for climbing and swinging. On this account, and on account of our abode in the trees, our tribe has been compared to that of the monkeys in the class *MAMMALS*. The different families with which I am quite connected are the *Maccaws*, the *Parroquets*, the *Cocka-*

toos, the *Love-birds*, the *Lories*, &c. These are known as the *Parrot tribe*, or *PSITTACIDÆ*.

The third family of climbing-birds are the *Toucans*, or *RHAMPHASTIDÆ*. They are known by their long curved bills, which however are very light. They are found principally in tropical America, where they eat *fruit, small birds, and eggs*.

The fourth tribe in our order are the *Cuckoos*, or *CUCULIDÆ*. They visit Britain during the summer, and feed on *insects, worms, and soft fruits*. The other important members of this family are the *Cowcows* of America, and the *Indicators*, or *Honey-guides*, of Africa. The latter birds are celebrated for the habit of guiding the natives to the haunts of the wild bees.

Memory Lesson, 27. BIRDS.

ORDER 3.—SCANSORES.

The birds of this order are distinguished (1) by their toes, which they can arrange so as to have two in front and two behind. (2) They are neither good fliers nor good walkers, but are better fitted for an “arboreal” life. (3) They differ very much in their food and structure.

The principal families of the order are the PARROTS, the WOODPECKERS, the TOUCANS, and the CUCKOO.

God gives his mercies to be spent;
Your hoard will do your soul no good;
Gold is a blessing only lent,
Repaid by giving others food.

BIRDS.

ORDER 4.—THE SCRATCHING BIRDS. (*Rasores*.)

Parrot. As chairman of the adjourned meeting to consider the order of *scratching* birds, allow me to introduce to your notice the TURKEY-CK, from America, who will describe to you——

Cock (coming forward). Allow me to introduce myself!



The Cock.

I have much pleasure in doing so. If ever you have seen me *scratching* on a dung-hill—(But the speaker was not allowed to proceed. He was stopped by the chairman, who declared that he had committed an uncalled-for act of rudeness—the whole assembly cried *Shame! Down with him! Turn him out!*)

The Turkey-cock behaved on the occasion with some dignity. He became very red in the

wattles which hung from his head, and the spread-out appearance of his feathers and tail expressed indignation; but he had too much comfortable self-importance to acknowledge that he was disturbed.

But the cock maintained his ground; he answered the chairman by remarking—*cock-a-doodle doo*—the Turkey on his part asserted *gobble-gobble-gobble*, by which he was understood to say that the cock was nothing but a Chartist, a disgusting stump-orator;—and with this he quitted the meeting.

The cock, now seeing that he had gained the day, had no objection to apologise for the step he had taken. He said that it was a very rash one—a mere impulse; and that he regretted it very much; “but,” he added, “as I am here, it may be as well perhaps for me to proceed:”—

I am (began the cock) the representative of the *RASORES*. In our order are included—Turkeys? Yes, Turkeys, Fowls, (I am a *male* fowl) Peacocks, Pheasants, Partridges, Quails, and Guinea-fowls. Besides these are all kinds of Pigeons, Curassow-birds, Grouse, Sheath-bills, and others.

I dare say you have seen (I am afraid you may have *tasted*) some of these birds. You may easily see how we are distinguished from the preceding

orders. (1.) We are made to pass our time on the ground, therefore we have not much power of *flying*—our wings are weak. (2.) We subsist chiefly on grains and seeds. We often have to procure these by scratching; so you see that our class are furnished with short, strong, and bent nails, which are just fitted for that purpose. No doubt you have noticed me in the farm-yard. (3.) Our legs are long enough to allow us to walk *easily* on the ground, and (4) we have gizzards which are very strong and muscular. You may remember that when we pick up the grains of barley which you throw down to us, we never stop to *chew* them. So you can understand that these grains require a very strong gizzard to digest them. (5.) You may observe that we all have a large *crop* for retaining our food.

(6) Our *young ones* are worthy of notice. You will find that they are hatched with their eyes wide open; they are, at that time, covered with downy feathers and are able to run about and take care of themselves.

Now, you know how mankind tamed us (or nearly all of us)—you know how mankind watch over us, take care of us, love us, and *eat* us. Tell me then what quiet order of MAMMALS we resemble.

L. I should say that you are like Order 9, the Ruminating Animals.

Cock. A very respectable order—true; that is what I say.

Are not the Ruminants pure vegetable feeders? So are we.

Have not the Ruminants a large *paunch* as a store for their undigested food? We also have a large *crop*.

Are not the Ruminants domesticated and the companions of man? So are we. Have not the Ruminants large *fleshy* bodies which may be easily fattened? So have we.

Are not the Ruminants of service as *food* to man more than any other order of their class? So are we.

It is said, too, that the Ruminants have *less intelligence* than other mammals; people say also that *we* have less intelligence than other birds, *but*—I cannot judge on that subject; I had better at once describe to you the divisions of our order.

The first division I shall mention is the *Pheasant tribe*, or PHASIANIDÆ. I and all the varieties of *fowls*, the Cochins, China fowls, the bantams, and others, belong to the pheasant tribe. There is a peculiarity in this tribe which you may see, particularly in my own self. Most tribes live together in *pairs*, one male and one female. But I am different! I come from the *East*! In those parts man is often not content with one wife. Such is the case with me. I am a mighty Sultan! When I strut the farmyard the train of hens which belong to my harem follow and answer to my *cluck-cluck*.

W. But that is only when you have found something good

for them. I have seen the hens run away from you.

Cock. Never mind that. I wanted you to observe that in our tribe there is only one male bird to several females, instead of their being arranged in pairs.

Ion. Such as you see among the Ruminants—one bull with several cows, and one ram in a flock of sheep.

Cock. That is true. I want you to observe what dignity we have!

L. Who?

Cock. We male birds. In the privileged order of Rasores we males never help to build the nest—we make the females do all that. We never sit on the eggs to hatch them, nor have anything to do with the business of the nursery. How inconsistent it would seem to see a cock at work in a hen-coop; or to see him strutting about as the father of a family, with a tribe of little ones at his heels! No, no; it is far more dignified for the Cock to go out for a walk! Look at the comb on my head, and the wattles under my chin! Look at the spurs on my heels; the graceful, flowing, resplendent, and distinguishing feathers of my tail, and say whether Nature made me as a maid-

of-all-work, or a gentleman?

No! here are three general and important facts respecting the Rasores. Add them to the six I gave you at first, and you will have nine.

7. They do not associate in pairs. (They are "polygamous.")

8. The male birds do not help to rear the young.

9. The males are distinguished by ornamental appendages to their head and tail.

But I see that we are getting into general particulars again, and I was talking about the tribes of the order.

The *Pheasant tribe* (PHASIDÆ) includes the Fowl family, and the families of Pheasants, Partridges, Turkeys, Quails, Peacocks, &c.

The *Grouse tribe* (TETRAONIDÆ) includes the Black Grouse, Red Grouse, and Ptarmigans.

The *Curassow birds* (CURASSIDÆ), which are found in many of the warmer parts of South America, resemble the Turkey and the Pheasant. The *Sheath-bills* (TINAMIDÆ) and other birds which—(but here the lecturer was ignominiously interrupted by "our own reporter," who declared that the lecture had already filled three pages.)

CHEER'D by the balmy breath of May,
The feather'd choirs fill every grove;
The fields are deck'd with blossoms gay,
And herds in verdant pastures rove:
Shall man the general bliss destroy,
Or thankless pass these scenes along?
No! come with gratitude and joy,
And join the universal song.

BRCK.

THE ENGLISH TRAVELLER.

HERTFORDSHIRE.

"MY DEAR CHILDREN,

"What sort of a county is Hertfordshire?" said a farmer, in reply to my question.

"When he had repeated this question, and thought about it, he told me, first, that there were no very high hills in the county, but that it is 'undulating.' (If you remember the Latin word *unda*, a wave, you may easily understand the word *undulating*—the surface slopes up and down gently, without presenting any great variety of height). Secondly, he said, there are still a great many woods and coppices; and, thirdly, there are many noblemen's parks and pleasure-grounds.

"And the *hedges*, sir, are worth noticing," he added. "Did you notice as you drove through the county how very rich and woody it seemed? Why, the hedges and banks are so high, that sometimes, in a lane which is hardly broad enough for two carts to pass, you cannot, when riding through, see over the hedge—not even if you stand up in the cart."

"Is that a good thing, or a bad thing?" I said.

"Rather bad, sir, because, don't you see, that where there are such high banks and trees alongside of a field a great deal of it must be shaded. It is pleasant to walk in shady lanes, but when the soil is thrown in the shade it is not productive. The trees in the hedges are left

to grow until their wood is useful for firing; then they are cut down to make faggots. These faggots may be sold to the bakers and brick-burners; but the price they fetch does not repay for the injury they have done to the soil when growing."

"Then," I said, "I would not have such tall hedges."

"There are not near so many now as there used to be. Neither have we so many woods. A great part of the poorer soils was once occupied with woods and coppices, which used to be cut about every ninth year. When they contained Spanish chestnut, which is valuable for fences and hurdles, the produce was considerable; but after all, unless you manage woods very carefully the land does not yield so much as when it is cultivated."

"And that is why there are not so many woods now, I suppose?"

"Yes; *wood-land* is less profitable than *arable-land* or *pasture-land*. I should tell you, too, that we have *garden-land* in Hertfordshire. As we are near Middlesex, much of the soil is highly manured to produce early crops of peas, potatoes, and cabbages. These are sold for good prices in the London markets."

"There is much garden-land in Middlesex for the same reason," I said. "Have you

many fine rivers in Hertfordshire?"

"No; I can't say so. The principal are the *Lea* and the *Colne*. Neither river is very large; part of the *New River* also flows through our county. You haven't been to any of our towns yet, sir, have you?"

"No," I said. "I am going on to HERTFORD now."

"Then you'll see a nice, quiet old place. There are a great many schools in Hertford. There is a large and beautiful school-house which is a branch of Christ's Hospital in London; the *junior* blue-coat boys are brought up here. Then there are a free grammar-school, the Green charity-school, two national schools, another charity-school, one or two infant-schools, and other private day-schools. I should not forget to tell you of HAILEYBURY COLLEGE; perhaps you have heard of that place, sir?"

"No, I have not."

"That is one of the institutions where young officers are trained for service in the *East India Company's* army. There are about 100 students. There is a similar college near Croydon, called *Addiscombe College*."

"Yes; I have been there," I replied.

"You will not find many manufactures in Hertford," said my acquaintance; "but there is a brisk trade done there in corn and malt; the corn-market is one of the largest in the kingdom."

"St. ALBANS is one of our best towns; it is very ancient

and interesting. It was built near *Verulamium*—an ancient town situated on the other side of the river *Ver*. *Verulamium* was a scene of dreadful slaughter in the times of Queen Boadicea. It is said that here, and in London and other places, the Britons destroyed 70,000 Roman citizens."

"How is it that the ancient name, *Verulam*, was not kept up?"

"The present name is derived from one of the citizens named *Albanus*. He was the first Christian martyr in England. He suffered in the reign of the Roman Emperor Diocletian. He thus became a "saint;" and in the year 793 an abbey was erected in honour of his name by Offa, King of Mercia."

"St. Albans is famous because two great battles in the Wars of the Roses were fought in the neighbourhood. In the first battle (1455) Henry VI. fell into the hands of the Yorkists; and in the second (1461) his masculine wife, Margaret of Anjou, rescued him."

"I think, do you know, that you'll like St. Albans very much when you go there. The old abbey church still remains. It is a very large place, indeed; and contains St. Cuthbert's screen, and many remarkable monuments. You will like, too, the abbey gateway, and the ancient clock-tower. That old tower is a good subject for a picture."

"In the southern part of Hertfordshire is the town of BARNET; it is named *Chipping*

Barnet on the map. Here another great battle was fought in the Wars of the Roses. EDWARD IV., Duke of York, was the leader on one side, and the Earl of Warwick, the famous "king-maker," opposed him. The latter, however, was slain, and many of the nobility with him.

"At the extreme north of Hertfordshire is ROYSTON: part of the town is in Cambridgeshire. It has a good business in corn and malt. On the downs around the town the *hooded crow* is found; it is called the Royston crow by the inhabitants.

"BERKHAMPSTEAD is in the western part of the county; and in the extreme eastern district of the county is BISHOP STORTFORD.

"WARE is a clean country town. It is situated near Hertford. It has an immense trade in malt and corn. Ware is said to be so called from the weirs, or sluices, made as a protection from the inundations of the sea.

"The village of CHESHUNT is worthy of notice. Here is a college for Dissenting ministers; and in the neighbourhood is *Waltham Cross*. This cross was originally built by King Edward I. It was made to mark the resting-place of the corpse of his wife Eleanor, on its way to Westminster Abbey to be buried. The next and last place at which it rested was *Charing Cross*, in London.

"HATFIELD is situated be-

tween Hertford and St. Albans. Here is *Hatfield-house*, one of the finest specimens of the ancient mansions of England; it is built in the 'Elizabethan' style.

"These, dear children, are the principal interesting points in the history of Hertfordshire, which I gained partly from the Hertfordshire farmer, and partly by observation.

"Your faithful friend,

"HENRY YOUNG."

HERTFORDSHIRE.

(Position.)—HERTFORDSHIRE is bounded on the north by CAMBRIDGESHIRE, on the south by MIDDLESEX, on the east by ESSEX, and on the west by BUCKINGHAMSHIRE and BEDFORDSHIRE.

(Soil.)—*The surface of this county is undulating and does not present many steep hills. The high banks and hedges, and the woods and coppices for which it was once famous, are fast diminishing.*

(Rivers.)—*The principal rivers are the LEA, the COLNE, and a part of the NEW RIVER.*

(Towns.)—*The chief town is HERTFORD, where there is a school-house for the junior Blue-coat school children of Christ's Hospital, London. The other places of note are, ST. ALBANS, WARE, BERKHAMPSTEAD, BISHOP STORTFORD, BARNET, ROYSTON, CHESHUNT, and HATFIELD.*

THE ENGLISH TRAVELLER.

BUCKINGHAMSHIRE.

"MY DEAR CHILDREN,

"As I was waiting for the train on the Aylesbury branch of the LONDON AND BIRMINGHAM RAILWAY, I saw some baskets.

"What is in those baskets?" I said to a curly-headed country boy.

"Them? Them's *flats*."

"Well, then, what is in them" flats?" I said.

"*Here's train*, father!" said the boy, running off without answering my question—and here, truly, was the train, engine and all.

"Oh, dear children, did you ever fall in love with a steam-engine? I have.

"Yes, I have—with that very railway engine—for if ever there was a *straight-forward* character in this world, that engine is one!

"Next time you travel by rail, be sure to notice the engine. See how he keeps on his honest way! On he goes, with joyful swiftness, never turning to the right or to the left until he gains the end of his journey. He may now and then move out of the straight, truthful path, but when he gets into a 'siding', he finds it out to his cost; for very soon some more earnest engine rushes by him at full speed, in all the consciousness and pride of truth, and reaches the journey's end before him.

"And then his voice—the steam-engine is like all hard-working people, he says very little. His only words are *ugh, ugh!* He has made up his mind that *ugh* is a good thing to say, and he'll not say anything else in this world; except, yes, just sometimes, when he is beginning his journey, or enters on his heavy duties in a tunnel—for its all the same, whether light or dark, if he has but some work to do—he breaks into a *scream* of delight!

"Only feed him with coke, give him only cold water to drink, put him in a straight-forward way, and he'll ask no more! Knowing his own strength, he'll dash onward with a shout; and with the satisfaction of doing his duty, he'll grunt on his steady way until his long journey is o'er.

"But about those baskets—*flats* I should say. I found out what was in them. There were some farmers from Aylesbury in the railway carriage who derived their income from the trade done with the flats.

"When you have been in the Vale of Aylesbury, sir," said one farmer, "you'll understand why we do so much business in that line. *There's* pasture-land for you! You don't see many counties with such pastures as ours. In the different dairy-districts there are altogether about 150,000 acres of meadow

and grass land. There are about 20,000 milch cows in the county, and each yields annually about 200lbs. of butter.'

"Then I suppose that the flats which I spoke of contain butter—for you have not told me yet."

"That's it, sir! Each flat is filled with oblong rolls, such as you see in the butter-shops of London. Next time you see a number of flats, you may notice that they are all of the same depth—eleven inches. Each is marked with the initials of the dairyman who sends the butter, and of the carrier who conveys it. The quantity which the flat contains is also marked on it—each will hold from twenty to forty rolls."

"But suppose that your cows have calves," I said; "I hope you are not so cruel as the people of Cheshire, for in that county the people use all their milk to make cheese—and they sell the calves when they are very young, to save the milk."

"And so do we in Buckinghamshire. In the dairy farms we seldom rear our calves; when they are three or four days old we sell them to dealers who live near London. They fatten them to make veal."

"But you are not to suppose that we are cruel," remarked another farmer; "for if we do neglect our calves we rear ducks. We fatten more ducks in this county than in any other part of England."

"And why are you so fond of ducks?"

"Because they fetch such a price," was the reply; "we rear

them very early in the season. The eggs are hatched under hens, and the ducklings are reared in the house. I have known ducklings to be sold in January for 12s. a couple, when they are only six weeks old—what do you think of that?"

"I don't know; but how many ducklings do you sell in the season at that rate?"

"I can't say exactly; but I know that in Aylesbury about £4,000 worth are sold every year, and about £20,000 worth are sent from the whole county."

"And, then," said another farmer, "we sell a great many lambs. Like the people of Dorsetshire we rear our lambs very early, and sell them at a high price; a great many lambs are reared on the Chiltern Hills."

"Where are the Chiltern Hills?" I asked.

"In the southern part of the county, near the river Thames. They are principally composed of chalk, and the name Chiltern is derived from the Celtic word *cyllt*, or *chilt*, which signifies chalk. These hills were once mantled with dense woods, chiefly of beech-trees. They were so thick as to be almost impassable, until one of the abbots of St. Alban's had several of them cut down, because they afforded harbour to thieves. These beech-trees are said to have given rise to the name Buckinghamshire, for the original name of the beech-tree, in the Saxon language, was *boccen* or *buccen*. The hard wood of the beech is useful for making bowls, chairs, and other furniture."

"Here, dear children, just as the farmers had told me all about the ducks, and butter, and lambs, and the Chiltern Hills, the train stopped.

"If you look on the map for the *rivers* of Buckinghamshire, you will see that the principal are the *Ouse*, the *Thame*, the *Thames*, and the *Colne*.

"On a little tributary of the Thame is situated *AYLESBURY*, which is considered as the county town. Buckingham gives the name to the county, but the 'quarter sessions' are held at Aylesbury, and the county-gaol and county-hall are in that town. Most of the *ducks* reared by the farmers are sold at Aylesbury.

"In *BUCKINGHAMSHIRE* the greater part of the *butter* made in the county is sold; the town has no manufactures except *lace-making* with bobbins, or "bone-lace," as it is called. In the year 1725 more than one-third of the dwelling-houses in Buckingham were burnt down. The town is situated on the *Ouse*, at the north of the county.

"The other important towns in this county are *GREAT MARLOW*, noted for its paper-mills and bone-lace; *NEWPORT PAGNELL*, where much bone-lace is made; and *HIGH*

WYCOMBE, where there are also paper-mills. *ETON* is situated on the north bank of the *Thames*; it is celebrated for its public school, which was founded by *Henry VI.* This town is exactly opposite to *WINDSOR*, in *Berkshire*, and is united to it by a bridge; indeed, the two towns seem to form only one.

"I send you herewith the memory lesson on the county, and remain, dear children,

"Yours faithfully,

"HENRY YOUNG."

BUCKINGHAMSHIRE.

(Position.) — *Buckinghamshire is one of the Midland Counties, and is surrounded by NORTHAMPTONSHIRE, OXFORDSHIRE, BERKSHIRE, MIDDLESEX, &c.*

(Soil, &c.) — *The county is chiefly pasture-land; and from the produce of the numerous cows London is chiefly supplied with butter. Early ducks and lambs are another chief produce of this county. The Chiltern Hills are richly mantled with beech-trees.*

(Rivers and Towns.) — *The principal rivers are the Ouse, the Thame, the Thames, and the Colne; and the chief towns are AYLESBURY, BUCKINGHAM, GREAT MARLOW, NEWPORT PAGNELL, HIGH WYCOMBE, and ETON.*

MY soul! rest happy in thy low estate,
Nor hope, nor wish, to be esteem'd or great;
To take th' impression of a will divine,
Be that thy glory, and those riches thine.

BIRDS.

ORDER 4.—THE SCRATCHING BIRDS. (*Rasores.*)

Nothing could induce the Cock to complete the history of the scratching-birds. Although he had begun his speech by a rude interruption, he would not forgive the reporter for stopping him. Thus it is always—the worst sinners are the worst forgivers.

Papa was therefore obliged to complete the history of the order.

P. The families of *Rasores* mentioned by the Cock were—the *Pheasants*, the *Grouse*, the *Sheath-bills*, the *Curassow-birds*, and others. These are all called “Gallinaceous” birds, and those which are domesticated are called *Poultry*. They may be compared to the hollow-horned animals in the order of Ruminants—the Oxen, Sheep, Goats, and Antelopes, which are all called *Cattle*.

The fifth and last family of this order are—the *Pigeons*, or *Columbidae*. These differ a little from the families you have heard of, for they are much like the *perching-birds*. Can you tell me why?

W. First, Pigeons have long wings, and they *fly* like the *perching-birds*.

L. Secondly, they *perch* on the trees as well as walk on the ground.

P. True; and their feet are more adapted for perching than those of the fowls. You may notice, thirdly, that they live toge-

ther in pairs, and that the male bird, as well as the female, sits upon the eggs. This, you know, is not the case with fowls. The Pigeon is also remarkable for its *double crop*, and for the milky substance contained in it. This milky substance is useful when the bird is feeding its young. The food which it swallows is, moistened with it, and it is then disgorged and given to the little ones.

The principal pigeons in England are—the *Ring Dove*, the *Rock Pigeon*, the *Turtle Dove*, and others. The *Passenger-Pigeons* of North America are remarkable on account of their vast number. There, immense flocks may be seen, measuring nearly 200 miles in length and one mile in breadth. One flock has been calculated to contain 1,115,000,000 pigeons! which are supposed to consume 8,712,000 bushels of food per day. The places where they breed are described as large forests, containing 200 square miles. When they alight, the branches bend under them, and thousands may easily be knocked down. The *Tree Pigeons*, which have long wings, and the *Ground Doves*, which have short, rounded wings, are other members of the Pigeon family.

We will now make a short memory lesson on this order.

(While Lucy was writing the

lesson—indeed, as soon as papa had finished his speech, the meeting was startled by the entrance of a strange visitor.)



The Ostrich.

ORDER 5.—RUNNING BIRDS.
(*Cursores*.)

Ostrich. I have travelled a long way.

Ada. Have you?

Ostrich. Yes; but I have come!

W. So we see.

Ostrich. What do you want?

Parrot. As the chairman of this meeting I beg to explain. Our friend has just arrived from a very *uncultivated* part. In the solitary deserts of Africa he has been "quite unaccustomed to public speaking;" but he heard from me that I wanted a good representative of the Running-birds, and he has

therefore just run across—a thousand miles or two—to answer a few questions. He will not talk much, but he will reply to any *inquiry* you may make for information.

W. I will begin. Mr. *Ostrich*, how you must have run!

Ostrich. Yes.

W. But are you a fast runner?

Ostrich. Yes.

W. But how fast? *Very* fast?

Ostrich. *Very*.

(Here there was a pause.)

W. Oh!

(The *Ostrich* coughed.)

W. Ah!

L. I see you have a cold, sir.

Ostrich. Yes—very.

Ada. I suppose that you have much warmer weather in your country, sir. Is the climate very hot?

Ostrich. *Very*.

Ada. And there are burning sands there, I suppose? I have read that there are Zebras and Quaggas living in your desert, and that you are very friendly with them. Can you run faster than a Zebra?

Ostrich. Yes.

Ada. Hem-m—

Ion. I have seen in my Natural History pictures a drawing of a *Cassowary*. Is it one of the Running-birds?

Ostrich. Yes.

Ion. And is not the *Emeu* one of your order?

Ostrich. Yes.

Ion. Have you ever heard of the *Dodo* and the *Apteryx*?

Ostrich. Yes.

Ion. Do they belong to your order?

Ostrich. Hem—m—(Here the speaker was interrupted by a violent fit of coughing.)

Parrot. (Coming forward.) I am sure that the meeting will grant every indulgence to the speaker, who is, it seems, too much indisposed.

W. (aside to *Ada*) Yes; he is not disposed for anything.

Ada. (aside) The sooner he is disposed of the better.

Parrot. So indisposed—

L. Perhaps he is not indisposed to take a seat; he must be out of breath.

Parrot. No. *I mean to say* that his severe indisposition must be so evident—

W. He's *not* severe in his disposition. It is not at all evident. It's evident that—

Parrot. No, no. *I mean to say* that for a public speaker a severe cold is a most awkward indisposition.

W. Yes, we are all in a most awkward position. I feel such an indisposition to listen again that I am disposed to go home.

Parrot. As the chairman, that seems to me the way to dispose of the question. So—in right of my position—without further preposition—I make the proposition —on account of our friend's indisposition—not to trouble him with any further imposition. *I will take down from him a full deposition; and, having put a few words in addition, I will give you my-*

self a profound disquisition—containing a clear and full exposition—to be listened to with respect and submission—when I find you in a more attentive condition.

(As soon as the room was cleared, and all was quiet, papa sat down and wrote the following memory lesson on the 4th order, for the children to learn. Lucy had, you remember, been interrupted by the entrance of the Ostrich.)

Memory Lesson, 2. BIRDS

ORDER 4.—RASORES.

Most of the birds of this order have (1) legs fitted for walking on the ground, which are furnished with short, blunt claws fitted for scratching; (2) wings which are short, and not well-fitted for flying; (3) plump and fleshy bodies; (4) a large crop, and very strong gizzard.

They are peculiar also because they do not generally associate in pairs. The order may on many accounts be compared to the Ruminants amongst mammals.

The principal tribes of the order are the PHEASANT TRIBE, including the Fowls, Turkeys, &c., the GROUSE TRIBE, the CURASSOW-BIRDS, the SHEATH-BILLS, and other birds, which are known as "Gallinaceous;" besides these are the numerous birds of the PIGEON TRIBE.

Not many wise, rich, noble, or profound
In science, win one inch of heavenly ground.
And is it not a mortifying thought,
The poor should gain it, and the rich should not?

ALL THAT HAVE LIFE AND BREATH.

Soprano and Alto.

MENDELSSOHN.*

Tenor. All that have life and breath, Sing to the Lord.
All that have life and breath, Sing to the Lord. All that have life and breath, Sing, &c.
Bass.

Sing to the Lord and praise his name.
Sing to the Lord and praise his name. Sing to the Lord, &c. All that have life, &c.

All that have life and breath. All that have life, &c. Sing Sing
All that have life, &c. All that have life, &c., that have life, &c. All that have &c.,

to the Lord. All that, &c. Sing to the Lord. Halle - lu - jah. Sing to the Lord.
Sing to the Lord. All that, &c., Sing to the Lord. Halle - lu - jah. Sing to the Lord.

* Reprinted from the Hymn of Praise (Lobgesang), by permission of the English proprietor, Mr. J. Alfred Novello.

TWENTIETH WEEK. NATURAL HISTORY.

MONDAY.

BIRDS.

ORDER 5.—RUNNING BIRDS. (*Cursores.*)

Parrot. You may remember that at our last meeting some of the company were *contumacious*—that is a new word which I have learned.

I have since, according to my promise, taken a “deposition” from my friend the Ostrich, who is present.

In the first place I may as well tell you how I became acquainted with the ostrich and her order, for I came from Africa. I had one day wandered far from my forest to the borders of the desert, where a number of ostriches and zebras were in quiet company. While they were feeding together in a friendly way, they were attacked by two or three men on horseback. The whole flock were quickly in motion. The zebras started, but the ostriches soon outran them. They passed like the wind, they ran on their two legs, and helped themselves on by the flapping of their wings. The men on horseback were left far behind.

But as the ostriches were driving on, in a straight line, they were stopped by other horsemen, who started out of

the woods upon them and turned them in another direction. They had not gone very far before they were met by other hunters, and as they turned again to another point, other pursuers again crossed their path. One or two ostriches were soon shot down, but one fought out the battle bravely; it turned on its pursuers with the greatest fury and inflicted most dreadful wounds with its claws. One young ostrich was taken home as a prisoner. I met him once or twice afterwards—he was perfectly tame and very gentle. On one occasion he was sauntering on, in a free and easy way, with two men on his back. This ostrich was seven feet and a half high.

I thus learned, you see, that ostriches are *strong* and *swift*—indeed, from the swiftness of the large flocks which I have seen scouring along the plains, I should say that this bird is the swiftest of *all* running animals.

The food of the ostrich is very various. It eats the tops of shrubby plants found in the desert; seeds, and grain. When hungry it is very voracious and

will swallow almost anything—it will eat even “stones, sticks, pieces of metal, cord, leather, &c.” You can imagine what sort of a gizzard it must have! but I dare say that some of these hard substances help to digest its food, like the gravel which the fowls swallow.

I dare say you have heard how the ostrich lays its eggs in the sand; how several females lay in the same nest, to the number of thirty eggs or more, and how it is the business of the *males* to sit on the eggs; but instead of doing so all day, they sometimes leave them to be hatched by the heat of the sun.

I will say no more of the ostrich's habits, but will call your attention to its *parts*.

The ostriches and all *running birds* are distinguished by (1) Great strength in their hind limbs, and weakness in their forelimbs; the wings are so little developed that they are not strong enough to raise the bird from the ground.

(2) As they do not fly, they have not a *keel-shaped breast-bone* to give strength to the

muscles which move their wings—the *breast-bone* is almost flat.

(3) The ostrich has *two toes*, while other birds of the order have three, or four toes.

(4) In some parts of their *internal structure*, these birds closely resemble mammals.

The principal varieties are the *CASSOWARY*, from Java and the Indian Isles; the *EMEU*, from New Holland; the *APTERYX*, a bird without a tail and without perceptible wings, from New Zealand; and the *DODO*, an ugly bird, which is now extinct; it is supposed to have lived in the Mauritius and the neighbouring islands.

Memory Lesson, 29. BIRDS.

ORDER 5.—CURSORES.

The birds of this order are known principally by the length and strength of their legs, the shortness of their wings, and the flatness of the sternum.

The principal varieties are the OSTRICH, the CASSOWARY, the EMEU, the APTERYX, and the DODO.

BEES.

THE bees that roam
So far from home,
To fill with sweets
Their wax-built comb,
When sun shines bright
They take their flight,
Led by their queen;
Where she sees best

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There fix the rest,
On bough so green,
Till hive so warm
Takes in the swarm;
Then with swift wing
Their sweets they bring,
In store for man.
Praise HIM who made them

BIRDS.

ORDER 6.—WADING BIRDS. (*Grallatores.*)

THE ninth meeting on the subject of the Class Birds having assembled, the chairman at once introduced the accompanying visitor.



The Stilt.

Stilt. As I was walking the day before yesterday in a large salt-water marsh in Lincolnshire, I was startled by a message that I was required to give an account of the order to which I belong. I have no objection. The task is not difficult; for though our order is a very extensive one, its members are tolerably intimate.

Shall I just tell you the

names of some of the wading-birds with which I am acquainted?

W. Yes, do.

Stilt. Then, amongst my friends are—the *Great Bustard*, the *Heron*, the *Plover*, the *Crane*, the *Stork*, the *Spoonbill*, the *Bittern*, the *Snipe*, the *Little Bustard*, the *Adjutant*, the *Land-Rails*, or *Crakes*, the *Water-Rails*, the *Woodcock*, the *Lapwing*, the *Curlew*, the *Sandpipers*, the *Coot*, the—

Ion. I am afraid, sir, we shall never remember so many names. Are you going to talk to us about all those birds?

Stilt. I cannot say. I will tell you how you may know any of us from the orders of birds which you have heard of before.

Here are our "distinctions":

—(1) We are all able to wade in the water, up to a certain depth, without wetting our feathers. Thus, most of us have long legs resembling stilts; the shanks (or tarsi) are particularly long, and have no feathers.

(2) We have generally rather long bills, which are supported on long and very flexible necks. We require long necks because of the length of our legs.

(3) We are known from the *Cursores* by being more slender in the forms of our bodies, and by having long wings adapted

for rapid flight. I may add that our tails are short; and when we fly we stretch out our long legs behind, to serve as a rudder instead of a tail.

(4) Most of us *build our nests on the ground*, and are *migratory*.

These are the *general particulars* of our order. Perhaps you would like me to arrange the birds according to their different families?

L. Yes, if you please.

Stilt. Then, first, the most aristocratic, the most ancient, and important family in the order is the *Bustard family* (OTIDÆ).

The Great Bustard and the Little Bustard are still found in Europe; in Spain, Greece, Russia, and Tartary, and sometimes in Great Britain. They are also found in Africa, Asia, and Australia.

The Great Bustard is not unlike an ostrich; it has a stout body (weighing often more than 30 lbs.), long neck and legs, short bill and small feet, just as the ostrich has. It can *run* very rapidly, but it can also *fly* rapidly, which the ostrich cannot do. It has, too, beneath the skin, in the fore-part of the neck, a very large pouch, which will hold seven or eight pints of water: the entrance to it is under the tongue. The ostrich has nothing of this kind. The use of this pouch is not known.

The *Plover family*, CHARADRIADÆ, are very much smaller than the Bustards.

Notice, 1st, many of them are *nocturnal* birds; they go forth at night searching for in-

sects, grubs, slugs, and worms. They thus become very fat, and in consequence are often seen hanging up outside the cheesemonger's (or poulterer's) shop for the benefit of mankind. You remember the similar fate of the Larks and others.

Notice, 2ndly, that Plovers are sometimes *gregarious* (from *gregæ*, a flock), and sometimes associate in pairs.

And, 3rdly, that they are found on commons and moors, sandy unsheltered places, and in the neighbourhood of marshes, where they generally deposit their eggs under the herbage. The word plover is derived from the French *pluvier*, or rain-bird, because it is more active in rainy, damp weather.

4thly, the *Golden Plover*, *Grey Plover*, *Dotterel*, &c., belong to this family. They are plentiful in some parts of England, for they like northern and temperate climates. Like the Bustards, the colour of their plumage changes; it is not so gay in the winter as in the summer.

The *Lapwings* are allies of the Plover family. They are so called because, if perchance you are near a Lapwing's nest on the ground, it will cunningly lap its wings and tumble, and flutter in your path, pretending to be lame, so that you may pursue it. When it has thus decoyed you to a sufficient distance from the nest, it will take to its wings easily, and will bid you good-bye.

The *Crane family* (GRUIDÆ) seek their food on the land rather than in the water. They

may be seen in the plains and fields—especially those which have been newly sown—seeking for *vegetable* food. The Common Crane, the Numidian Crane, the Trumpeter, and others belong to this family.

The *Heron family* (ARDEIDÆ) have very long, strong, and sharp-pointed, spear-like beaks. They are found on the margins of rivers, lakes, and marshes, where they feed on fish, reptiles, and even small mammals.

The *Common Heron*, (the *Crested Heron*, the *Bittern*, remarkable for its “booming” sound), the *Spoonbill*, and the *Boatbill* belong to this family.

The *Stork family* are allies of the Herons. They have long toes, which are slightly webbed. They feed upon frogs and other reptiles, mice, worms, insects, and eels, with a voracious appetite. The *Stork* is almost a stranger in England; but it is a familiar visitor in Holland and Germany. There it visits the dwelling of man without fear. In some countries it is held sacred, because of its use in clearing away the carrion

and offal, and in destroying the vermin.

W. I have read a story of a *Stork* that built its nest on some chimney pots, and when the house caught fire, she suffered herself to be burned with her young ones rather than leave them, for she could not get them away. She was a good mother.

Stilt. Yes, I have read that. The *Adjutant Stork* of India is as tall as a man, and is very useful there as a scavenger. I will tell you what was found in the craw of an *Adjutant*—“all kinds of offal, a snake, a lizard, and a frog, a tortoise ten inches long, and the entire body of a *large black cat*.” What do you say to that?

Lastly. The *Scarlet Ibis*, the sacred bird of the Egyptians, belongs to this order. It was, perhaps, made sacred because it always appears at the rising of the Nile, on which river the prosperity of the Egyptians so much depends; they used to *embalm* this bird after death.

You shall hear of the remaining families of my order on Saturday.

SHEEP AND LAMBS.

Look on the sheep
So meek and mild,
Whose warm wool clothes
The frost-cold child;
And the young lambs
Safe in the fold,
Screened from the frost

And north wind cold;
Like the sweet lambs
Of Christ's own fold,
Who, in his arms
Kept safe from harms,
His love do share,
And own His care:

May we be such and praise HIM !

GEORGE III.

P. You heard in our last lesson of the **TREATY OF AMIENS**, which was signed in 1802. Then I said, "The war of the French Revolution" was ended, to the great joy of the nation.

During this war there had been great disturbances in Ireland, which I have not yet had time to tell you of. The people of that country made great complaints against those of England. They said that they were not governed fairly, and they resolved to set themselves free. The French, you may remember, had promised to aid any nation in a revolution against Royalty. The Irish people, therefore, accepted their offer. They determined that as soon as the fleet which the French had promised to send should arrive, they would openly rebel against England. Five hundred thousand men formed themselves into secret societies, calling themselves "The United Irishmen." A part of the fleet promised by France was sent over to Ireland, but it returned without assisting them. They then rose to fight for their independence, without any help, but they were too late; the English government were now prepared to meet them. Without much bloodshed the formidable rebellion was overthrown and dispersed.

In the year 1800, which was two years after the rebellion, the English government took means to pacify the Irish. A

Union was formed between England and Ireland, like that which had been made between England and Scotland. The Irish now, instead of having a separate parliament, sent one hundred representatives to the Parliament of England. There was thus one large parliament for the three nations. The kingdom of George, therefore, consisted of three nations—England, Scotland, and Ireland; and it was styled **THE UNITED KINGDOM OF GREAT BRITAIN AND IRELAND**. This event will always render the year 1800 remarkable.

Europe did not long enjoy peace after the Treaty of Amiens. In 1803 France and England again made preparations for war; in 1804 Bonaparte became *Emperor* of France, instead of First Consul; and in 1805 the war broke out again. Russia, Sweden, Austria, and Naples were allies of the English. Spain was the ally of France.

Bonaparte had long envied the success of the British navy, and he resolved to contest with them the empire of the sea. He, therefore, prepared a large fleet of Spanish and French ships. These met the English fleet off Cape Trafalgar, which is near Gibraltar. Here was fought the famous **BATTLE OF TRAFALGAR** on 25th October, 1805. The French were completely beaten; but the brave English commander—the famous **LORD NELSON**—lost his life.

On the land, however, Bonaparte was as successful as ever. By his sudden, rapid, and unexpected movements he astonished and defeated the Austrians and other allies. He hunted them almost from one end of Europe to the other, and made himself master of the whole continent.

In 1806 Bonaparte made still greater progress. The English made a new alliance with Prussia, and prepared for more war. Napoleon acted with his usual decision. By forced marches, he led what he called his "Grand Army" into Prussia, deprived that country of her army, her capital, her fortresses, and obliged FREDERICK WILLIAM III., the King of Prussia, to take refuge in Russia.

Russia and England were now the only two great powers of Europe which Bonaparte had not subdued. He, therefore, prepared to act against both. He proclaimed the famous "Berlin Decrees," by which he declared Great Britain in a state of blockade, and shut the ports of Europe against her merchandise. This blow was aimed at the British commerce, for our merchants now could not send their goods to the European nations to be sold, while their ships dared not enter our ports to buy or sell.

Having thus affronted Britain, Napoleon bent his steps toward Russia. He intended to humble that country first, and to attack England on his

return. He soon entered the country of the Russians, and after several skirmishes, he met their enormous army, in all its strength, at Friedland. Here he gave it a total overthrow, on the 14th June, 1807. He might then have conquered that immense empire as easily as he had done Austria and Prussia, but he entered into a treaty with the Russians instead. By this treaty they agreed to help him in subduing Great Britain.

Now, all EUROPE had been disarmed by France, except Great Britain; so Bonaparte turned his attention to this country. His amazing success had filled him with the idea of *Universal Empire*, such as Alexander the Great had obtained in other days; and now that Britain only was left to contend, single-handed, with him and his allies, his object seemed easy of attainment.

In the year 1807 the British fleet was sent against Copenhagen. It was believed that, as the Danes possessed a large fleet, Bonaparte intended to take it from them to replace the ships which Nelson had destroyed at Trafalgar. The English, therefore, resolved to anticipate him. They carried off the Danish fleet, and at the same time promised the Danes protection against the French. The European nations considered that this act was unjust and dishonourable; the Danes were highly enraged, and now they also declared war against Britain.

THE ENGLISH TRAVELLER.

BERKSHIRE.

"MY DEAR CHILDREN,

"I hope you are not tired of reading my long letters; if you are, I will not trouble you much longer. You have already read of thirty-nine counties; now read about BERKSHIRE, the fortieth.

"Tell me where to begin! Shall we talk about the *soil*, or the *rivers*, or the *towns*? I have not very much to say on any of these heads.

"The soil of Berkshire consists of arable land, meadow-land, heath-land, chalky hills, clayey valleys, sandy land, land containing peat, and forest land.

"You heard of the woods and coppices in Hertfordshire, and of the beech-trees in Buckinghamshire: the elms and oaks of Berkshire are equally famous. It is said that considerable quantities of timber are annually felled; and that during the war the finest trees were purchased for the dock-yards. So many were the oaks then cut down, that the number is much diminished now. There are many ancient oaks in the forest of Windsor, with hollow trunks, and very picturesque-shaped branches. In the hedge-rows you may see many magnificent elms.

"The *coppices*, too, are said to be valuable as well as the woods. Their produce is sent to London in the shape of hoops,

broomsticks, and other rough manufactures. They are usually cut every ten years.

"Again, the *osiers* which grow in this county are valuable. Along the shores of the Thames, and in the low islands which are covered with water, there are extensive osier-beds. They are cut every year, to be made into baskets, cradles, &c. The profit which they yield is, I believe, very considerable. The other products of Berkshire are not remarkable.

"The principal rivers of this county are the *Thames* and the *Kennet*. The Thames forms the northern boundary, where it winds very much. Barbel, trout, pike, and many other fish are found in the river; besides carp and tench, supposed to be brought into it by the floods. The Kennet rises in Wiltshire, as you may remember.

"The county town of Berkshire is named *READING*. It is situated partly between the Kennet and the Thames. Here I was much struck with the splendid *county gaol*, which is close to the railway station. On seeing such a fine and extensive red-brick building, it seemed to me a magnificent castle, built for some great king. How surprised was I, on asking the railway porter, when he replied that it was a house for thieves and all kinds of wicked people! The place

had certainly a most inviting appearance from a distance, but I did not wish to be a thief for all that.

"You would not feel interested if I were to describe to you the town of Reading. The church of *St. Lawrence* and its fine flint-work tower—the small ruins of the abbey—the remains of the abbey-mill, and the numerous bridges over the Kennet, give variety to the town. Reading has a considerable trade in *malt* and *flour*, but manufactures are not important.

"*ABINGDON* is another Berkshire town. You must not forget this place, for that most learned king, who was surnamed *Beauclerc*, was educated here; I mean *HENRY I.* The abbey in which he was educated gave rise to the name of the town; it was called in the Saxon language *Abben-doun*, which means the town of the abbey. The principal trade of the place now is in *malt*—a few of the inhabitants are employed in hemp-dressing.

"*WANTAGE* is, like Abingdon, worthy of notice, as the birthplace of a better king than *HENRY I.* No less a person than *ALFRED THE GREAT* was born here. The town has some trade in *malt*, and a manufacture of *sacking* and *twine*.

"If you want to find a very ancient town in Berkshire, you must go to *WALLINGFORD*. Like Abingdon, it is situated on the Thames; and it has been there since the times of the Romans.

"The most celebrated fea-

ture in Wallingford was its very strong castle. The name *Wallingford Castle* must, I think, be familiar to your ears if you know anything of English history. When *WILLIAM THE CONQUEROR* invaded England, Wallingford Castle belonged to a Saxon noble named Wigod. After the battle of Hastings he submitted to the Conqueror. Here William received the homage of Archbishop Stigund and several nobles before marching to London.

"You remember the civil wars between King Stephen and Matilda, I dare say. Stephen besieged this castle, and tried hard to take it several times, but he could not succeed.

"In the reign of John's son, *HENRY III.*, the king and his son Prince Edward (who was afterwards King Edward I.) were imprisoned here by the barons: I dare say you remember that event.

"But in the reign of *CHARLES I.*, during the civil war, the ancient castle experienced a great misfortune. It was much decayed, but the king repaired and garrisoned it. At the close of the war the parliamentary general, Fairfax, besieged it, and soon after demolished it so effectually that scarcely any part of the building now remains.

"The town of Wallingford once contained eleven or twelve churches. Its principal trade is in corn and malt.

"In the western part of the county, on the Kennet, is *NEWBURY*, another town famous in history. Here two obstinate

battles were fought in the civil war between the Royalists and Roundheads, in the years 1643 and 1644. In the first battle the brave Lord Falkland was slain.

"FARRINGTON is another town of note in this county.

"HUNGERFORD also is worth noticing, although a rather small place. It is situated halfway between Newbury, and Marlborough in Wiltshire. If you go to London you will find two markets called after these towns—*Hungerford Market* and *Farringdon Market*.

"But there is one more town to be noticed. I have mentioned it last because it is very important. Its castle is far more celebrated than that of Wallingford, and I will end my letters with its history.

"What is the name of this castle?—WINDSOR CASTLE.

"Windsor Castle is situated in the town of Windsor. And, first, one or two words about this old town. Windsor and Eton are situated on opposite banks of the Thames; they are so united by the bridge over the river that they seem to form one town. Windsor has a pleasant position on the ground rising from the banks of the river; it consists of six principal streets, well paved, and lighted with gas.

"And that is quite enough about the town; now for the castle. How long has there been a castle at Windsor? Even in the times of the Saxon kings, when the present town was not existing, there was a palace at *Old Windsor*, or *Win-*

dlesofra, as it was called; this name was given to the town from the windings of the Thames in this part. EDWARD THE CONFESSOR occasionally held his court there; but I had forgotten that the present town, which is called *New Windsor*, is about two miles from that ancient spot.

"In the times of WILLIAM I. and WILLIAM II. Windsor Castle was not a considerable fortress; it was perhaps used by those kings only as a hunting-lodge. HENRY I., however, enlarged and improved the castle. It was not until the fourteenth century, in the reign of EDWARD III., that the castle assumed an extent and arrangement like its present state. EDWARD IV. began to erect St. George's chapel, nearly as we now behold it. HENRY VII., who built the splendid chapel, called after him, in Westminster Abbey, enlarged the castle; but the greatest and most important alterations were made in the reign of QUEEN ELIZABETH. The part called *Queen Elizabeth's Gallery*, and the terraces of the castle, were built by her orders. The *Star-Building*, which contains the state apartments, was added by Charles II.

"The alterations to which so much of the present condition of the castle is owing, were begun in the reign of GEORGE III. He restored the interior of St. George's Chapel, and altered many of the most important parts of the castle. In the reign of GEORGE IV. still more important improvements

were made, and the Parliament voted £300,000 for the purpose. More money was continually voted by the parliament, until, by the end of the reign of William IV. £670,000 had been spent. £70,000 more have also been granted for building stables.

"You may perhaps suppose that, with all these improvements and the vast expenses which have been incurred, Windsor Castle is a most magnificent place. It certainly is a noble building, but it is still said not to be a complete and perfectly-studied production of architecture. One of the most beautiful parts is the famous *St. George's Chapel*. It contains the tombs of Edward IV., Henry VI., and Henry VIII., Charles I., George III., George IV., and William IV. The great east window, painted after designs by West, is exceedingly splendid.

"The situation of WINDSOR CASTLE is finer than that of all other royal residences. It is finer than that of VERSAILLES, which is the principal royal palace in France, or the ESCURIAL, which is the chief palace of Spain.

"The present *Long Walk*, which is an avenue leading from the castle to the forest, is considered to be the finest in Europe. It is perfectly straight, and is three miles long, running from the principal entrance of the castle to the top of a hill in the Great Park, called Snow Hill. On each side of the road is a double row of full-grown elms. In the year

1832 a colossal statue of GEORGE III. was erected on the highest part of the hill; this statue (man and horse) is 26 feet high, and its total elevation with its pedestal is fifty feet.

"Windsor Park and Windsor Forest are both beautiful places. You would be delighted with the variety of pleasant walks and drives in the park. At the southern end is *Virginia Water*, the largest artificial lake in the kingdom.

"Such, dear children, are the most important particulars of the principal castle in the kingdom; and with these I beg to end my letter on Berkshire. Believe me your faithful friend,

"HENRY YOUNG."

BERKSHIRE.

(Etymology and position.)—*The name BERKSHIRE is supposed to be a corruption of the Saxon word "Berroc-scyre"—the word "Berroc" being the name given to a certain wood which contained plenty of box, and "scyre," meaning a division. The county, on the north, is divided from OXFORDSHIRE and BUCKINGHAMSHIRE by the river Thames; it is bounded on the west by WILTSHIRE, and on the south by HAMPSHIRE and SURREY.*

Soil.—The county of Berkshire contains a great variety of soils, but is not famous for any particular products. The coppices and the osier beds are perhaps worthy of notice.

(Rivers and Towns.)—*The THAMES and the KENNET are the two principal rivers.*

The chief towns are—READING the capital, which has a magnificent county gaol, and a trade in malt and flour.

ABINGDON and WALLINGFORD are both on the Thames; and have a trade in malt and corn. Abingdon was so called from its Abbey, in which Henry I. was educated.

WANTAGE is celebrated as the birth-place of Alfred the Great, and NEWBURY on account of the two battles fought there, in

the time of Charles I. FARRINGTON and HUNGERFORD are both places of note.

Windsor Castle is very ancient and celebrated, and has been one of the principal Royal Residences for hundreds of years. It is situated in the middle of a large park, twenty miles in circumference. In the vicinity is Windsor Forest, which, like the New Forest in Hampshire, is fifty miles in circumference.

“THE FIRMAMENT SHEWETH HIS HANDYWORK.”

The moon is very fair and bright,
And also very high;
I think it is a pretty sight
To see it in the sky:
It shone upon me where I lay,
And seem'd almost as bright as day.

The stars are very pretty, too,
And scatter'd all about
At first there seem a very few;
But soon the rest come out:
I'm sure I could not count them all,
They are so very bright and small.

The sun is brighter still than they:
He blazes in the skies:
I dare not turn my face that way,
Unless I shut my eyes:
Yet when he shines our hearts revive,
And all the trees rejoice and thrive.

God made and keeps them every one,
By his great power and might:
He is more glorious than the sun,
And all the stars of light:
But when we end our mortal race,
The pure in heart shall see His face.

TAYLOR.

GEORGE III.

THE Danish fleet was seized by the British in 1807. Just before this event England had lost two of her greatest men. In January, 1806, Mr. PITT, son of the Earl of Chatham, expired, at the age of forty-seven. He had spent half of his life in the service of his country, and was completely worn out with his hard labours. So unselfish a man had he been that, instead of enriching himself, he left some debts, which parliament gratefully paid. In the same year Mr. Fox, the opponent of Mr. Pitt, died, being also exhausted with his arduous labours. Pitt and Fox were two of the finest statesmen that England ever produced.

I said that in 1807 the nations of the continent were prostrate before Napoleon. I said, too, that he hoped soon to humble Britain, and establish *universal dominion* in Europe. He might perhaps have succeeded; but at this time there arose from the ranks of the English army another great general, who soon became known as Napoleon's powerful and successful rival.

SIR ARTHUR WELLESLEY was a young officer who had risen very rapidly. In *India* he had distinguished himself by the greatest bravery and humanity. He had defeated and killed the great Indian chief Tippoo Saib, and had been victorious in the

siege of *Seringapatam*, the battle of *Assaye*, and other contests.

He returned to England just as Bonaparte had conquered Europe. Soon after his arrival, in the year 1808, the people of Spain revolted against their new master. He had dethroned their king, and placed the crown on the head of his brother, Joseph Bonaparte. Nearly the whole Spanish nation rose to revenge this insult. They begged assistance from the English, who were but too happy to grant their request. An army was sent, and Sir Arthur Wellesley was chosen as commander. He quickly landed in Portugal, defeated the French at *VIMIERA*, and drove them out of that country. He was, however, stopped in his career by *Sir Hew Dalrymple*, an old general, who was sent after him from Britain, to take the command of the army in his place.

At the close of the year the British sent another army to Spain under Sir John Moore; but neither this commander nor Dalrymple was as successful as Wellesley. In the following year, 1809, Sir John Moore was obliged to retreat before the numerous army which the French had sent into Spain, and he lost his life at the battle of *CORUNNA*.

In the spring of 1809 Wellesley was again sent to Spain with additional troops. He soon obtained the chief com-

mand of the army, and he then astonished the world with a series of victories. He drove Bonaparte's general, *Marshal Soult*, out of Portugal, and advanced towards Madrid. He was met by *King Joseph Bonaparte*, whom he also defeated at *TALAVERA*. He again repulsed the French at *BUSACO*, where they were commanded by Bonaparte's famous general, *Marshal Massena*. He then returned to Portugal, but was followed by an immense French army under Massena, who was ordered by his master to drive the English into the sea. Massena was, however, stopped at the tremendous fortifications of *TORRES VEDRAS*, which Wellesley had built, and was obliged to return to Spain through a desolate country, with his army half starved.

The campaign was continued in 1811 and 1812, and the British gained more victories at *FUENTES D'ONORO*, *ALBUERA*, *BAROSSA*, and *SALAMANCA*.

In 1813 Wellesley attacked the enemy with great vigour. He defeated *Marshal Jourdan*, at the decisive battle of *VICTORIA*, and drove the enemy's army before him into France. In the year 1814 he attacked and defeated *Marshal Soult*, in France, at the town of *TOULOUSE*.

By this time the fortunes of Bonaparte had fallen. Let us see how this happened. In the year 1811 he had reduced the commerce of Britain to great depression and distress. The "*Berlin decrees*," and others at *Milan*, had shut all the

European ports against British goods; Britain had also quarrelled with America, and had thus further injured her trade.

In the year 1812 Wellesley's victories in Spain had somewhat injured Napoleon's reputation. *ALEXANDER*, Emperor of Russia, defied his decrees against British commerce, and renewed war with him. Bonaparte, therefore, led an immense army of nearly 500,000 men into Russia, intending to subdue that country. His expedition, however, failed; he was obliged to retreat from Moscow, the capital of Russia, in the middle of winter. His men perished from hunger, fatigue, and cold, by tens of thousands; and his splendid army returned to Europe a mere wreck, and powerless.

The nations of Europe, seeing Bonaparte in this position, again combined against him. The army of Russia was joined to those of Prussia and Austria, and they advanced upon the French at the same time that Wellesley had driven them out from Spain. In the year 1814 Bonaparte collected from France almost every youth capable of bearing arms; but this force was undisciplined, and although it numbered 300,000, the armies of Europe now amounted to 500,000 men. After two months of negotiation and conflict, the allies entered Paris in triumph, deposed Napoleon, and banished him to the small island of *Elba*, in the Mediterranean.

The royal family of France was now restored, and Louis

XVIII. made his solemn entry into Paris. The nations of Europe had been so disturbed by the lengthened wars, that representatives from the different countries assembled at Vienna, to mark out their boundaries, and to establish peace on a firm footing.

The meeting of representatives, known as the CONGRESS OF VIENNA, was held in the year 1815. While they were debating they were interrupted by the news that Bonaparte had just escaped from Elba. They soon heard that he had re-entered Paris in triumph, and that Louis XVIII. had fled on the same day.

Such was the extraordinary influence of Bonaparte over his nation, that, in two months from his return, he collected 559,000 armed men. Europe was now disturbed again. A great general, of skill, experience and bravery, was required to meet the foe. All eyes were

now turned to the man who had already defeated the armies of Bonaparte, and had driven them out of Spain. Wellesley, who had been created DUKE OF WELLINGTON, was appointed commander of the allied forces, and, after several bloody encounters, he met Bonaparte on the plains of *Waterloo*, in the Netherlands. The desperate BATTLE OF WATERLOO was fought on the 18th of June, 1815, and lasted the whole day, until the French were completely routed.

Bonaparte fled to Paris. He tried once more to gain the confidence of his nation, but in vain. He next tried to escape to America, but in this also he failed. He therefore gave himself up to the English, and was shortly afterwards sent to the island of *St. Helena*, in the Atlantic Ocean. Here he was kept in confinement until he died, in 1821. Peace was now once more, and finally, restored in Europe.

CONTENT.

It is content of heart
 Gives nature power to please;
 The mind that feels no smart
 Enlivens all it sees;
 Can make a wintry sky
 Seem bright as smiling May,
 And evening's closing eye
 As peep of early day.
 The vast majestic globe,
 So beauteously array'd
 In nature's various robe,
 With wondrous skill displayed,
 Is to a mourner's heart
 A dreary wild at best;
 It flutters to depart
 And longs to be at rest.

BIRDS.

ORDER 6. — THE WADING BIRDS. (*Grallatores*.)

Stilt. The *Snipe* family (*SCOLOPACIDÆ*) is the fifth family worthy of mention. The *Common Snipe*, the *Solitary* or *Great Snipe*, the *Jack Snipe*, the *Woodcock*, the *Sand-pipers*, such as the *Willet*, the *Ruff*, and the *Reeve*, the *Curlew*, and the *Whimbrel*, are all tolerably well-known members of this family.

Like most of the other families they live in marshy places, "eating insects, slugs, and worms, thrusting their long bills into the moist earth and mud." They come out at night, hiding themselves in woods, thickets, and brakes during the day. Some of them are very voracious—a little woodcock has been known to eat in one night half a garden-potful of earth-worms.

Another tribe allied to the snipes is the *Stilt* tribe, to which I and the *Avocet* belong; but I would rather not give an account of myself.

The last important family is the *Rail* family (*RALLIDÆ*). These are very interesting birds. The feet of some are padded, so that they may "swim, or tread on oozy ground." There are *Water Rails* and *Land Rails*. It

is said that "the *Rallidæ* have to thread their way through beds of thick-set stems of reeds, bulrushes, and other aquatic plants, among which they seek shelter; or, as in the case of the *Land Rail*, through the tall grass of the meadow. And this they do so rapidly and noiselessly that the field seems traversed by magic. Hence they so easily elude pursuit, that they can seldom be forced to fly." We thus find that their bodies are compressed in shape.

The *Water Rails*, the *Land Rails*, or *Crakes*, the *Moor-Hens*, the *Coots*, and *Screamers*, are the principal members of this family.

Here is a very short memory lesson for you.

Memory Lesson, 30. BIRDS.

ORDER 6.—GRALLATOIRES.

These birds are adapted for wading, and procuring their food from the water and mud by their naked, stilt-like legs, long bills and neck, and slender bodies. They are found principally in marshy plains.

The principal families are the BUSTARDS, PLOVERS, CRANES, HERONS and STORKS, SNIPES and STILTS, and RAILS.

Love and kindness we may measure
By this simple rule alone:
Do we mind our neighbour's pleasure
Just as if it were our own?

TWENTY-FIRST WEEK. NATURAL HISTORY.

MONDAY.

BIRDS.

ORDER 7.—SWIMMING BIRDS. (*Natatores.*)



The Penguin.

WHEN the above "party" presented himself at the last meeting held on the subject of Birds, he was at once an object of general remark.

"Very much like a great fish," whispered Willie to Ada.

Ada. Yes, look at the shape of his body.

"And no disgrace either," remarked the visitor, without waiting for any introduction to the company. "I am a PENGUIN. I have to live the life of a fish and the life of a bird. It is very natural, therefore, that I should resemble both in my form."

"Very," said Willie.

"If ever you should be passing PATAGONIA—"

Ada. Where is that?

Penguin. Eh! Somewhere—(but I have not studied Geography)—or the FALKLAND ISLES—or other parts of the Southern Hemisphere—really you had better get your map—there you may see hundreds of Penguins on the sea-shores. In some of the small desolate islands which man does not inhabit, there are towns of Penguins—regular camps, like those of an army. It's a real fact!

W. Is it?

Penguin. Yes. And the stupid sailors have said that at a distance we look like children with bibs on, or white pinafores.

W. Yes—what a white breast you have!

Penguin (drawing back.) Don't be personal, sir! Such liberties are—

W. But we are going to examine your *parts*, directly.

Penguin. I am sure you are not.

Ada. But the EAGLE showed us the parts of his body—he is the king of birds.

Penguin. Oh, indeed! Well, we shall see. Think of the sailors mistaking me for children with bibs on! We like sometimes to stand in a row on the ledge of a rock—it looks uniform and pretty, I dare say—so we have also been mistaken for soldiers performing their drill.

L. Excuse me for interrupting, Mr. Penguin, but you spoke of *thousands* just now. Mr. Bennett saw a colony of Penguins at MACQUARRIE ISLAND, in the South Pacific Ocean. It covered between thirty and forty acres of land! He says, that during the whole day and night, 30,000 or 40,000 Penguins were continually landing, and an equal number were going to sea.

Penguin. The town I came from was not so large as that.

L. And I have heard that the sailors serve the Penguins very cruelly. I have read of some who entered a Penguin-ery, and knocked down 300 birds in an hour.

Penguin. Really! but I am happy to say that they could not eat them! That is one consolation! Penguins are not "good to eat."

Ada. Are they poison?

Penguin. No! oh, no! but we

are *rank*—very rank. And that remark may as well bring me to a description of my parts at once. Now for business—

Body—In shape, like that of a fish, for swimming; the flesh is very oily and rancid, from the oil under the skin, which is necessary for warm-blooded animals that live in the water. (See History of Whale and Seal, vol. ii.)

Covering—small feathers; the white feathers on the breast have a shining *metallic* appearance—quite smooth and silvery, like the scales of a fish. All the feathers are very compact; so cemented together by the oil that they seem almost solid, and quite keep out the water. (See account of the furs of White Bear, Seal, &c. vol. ii. Beaver, vol. iii.)

Head—roundish; with long, box-like beak which shuts close; the upper mandible hooking over the lower one. *Tongue* covered with horny prickles, which point in a backward direction (towards my throat).

Tail—very much worn—see my position when on the land.

Limbs—hind-limbs placed so far back, that when standing the body must be upright; feet, webbed. *Fore-limbs* very short indeed; almost without feathers, and resemble a pair of dangling arms, or fins—therefore are never used for flying, but for swimming. (See also account of fore-limbs of Seal and Whale in vol. ii. Compare with limbs of the Mole, fitted for living in the earth.)

Now, it is not every bird that would take so much trouble to describe himself! One or two words about my habits. On the land I use my two wings as fore-legs, and crawl about something like a quadruped—

it's very awkward. But you

should see me in the water. I'd defy you to tell whether I am a fish or not! You should see me hunt a fish!—when I have chased my prey for a long time—just as it is going to swim round the corner of a projecting rock, I make a great jump over it, and wait on the other side with my bill open. Once get the fish into my mouth, it feels my prickly tongue—if it struggles forward to escape, the prickles enter its body, but to avoid them it is obliged to move backward, until it falls—where? Ha—ha! Wouldn't you like to have a prickly tongue?

W. If you please we want an account of the order of birds you belong to. Will you tell us their names?

Penguin. I know a great many swimming birds. There is the fine *Albatross*, with his enormous wings. I have seen him, with his wing spreading fourteen feet, sweeping over the water, and chasing the flying fish. And there are *Gulls* which feed on grubs, worms, and slugs. They are good scavengers. You should see the innumerable flocks that will gather round a dead whale—his carcass is cleared away in a—a twinkling!

Ada (*aside*). This is an exaggerated expression.

Penguin. Then there are the *Stormy Petrels* ("Mother Carey's chickens" the sailors call them), the smallest of all web-footed birds; but I think it would be better to name the birds of this order according to their *tribes*.

THE SWIMMING-BIRDS (*Nata-tories*) are arranged in five tribes—

1. THE DUCK TRIBE (*Anatidæ*) in which are the *Flamingo*—a long-legged web-footed bird, connecting the swimming-birds with Order 6. THE WADERS—the *Goose*, the *Swan*, the *Ducks*, *Wild Duck*, *Teal*, *Widgeon*, *Eider-Duck*, &c.

2. THE DIVERS (*Colymbidæ*), including the *Great Northern Diver*, the *Grebe*, &c.

3. THE AUK TRIBE (*Alcidæ*), in which are the *Auk*, the *Puffin*, the *Guillemot*, the *Penguin*, &c.

4. THE GULL TRIBE (*Laridæ*), in which are the *Stormy Petrel*, the *Gull*, the *Albatross*, the *Skua*, and the *Sea-swallow*.

5. THE PELICAN TRIBE (*Pelicanidæ*), in which are the *Darter*, the *Pelican*, the *Gannet*, the *Booby*, the *Cormorant*, and the *Frigate-bird*.

To form a distinct order these birds must have certain distinctions; that is to say, they must be all alike in one or more points.

So we find that (generally)

1. They all have a boat-shaped body.

2. They mostly have a long neck, so as to plunge the head far down in search of food.

3. They all have a dense oily plumage.

4. They all have thin hind limbs placed far back, and are furnished with webbed feet to fit them for swimming, but they have an awkward gait on the land.

5. They differ much in the length of their wings.

The meeting now terminated. Before separating, a vote of thanks was given to the chairman, who promised to write a short memory-lesson on the 7th order.

BIRDS.—RECAPITULATION.

P. THE chairman of yesterday's meeting kept his promise. He has prepared you the following short memory-lesson, and he has added a summary of the orders of the Class Birds, to be also committed to memory.

Memory Lesson, 31. **BIRDS.**

ORDER 7.—NATATOIRES.

These birds are adapted for swimming by their boat-shaped

bodies, their dense, oily feathers, the position of their hind limbs, and their webbed feet; they mostly have long necks, but they differ much in the length of their wings.

The order contains five tribes, the DUCK TRIBE, the DIVERS, the AUK TRIBE, the GULL TRIBE, and the PELICAN TRIBE.

Memory Lesson, 32. **BIRDS.**

Table of the Orders of the Class.

- Order 1.—BIRDS OF PREY.—(*Raptores*)—including the Falcon, Eagle, Kite, and Buzzard—the Vultures—the various Owls.
- Order 2.—PERCHING BIRDS.—(*Insectores*)—including the *Cone-billed birds*, such as the Crow, Starling, Goldfinch, Bird of Paradise, and Hornbill—the *Tooth-billed birds*, such as the Nightingale, Thrush, Flycatcher, Chatterer, and Shrike or Butcher-bird—the *Cleft-billed birds*, such as the Goat-sucker, Swallow, the Roller, the Kingfisher, and the Bee-eater—and the *Slender-billed birds*, such as the Humming-bird, Sunbird, Honey-sucker, Hoopoe, and Creeper.
- Order 3.—CLIMBING BIRDS.—(*Scansores*)—including the Parrot, Woodpecker, Toucan, and Cuckoo.
- Order 4.—SCRATCHING BIRDS.—(*Rasores*)—including the Pheasant, Fowl, Turkey, &c., the Grouse, the Curassow Bird, and the Sheath-bill.
- Order 5.—RUNNING BIRDS.—(*Cursores*)—including the Ostrich, Cassowary, Emeu, Apteryx, and Dodo.
- Order 6.—WADING BIRDS.—(*Grallatores*)—including the Bustard, Plover, Crane, Heron, Stork, Snipe, Stilt, and Rail.
- Order 7.—SWIMMING BIRDS.—(*Natatores*)—including the Duck, Goose, Swan, Diver, Auk, Gull, and Pelican.

After Lucy, Willie, Ion, and Ada had learned the above table, they determined to begin studying the different families and species of birds. Papa in the meanwhile prepared for them a very short outline of the classes REPTILES and FISHES.

GEORGE III.

BONAPARTE was safely put away, in prison. Then the nations of Europe established peace once more.

This peace has lasted from the year 1815 to the year 1853, a period of 38 years. I do not mean to say that there have been no wars since then, but there have been none of great importance on the Continent. England, for instance, has since had many severe conflicts in India, in Africa, and in Burmah. Even in 1816, the year after the peace, the English besieged Algiers. This siege was not so unnecessary as some of the previous wars. I will tell you the circumstances.

Algiers is one of several countries at the north of Africa bordering the Mediterranean Sea. The people of these countries were pirates and murderers. For ages they had followed the practice of plundering the vessels of Christian nations. They not only robbed the vessels, but carried the crews into slavery. An English squadron was therefore sent to put an end to this practice. Lord Exmouth at first tried to negotiate with the enemy, but without success. He then attacked Algiers; and, after a tremendous battle, he destroyed the batteries, burned half the city, and killed or wounded seven thousand men. A great number of Christian slaves were then set free.

In the year 1816 the English had time to count up the cost of the long war since the French Revolution.

During this period the nation had paid vast sums for her own armies and their accoutrements to ship-builders, smiths, tailors, and victuallers. The other armies of Europe employed against Bonaparte were gigantic. Much of the money for their support, also, had been paid by the English. The nation now found that during the last year of hostilities their expenses had been seventy million pounds. The National Debt at the beginning of the war, in 1793, had been £230,000,000; it now amounted to £860,000,000. It had thus increased six hundred and thirty millions!

The commerce of England also suffered at this time. During the war the English ships had the command of the seas. They were almost the only traders. Thus the English manufacturers and merchants carried on a very large trade, and sold their goods for very high prices. They thought themselves very prosperous: but now that peace was restored, so was the commerce of the other nations. The prices of English goods, therefore, fell again to their natural value, and the commerce of England was much depressed. The crops in the year 1816 were unfortunately smaller than usual,

and bread rose to double its usual price. The people were thus less able to bear the burden of debt, and the following four years, until 1820, the end of the reign of George III., were a period of extraordinary distress to all classes of the community.

The distress of the people led to a desire for change. The poorer classes determined to obtain a reform in Parliament. In the manufacturing districts, where so many were thrown out of employment, many great meetings took place. A large party was formed, who were known as *Radical Reformers*. At one of their meetings, at Manchester, the Government unwisely tried to disperse the people by force. A body of troops dashed into the mass, trampling men and women under the horses' feet, killing and wounding many with their sabres.

During the war one or two events happened which may be worthy of notice. In 1788 the king had been attacked by insanity, but for a short time only. In 1810, however, he again became insane, and continued so until his death, in 1820. During these last ten years of his life his son George reigned for him under the title of "Prince Regent."

In 1812 the prime minister, Mr. Percival, was assassinated by a man named Bellingham. He was succeeded by the Earl of Liverpool. The principal prime ministers during the reign of George III. were Pitt, Earl of Chatham; the Earl of Bute; Lord North; Mr. Pitt, son of

the Earl of Chatham; Mr. Fox; Mr. Percival; and the Earl of Liverpool.

The most mournful event in the latter part of this reign was the death of the Princess Charlotte, the heiress to the throne, in 1815.

King George III. died in the year 1820, at Windsor Castle. He was then in his 82nd year, and had reigned nearly sixty years.

GEORGE III.

Began to reign . . . 1760
Died 1820

GEORGE III. was the grandson of George II. He began to reign in 1760, when he was 22 years old.

The principal events in the early part of his reign were the wars with FRANCE and SPAIN, by which those countries lost many colonies and much commerce; and the war with AMERICA, by which England lost her colonies there.

The American war was caused by an attempt to tax the colonists unjustly. The principal leaders of the Americans were GEORGE WASHINGTON and BENJAMIN FRANKLIN; and the chief British commanders were GENERAL HOWE, GENERAL BURGOYNE, and LORD CORNWALLIS.

The wars of the FRENCH REVOLUTION and the UNION of GREAT BRITAIN and IRELAND were the chief events of the latter part of the reign. The principal commanders in the French war were LORD NELSON, the DUKE OF WELLINGTON, NAPOLEON BONAPARTE, and his Marshals, MASSENA, NEY, and SOULT.

GEORGE IV.

WHEN George III. died, his son GEORGE IV., succeeded to the title of king. He had already exercised the power of a king for ten years, under the title of "Prince Regent."

George IV. was at this time fifty-eight years old. The people were, therefore, well acquainted with his character. But I have not yet told you of his actions during "the regency," nor of his previous life. You shall hear what sort of a man he was.

In the first place, George IV. had good abilities. Secondly, he had kind feelings, which are better still. Thirdly, he had the qualities which render a man a "gentleman;" he used his good abilities to cultivate his mind and store it well. He had much grace and dignity in his manners; and, when he wished to please, he showed such urbanity and winning kindness that no one could resist him.

W. Then I should think that he was something like CHARLES II.

P. Yes, indeed; and, like Charles II., he had many serious faults. Let us begin again, "in the first place." 1st. He was easily offended, and was unforgiving. 2ndly. He was too fond of gaiety and extravagance. During his youth, his preceptors subjected him to much restraint; therefore, when he became a man, and was free from their influence, he surrounded himself

with many bad companions. It was said that he meant to imitate Henry V., who had been very dissolute when a prince, but became a good king. But when George IV. was made Regent, the bad habits of his early days were rooted in him; it was not easy to lay them aside, and he did not.

You may notice, 3rdly, of George IV. that he ran into debt. During many years his personal expenses were enormous. Thus, in 1794, when he was only thirty-two years old, his debts amounted to £700,000. The nation then saw that he had been thoughtlessly extravagant and wicked. George III. was highly displeased with his son. He thought it necessary that the prince should marry, and promised that if he would do so his debts should be paid.

In the following year, 1795, George unwillingly consented to his father's wish. With reluctance he married his cousin, the Princess Caroline of Brunswick. The marriage was not a happy one; and after the birth of a daughter, the Princess Charlotte, the prince and his wife separated. In the year 1814 she left England, and travelled in various countries.

In 1820, when George IV. became king, his wife was living in Italy. She resolved to return to England instantly, and to assert her rights as queen. She landed at Dover, was greeted gladly by multitudes, and in her

progress to London, wherever she stopped, the inhabitants poured forth to meet her. It was now thought that the king would receive her again as his wife, but his dislike to her was stronger than ever. He had at various times heard bad reports of her behaviour abroad; he therefore would not allow her name to be read as queen in the liturgy.

The people now became angry at the king's treatment of the queen. The king determined to justify himself. He caused the reports of her misconduct to be investigated. A "Bill of Pains and Penalties" was brought into Parliament to dissolve his marriage. Witnesses for and against the queen were brought over from Italy, private and public examinations took place, and the whole nation was excited. The bill was passed, but with such small majorities that it was thought better to abandon it.

In the following year, 1821, the coronation of George was celebrated. The ceremony was performed with the greatest magnificence. The unfortunate queen demanded to be crowned also, but was refused. She then resolved to see her husband crowned, but was rudely denied admission into Westminster Abbey. This treatment so mortified her that her spirits sank, and three weeks afterwards she died broken-hearted.

Immediately after his coronation, the king visited IRELAND and HANOVER. In both places he was most joyfully received by his subjects; and

in Hanover he was again crowned, amidst public rejoicings. In the following year he visited SCOTLAND, and there also he was received with joy and good-will. During his absence from England, the prime minister, the Marquis of Londonderry (formerly Lord Castlereagh), became deranged, and put an end to his life. The celebrated GEORGE CANNING succeeded him.

In the years 1823 and 1824 the commerce of England was most flourishing. Canning had introduced into his cabinet a very able minister named HUSKISSON. As "President of the Board of Trade," Mr. Huskisson caused the repeal of all duties on goods passing between England and Ireland; he altered the duties of the silk manufacture, and many other regulations which obstructed commerce. These measures were the foundation of the improvements since known as "Free Trade." He also formed commercial treaties with various countries of Europe.

The activity of trade in all departments now became such that the "capital" of the country accumulated. This prosperity led in a singular way to new misfortunes. To find employment for the superfluous capital numerous Joint-Stock Companies were formed, which were as little calculated to succeed as the South-Sea scheme of 1720. Speculating projects were formed for mining, and pearl fisheries, in Peru, Colombia, &c. Companies were projected for supplying London

with milk and fish, and for washing all the dirty clothes of the metropolis. On the whole, no fewer than 276 different projects were started. Many of them were highly absurd; yet the capital which they proposed to employ amounted to £174,000,000!

Such visionary undertakings, of course, ended in disappointment, and nearly *forty millions* of money were thrown away. Thus, 100 years after the South-Sea scheme, the nation made a similar mistake; the results, too, were similar. The year 1825 was marked by bankruptcies and great public distress; great commercial houses and long-established banks failed, in all parts of the country—even the BANK OF ENGLAND nearly stopped payment.

In the year 1826, also, trade was almost stagnant. This year was remarkable for the conclusion of the *Burmese war*. The English had, during the reign of George III., greatly extended their power in India; almost the whole peninsula was subdued. BURMAH is a country at the east of India, beyond the Ganges. The Burmese made frequent attacks on the new territory of the English, who therefore sent an army to subdue them. After two years of desperate war, the British troops penetrated 500 miles into the enemy's country, and arrived within fifty miles of the capital. A treaty was then made, by which the King of Burmah surrendered part of his empire, and agreed to pay nearly *2 million pounds*.

In 1827 Britain combined with France and Russia to make war upon the *Turks*, who had greatly oppressed the Greeks. The Turkish fleet was destroyed in the celebrated battle of *Navarino*, and Greece soon afterwards became an independent country.

Many changes in the government of the country took place during this reign. Mr. CANNING died in 1827, and was succeeded by Lord GODERICH, who in 1828 resigned his office, and the Duke of WELLINGTON became prime minister in his place.

In 1829, under the government of Wellington, the last important event of this reign happened. The *Roman Catholics* of Ireland and England formed a large proportion of the nation. You may remember that in the times of Elizabeth and James I. there were many severe laws against the Roman Catholics, such as the Test and Corporation Act, which you have already heard of. Some of the penalties inflicted by these laws had been repealed; but still the Catholics had not the same political rights as the Protestants. No Catholic could become a member of the House of Commons. At the union of England and Ireland, in 1800, Mr. Pitt had promised that these grievances, or "disabilities," as they were called, should be removed. The Catholics had for many years agitated and excited the nation to obtain their rights. They now formed a mighty association to obtain them

from the Government by physical force. Hitherto WELLINGTON and his colleague, Mr. PEEL, had always opposed the measure; but, seeing the evils which would arise from a civil war with Ireland, or an insurrection, they resolved to give way. Accordingly, they introduced the CATHOLIC EMANCIPATION BILL into Parliament, and, after much opposition, it passed both houses on the 13th of April, 1829. The political rights of the Catholics and Protestants were now nearly equal.

The agitation of the Catholics for emancipation was followed by a new question. The nation next determined that there should be a *reform* in the House of Commons. The chief subject of complaint was that the people were *not fairly represented*. It was found that many towns and boroughs which in ancient times were important had fallen into decay; yet they still retained the privilege of sending one member, and some two members, to Parliament. On the other hand, many small places had become large, populous, and important towns, such as *Birmingham* and *Manchester*; yet their numerous inhabitants had *no representation* in Parliament. It was therefore peti-

tioned that some of the old places which contained so few people might be "disfranchised;" but during this agitation the king died.

George IV. died in the year 1830, in the sixty-eighth year of his age, and the eleventh of his reign.

GEORGE IV.

Began to reign . . . 1820
Died 1830

GEORGE IV. was the son of George III., and during the last ten years of his father's reign he governed the country for him under the title of PRINCE REGENT. He became KING at his father's death, in 1820.

Some of the principal circumstances of this reign were—the trial of QUEEN CAROLINE; the King's visits to Ireland, Hanover, and Scotland; the increase and activity of commerce under the direction of Mr. HUSKISSON; and the severe commercial distress caused by the wild speculations of numerous JOINT-STOCK COMPANIES.

The BURMESE WAR, the BATTLE of NAVARINO, the CATHOLIC EMANCIPATION BILL, and the agitation for REFORM in the representation of the people were also highly important events.

King George IV. died in 1830, in his sixty-eighth year.

To live to God is to requite
His love as best we may;
To make his precepts our delight,
His promises our stay.

COWPER.

WILLIAM IV.

WILLIAM IV. was the third son of George III. The second son was the *Duke of York*, but he was dead; William therefore became king. He was then the Duke of Clarence, and Lord High Admiral, for he had been a sailor during the greater part of his life, while the late Duke of York was, as you have heard, a military commander.

The demands for reform were earnestly continued by the people. They were encouraged to persevere by the sudden news of two revolutions which had been effected by the people of France and Belgium. William had not been king much longer than a month when the English were startled by the arrival of the French king, CHARLES X. In what was called *the Revolution of Three Days* the French had dethroned him, and had made Louis Philippe his successor. In Belgium the people, who had been united to Holland against their will by the other nations of Europe, now separated themselves from that country. They formed themselves into an independent nation, and Prince LEOPOLD, the widowed husband of the beloved Princess Charlotte, became their king.

When the English people saw these changes, they thought that it was time for them to do something. They therefore bestirred themselves again to "reform" the defects of their government.

The Duke of Wellington and

Sir Robert Peel were, however, still at the head of the government, and they were averse to reform; the people therefore were averse to them. The party which had hitherto supported the ministry were also averse to them, because, as you have heard, they gave way to the claims of the Roman Catholics. Finding themselves to grow weaker and weaker, they resigned office, and at the close of the year a Whig Cabinet was formed, headed by Earl GREY.

On the 1st of March, 1831, the *Reform Bill* was brought into the House of Commons by Lord JOHN RUSSELL, a member of the new ministry. The changes projected by this bill were such as I told you the people required. Fifty-six of the ancient and unimportant boroughs were "disfranchised;" that is to say, they were not allowed any representatives in Parliament. Thirty other boroughs were allowed only one member each instead of two. The vacancies in the House of Commons which were thus made were given to the populous towns or counties which had not sufficient representatives. For instance, eight new members of Parliament were granted to London; namely, two to Lambeth, two to Mary-le-bone, two to Finsbury, and two to the Tower Hamlets. More people of the middle classes were allowed to vote. The "franchise" (as the right of voting is

called), was extended to all persons in towns who paid ten pounds a year rent, and to all persons in counties who paid fifty pounds a year for their lands. The Reform Bill also contained provisions for preventing bribery, for shortening the time of election, and for making more polling-places in the different parts of each county, so that the electors might not have the inconvenience of coming to the county-town to vote.

Such were the principal features of the Reform Bill; but, although the Earl Grey and Lord John Russell were supported by the people, they did not find that the bill could easily be made into law. They were opposed by the party of the Duke of Wellington and the king, who dissolved the Parliament. A new Parliament was elected; but this time the ministry were opposed by the nobility, who did not like the people to have so much power; therefore, although the bill was passed by the House of Commons, when it was brought up to the House of Lords they rejected it.

The bill having been twice defeated, the House of Commons brought in a second bill, which was, however, similar to the first; but this also the House of Lords rejected.

This third defeat caused the greatest discontent throughout the country. The people declared that they would not be hindered by the nobles, and that the bill should become law. The mob of London assaulted several members of the House

of Lords, and broke the windows of their houses. Even *Apsley House*, which had been given by the nation to the Duke of Wellington, was attacked and injured. Nottingham Castle, the residence of the Duke of Newcastle, was burned to the ground. In Bristol the riots exceeded anything that had been heard of for some time. Almost the whole of one of the principal squares was destroyed; so also were the Bishop's Palace, the Mansion-house, the Custom-house, the Excise-office, and the gaols; and many lives were lost. The riots extended to Derby, Birmingham, and many other large towns, where the people openly declared that they would not pay any more taxes, nor obey the laws of the country, until the Reform Bill was passed. Large associations of persons, called "unions," were formed in all parts of the kingdom. In the country parts bonfires were everywhere raised at night, and farm-houses, hayricks, and corn-fields were burned to the ground.

This confusion of affairs was increased by the resignation of the ministers. When they gave up the government of the country, it was offered to Sir Robert Peel, but he refused to accept it. Another sign of the agitation of the nation was in the *run* on the Bank of England. Every one wished to change his bank notes into gold, and in the course of two or three days more than ten hundred thousand pounds of gold were drawn from the Bank.

The excitement continued.

The people seemed to say to the nobles, "Unless you pass this bill, we will make a revolution, as the people of France and Belgium have done;" and then the nobles saw that they must give way. The Duke of Wellington himself recommended the recal of the ministers; the members of the House of Lords who had resisted the measure withdrew their opposition, and on the 7th of June, 1832, the REFORM BILL received the assent of the king, and became the law of the land.

Such was the principal event of the reign of William IV. The other circumstances I will state briefly. In the year 1834 the noble "anti-slavery" cause gained a great victory. An act for the abolition of Negro slavery was passed, by which 800,000 slaves were set free, and twenty million pounds were paid to their owners as a compensation.

In 1834, also, the charter of the EAST INDIA COMPANY was renewed; but at the same time some of the privileges of the company, as merchants, were taken from them. Our tea had hitherto been purchased of the East India Company only; but now all merchants are allowed to trade in that article.

An act for the amendment of the POOR-LAWS was another

important measure of the year. This was much needed, as even the "able-bodied" poor of the country had the right to compel parishes to support them; they thus formed degrading habits of indolence. The new act checked this evil; it compelled those who said they were paupers to enter a poor-house called the Union, and to separate themselves from their wives and families. Many now found that it was better to work, and be independent, than to live upon charity; the poor-rates, too, were thus much reduced.

In 1834 and 1835 there were several rapid changes. The Earl of Grey resigned office on account of his great age, and was succeeded by Lord Melbourne, who was quickly succeeded by Sir Robert Peel, whose ministry was not strong enough to govern the country, and in 1835 Lord Melbourne was restored.

The year 1836 was remarkable for three new laws—the *Marriage Act*, by which marriage was allowed in Dissenting chapels as well as in churches—an act for the *Registration of Births, Deaths, and Marriages*—and an act which reduced the *Stamp upon Newspapers* to one penny. In the year 1837 King William. died, being nearly seventy-three years old.

STREAMS never flow in vain; where streams abound,
How laughs the land with various plenty crown'd!
But time, that should enrich the nobler mind,
Neglected, leaves a weary waste behind.

COWPER.
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VICTORIA.

P. BEFORE we begin the history of Victoria's reign, you may learn the following lesson on that of WILLIAM IV.

WILLIAM IV.

Began to reign . . . 1830
Died 1837

WILLIAM IV. succeeded his brother George in the year 1830.

One of the most important events of this reign was the passing of the REFORM BILL. This measure was introduced by the Whigs under EARL GREY, who was made Prime Minister instead of the DUKE OF WELLINGTON for this purpose. The object of the bill was the more just representation of the people in Parliament. Although it was necessary, on account of the changes in the population of the towns and counties, it was obstinately resisted by the House of Lords, who refused to pass it until they were afraid of the violence of the people.

The Bill for the ABOLITION OF SLAVERY; the NEW POOR LAW BILL; the alteration in the charter of the EAST INDIA COMPANY; the NEW MARRIAGE ACT; the REGISTRATION ACT, and the alteration of NEWSPAPER STAMPS, are the other events of this reign, which are worthy to be remembered.

The character of William IV. was excellent, and his whole reign was peaceful; it has been remarked, that his is the only reign of the thirty-six since the

Norman Conquest which has been entirely free from war, conspiracy, or any attempt on the Sovereign's life. He died in 1837.

VICTORIA.

The reign of Victoria has hitherto been a happy and peaceful one for this country. Before her accession to the crown she was well known as the Princess Victoria, and had already won the hearts of the people.

At the death of her uncle Victoria was about eighteen years old. Although so young, she entered on her exalted station with propriety and dignity. In the same year she went in person to dissolve the Parliament, and read her speech from the throne. In the following year, 1831, her coronation was celebrated. This ceremony gave the people an opportunity for expressing their love and loyalty towards her, and they did so with hearty good will. In the year 1840, the happiness of the Queen and her people was increased by her union to her cousin, PRINCE ALBERT of Coburg and Gotha. It has been well said, that "this auspicious union has never been clouded by misfortune. The Prince Consort has wisely kept himself aloof from all political parties in the state, and has been studious to promote our most useful charities and National

Institutions. His own habits, and those of the Queen, are of a highly English character."

These remarks are quite true, for the Queen and the Prince are fond of social and domestic enjoyments. They have now a large and very important family, whose names and ages I will tell you. There are: the *Princess Royal*, who is nearly 13 years old; the *Prince of Wales*, who is nearly 12 years of age; the *Princess Alice*, who is more than 12 years of age; *Prince Alfred*, who is nearly 9 years old; the *Princess Helena*, who is more than 7 years old; the *Princess Louisa*, who is more than 5 years of age; the *Prince Arthur*, who is more than 3 years of age, and a little prince, not yet two months old, who is to be called *Prince Leopold*.*

With eight children to love, it is not to be wondered that the Queen and Prince often retire from public life. They spend much of their time in the quiet villa of Osborne, in the Isle of Wight, or at Windsor Castle, or at their more distant residence at Balmoral, in the North of Scotland, where the Prince indulges in the invigorating sports of grouse-shooting and deer-stalking. In the summer, the Queen and her family make excursions in the royal yacht, in which they have visited Ireland, Scotland, and the Channel Isles.

Since the beginning of her reign the Queen has shown

great fondness for travelling. In the autumn of 1842 and 1844, Her Majesty visited Scotland in a private capacity, without encumbering herself with any state formalities. In 1843 the Queen and Prince crossed the Channel, to pay a friendly and private visit to the Royal family of France. Here they were entertained by Louis Philippe, the then king, at the Chateau d'Eu, in Normandy; this was the first visit of any English sovereign to France since the time of Henry VIII. Shortly afterwards the Queen visited her uncle LEOPOLD, King of the Belgians. In 1845 the Queen and Prince first made a tour of the midland counties of England, and then visited the family of Prince Albert in Germany. On their return homeward, they received the attention of the various German sovereigns through whose dominions they passed, and called again on the King of France at the Chateau d'Eu. In her turn, Her Majesty received the friendly visits of the late Louis Philippe, of King Leopold, the King of Saxony, and Nicholas, Emperor of Russia. The interchanges and attentions which Victoria thus began, have given character to her peaceful reign. The love of travel and friendly intercourse evinced by the Queen, has been cultivated by her people also. Such events are of higher importance than the many battles you have heard of—they begin a new era in the history of Europe.

The first political event

* This account was written in May,

worthy of notice in Her Majesty's reign was the rebellion in Canada. The colonists were discontented, and some had resolved to become independent of the mother-country as the United States had done. Their attempts were soon defeated, and in 1838 the EARL OF DURHAM was sent out as Governor-General to restore order. He united the two provinces of Upper and Lower Canada, and transferred the seat of government from Toronto and Quebec to Montreal.

In 1839, the association of men, called Chartists, broke out into riot at Newport, in Monmouthshire. Most of the confederates, who were principally Welshmen, marched down the hills in the night and got possession of the town. They were, however, soon defeated by a small body of soldiers; and three of their leaders, named Frost, Jones, and Williams, were apprehended, tried, and sentenced to death, but were afterwards transported for life.

Perhaps you would like to know what is meant by a Chartist. A large number of the labouring classes, working miners, manufacturers, and journeymen of all trades, wish to obtain what is called the PEOPLE'S CHARTER. This Charter advocates five points:—1st, *Universal Suffrage* in the election of representatives; 2nd, *Vote by Ballot*; 3rd, *Annual*

Parliaments; 4th, the *Payment of Members* of Parliament for their services; and, 5th, the *Abolition of the Property Qualification*; for at present no man is qualified to represent a borough or town in Parliament unless he possesses £300 a year, or to represent a county unless he has £600 a year.

In the year 1840 war was begun with China. The war was a short but somewhat cruel one. The Chinese government had forbidden the importation of opium into their empire, for the effects of this drug upon the people were even more dreadful than that of intoxicating drinks upon the English. Our merchants, however, found the trade to be very profitable, and would not regard the prohibition. The Chinese government, therefore, seized three million pounds worth of opium, and the English in consequence declared war.

In this war our forces blockaded CANTON, took possession of the Island of CHUSAN, and penetrated to the very walls of NANKIN. The Chinese were then glad of peace. In 1842 they agreed to pay 27,000,000 of dollars in three years for the expenses of the war, to cede the Island of HONG KONG to the English, and to open four other ports besides Canton for commerce with the rest of the world. Since then, the trade with China has greatly increased.

HISTORY.

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TWENTY-SECOND WEEK. NATURAL HISTORY.

MONDAY.

REPTILES.

W. HERE, papa, is the tortoise which you bought the other day of a man in the street.



The Tortoise.

I remember the particulars which distinguish it as a reptile.

1. It has *cold blood*.

2. It is covered with *scales* instead of hair.

3. It can live either on the land or in the water.

4. Its limbs are short so that its body nearly touches the ground. It therefore *creeps* on the land; and from the Latin word *repto*, I creep, it is called a REPTILE.

P. Besides reptiles that creep and swim, there are some that *fly*. There is in India a small lizard with wings, called the Dragon (*Draco volans*).

L. So that there are *reptiles* which can move in the water, air, and earth; *birds* which can move in the water, air, and earth; and *mammals* which can

move in the water, air, and earth.

P. And there is one mammal that moves *under* the earth. You may add the following general particulars of reptiles.

5. They are *oviparous*; that is, their young are born in eggs.

6. Their blood is not only cold, but it has not a *complete* circulation—part of the black venous blood is not purified in the lungs, but it mixes with the arterial blood—this mixture takes place in the heart.

7. Their *senses* are generally rather obtuse; they have no special organ of *touch*—the *nose* is not much developed—the *ear* is less perfect than in Mammals and Birds.

8. In their food they are generally *carnivorous*—few live on vegetable matter only, they mostly eat a living prey, and swallow it whole. Some are quite destitute of teeth; others have teeth for seizing their prey, but not for eating it; and others have teeth not only in their jaws, but in the palate.

9. They *grow slowly*, but they live to a great age; in cold countries they are torpid during the winter.

These are the principal distinctions of the classes. It may be divided into four orders.

ORDER 1.—TORTOISES (*Chelonia*).—The framework of these animals is curious. They are enclosed in two great shields; the lower one is called the *plastron*, and the upper which covers the back is called the *carapace*; these are joined together on each side, but they leave openings in the front and back for the passage of the head, feet, and tail. The carapace is formed by a peculiar expansion of the spine and ribs, and the plastron by an expansion of the breast-bone.

Tortoises have *no teeth*, but the jaws (or mandibles) have sharp bony ridges; sometimes the upper mandible fits into a groove in the lower one, giving a very firm grasp; some have a horny beak. These animals *move* slowly, and *live* slowly, but are tenacious of life; they will outlive the most severe wounds for weeks. They also have great *length of life*—a Garden Tortoise has been known to live 220 years, or much more.

There are four tribes in this order.

1. The *Land Tortoises* (*Testudinidæ*); some of these, found in the Galapagos Islands, weigh nearly 300 pounds each.
2. The *Marsh Tortoises* (*Emydæ*) have a more flattened shell than the first tribe. Their feet are armed with sharp claws, expanded and webbed between the toes. They eat fishes, frogs, newts, and insects with eagerness.
3. The *River Tortoises* (*Trionycidæ*), which live entirely in the water. Some of these, in the Ganges, are carrion-feeders, and devour the human bodies always found floating on that stream.
4. The *Marine Tortoises*, or *Turtles* (*Chelonidæ*); these eat the crabs, shell-fish, &c. found in the sea. The *Green Turtles* sometimes (but not often) grow to an enormous size, between 500 and 800 lbs. The horny plates of the

Hawksbill Turtle are those known as tortoise-shell.

ORDER 2.—THE LIZARDS (*Sauria*).—The 2nd order of Reptiles differ from the tortoises, because their vertebrae and ribs are moveable; they have not a horny beak, but the jaws are armed with teeth. These teeth are always pointed, therefore they are not fitted for chewing the food—only for seizing it. The body of a Lizard is not so flat as that of a tortoise, but is long and round, with a long tail tapering to a point. Most Lizards have a thin, dry, and protractile tongue (that is, a tongue which can be thrust forward).

The order contains ten families.

1. The *Crocodiles*.
2. The *Chameleons* (these animals change their colour as the quantity of blood in the skin varies—the tongue is very protractile; it can be darted out to a distance greater than the length of the body, and at the end is a kind of sticky cushion on which flies and other insects are easily caught).
3. The *Gechos* (small-sized lizards, very numerous in Africa).
4. The *Iguanas* (which are very large and live on trees—they have a crested saw-like ridge on the back, and a curious pouch under the lower jaw; in the West Indies they are used as food).
5. The *Agamas*;
6. The *Varans*; (one of these, found in the Nile, is very destructive to the Crocodile's eggs).
7. The *Teguixins*.
8. The *True Lizards*, some of which are found in England.
9. The *Snake-like Lizards*.
10. The *Scinks* (one species of this tribe, called the *Slow-worm*, or *Blind-worm*, inhabits England); it connects this order with the next, for it is almost a snake. It has no external legs, they are but rudiments found beneath the skin. Besides these there are the remains of several *Antediluvian* lizards, of enormous

size, such as the *Ichthyosaurus*, *Plesiosaurus*, &c.

ORDER 3.—THE SERPENTS (*Ophidia*).—This order resembles the Lizards in their structure, but they are destitute of the breast-bone and limbs. Yet they have rapid motion. They appear to glide over the earth without touching it, sometimes so rapidly that the eye can scarcely follow them. "The spine consists of between 200 and 300 small vertebrae, which are united by a ball-and-socket joint. When moving, the serpent first rests on a joint of his body near the head, and then draws itself up into one or more arches; then, resting on a joint near its tail, it shoots forward, and straightens itself."

Serpents are distinguished by having teeth in the palate as well as the jaws—particularly two long and sharp-pointed fangs, which are poisonous. The poison is situated in a gland at the root of each fang, and, when the animal bites, it passes down the tooth through a groove.

The *jaws* of serpents are composed of separable and moveable pieces. They can thus open their mouths to an enormous width, so as to swallow animals larger than themselves. The sharp teeth point inwardly, and are only fitted for retaining the prey within the mouth; for, as it has been said, most reptiles swallow their prey whole. Like worms and spiders, serpents shed their skin periodically.

There are three tribes of Ser-

pents. 1. The *Harmless Snakes*, such as the Colubers and the Ringed Snake, which is found in England. In this tribe are also the great Boas, which are found in the tropics—the Boa Constrictor is well known. 2. The *Poisonous Snakes*, such as the Rattle Snake and the Viper. 3. The *Water Snakes*, which in their movement are much like eels.

ORDER 4.—THE FROGS (*Batrachia*).—These have a soft naked skin. The young are, at their birth, like fish, for they breathe through gills, and are called Tadpoles. The food of Frogs consists of insects, slugs, &c., which are captured principally by the tongue.

There are three tribes in the Order—the *Frogs*, the *Toads*, and the *Tree Frogs*. Many members of these tribes represent animals of the first three orders. The Lizards are represented by the *Eft*, or Water Newt, while others represent Tortoises and Serpents.

Memory Lesson, 32.

REPTILES.

Reptiles are known by (1) *their limbs fitted for creeping, or swimming, or even flying*; (2) *their covering of scales*; (3) *their cold blood and imperfect circulation*; and (4) *mode of reproducing their young in eggs*.

The class contains four orders, viz., TORTOISES, LIZARDS, SNAKES, and FROGS. These are subdivided into various families.

The fountain in its source,
No drought of summer fears;
The farther it pursues its course,
The nobler it appears.

But shallow cisterns yield
A scanty, short supply;
The morning sees them amply fill'd,
At evening they are dry.

VICTORIA.

WE talked last week of three political events during the present reign—the rebellion of the Canadians, the Chartist riots, and the war with China.

During the period of the war with China another contest was carried on with the Viceroy (or *Pasha*) of Egypt. A viceroy is one who governs for another. There had been a long contest between Mehemet Ali, the Viceroy of Egypt, and his titular sovereign, the Sultan of Turkey. The great powers of Europe at length interfered on behalf of the latter. In 1840, an English squadron under Commodore Napier was sent to assist the Turkish fleet. They took possession of ACRE, BEYROUT, and the whole coast of Syria which Mehemet Ali had seized some time before. Napier and the Turks next prepared to attack the great Egyptian city, ALEXANDRIA; but a treaty was then made, by which Syria was restored to the Turks; the government of Egypt was secured to the Pasha and made hereditary in his family. A few years after Mehemet Ali became imbecile, and in 1848 his son IBRAHIM became Viceroy in his place. Ibrahim died in the same year, and was succeeded by his nephew Abbas.

The treaty with Egypt, like that after the Chinese war, led to increased commerce and intercourse with the people. Egypt has since been much

explored, and the famous relics of ancient times have been much visited.

In 1842, the year in which the Chinese war was ended, a severe contest was begun in AFGHANISTAN, a country at the west of India. *Sha Soojah*, the governor of Afghanistan, was displaced by an usurper named *Dost Mahommed*. The British army expelled this man, and restored *Sha Soojah*; but as they were returning from CABUL, the capital of Afghanistan, to India, and were marching through the KHYBER PASS, they were attacked by *Akhbar Khan*, *Dost Mahommed*'s son. In the narrow passes of the mountains they had no chance of escape, and the whole army of 13,000 men were murdered, except one who escaped to tell the tale!

In 1843 war broke out in SCINDE; but the victory gained by Sir Charles Napier at *Mewanee*, and the taking of *Hyderabad*, restored tranquillity.

The PUNJAB is another district of India. It is situated in the western part, and borders Afghanistan. It is so called because it is watered by five rivers, which are tributaries of the *Indus*, as you may see on the map. This beautiful country is inhabited by a hardy and warlike race, called the Sikhs.

In 1845 the Sikhs invaded the British territory in India, and attacked the fortified town of MOODKEE, which is near the

river Indus. Although they numbered 30,000, they were repulsed by *General Sale*, who was, however, slain in the action. Fierce and bloody battles were fought at FEROSHESAH, ALI WAL, SOBRAON, CHILLIANWALLAH, MOOLTAN, and GOOZJERAT. During 1846 and the three following years, the slaughter in some of these battles was immense; but the wars ended in the conquest of the Sikhs, whose country, the PUNJAB, was added to the British dominions.

Let us turn with gladness from these fearful events in foreign countries to the quieter scenes of home. In 1846 the *Corn Laws* of England were repealed. You heard how Mr. Huskisson introduced the principles of *Free Trade*, during the reign of GEORGE IV., by taking off the duties on several articles of commerce. The people of England had long thought that the duty should also be taken off all *corn* imported into this country. Corn is necessary to make the *bread* which every poor hard-working man eats. So it was said to the Government, "You ought to let the foreign nations send as much corn as they can to this country, and not charge duty upon it, so that the poor man may buy his bread as cheaply as possible." It was said, too, "If foreign nations find that they can sell their corn in this country they will take some of our manufactures in exchange; thus there will be work for more hands in the manufacturing towns."

But many people opposed any change in the *Corn Laws*, especially the nobility and those who possessed land. They said to the Government, "Foreign nations, such as the people of Russia, Germany, and America, have wider countries than England—they can grow more corn than we can, and can sell it for less money. So, if you take off the duty on the corn they import, we shall be obliged to sell our corn as cheaply as they do. The farmers who grow the corn will then not be able to give us so much rent for our land as before, and they will not be able to give their labourers good wages. The change may be a good thing for those who live in towns, but it will be very bad for the country people."

Then the people who wished the *Corn Laws* to be altered said, "No; this change will be a good thing for *all*! The poor man in the country and the poor man in the town will buy their bread much cheaper, and all will have plenty to eat."

The agitation which had been going on for some years now increased. It became as violent as that of the *Reform Bill* and the *Catholic Emancipation Bill*. A gigantic association of people, called the ANTI-CORN-LAW LEAGUE, was formed, at the head of which were COLONEL THOMPSON, MESSRS. FOX, WILSON, BRIGHT, and CORDEN. Tens of thousands of pounds were subscribed to carry out the objects of the League. The leaders whom I

named, and other men, travelled through the country, holding immense public meetings; and thousands of petitions were sent to Parliament, praying that the Corn Laws might be repealed.

SIR ROBERT PEEL had been the prime minister of the country since the year 1841. He had always been the friend of the "aristocracy," who looked upon him as their leader. For their sakes he would not consent to the proposed change, because the lands which they owned would thus become less valuable. But Sir Robert was at heart the friend of truth and justice also. In the year 1842, therefore, he much decreased the duty on corn; but in 1846 he found that the nation, which MR. COBDEN had aroused, now insisted on the abolition of the duty more strongly than ever. He therefore confessed honestly that his own opinions were wrong, and that the nation was right. He brought in a bill for the absolute repeal of the *Corn Laws*, which was quickly carried through Parliament, and received the consent of the Queen on the 26th June.

Since the repeal of the duty on corn the people have had much cheaper bread; but after the reduction of the duty in 1842, it was necessary to impose other taxes to make up for the loss of revenue. Sir Robert

Peel therefore introduced a new INCOME TAX, by which all whose income was more than £150 per annum were to pay a duty of 7d. in the pound.

In the present year, 1853, the nation still pay Income Tax. But the government have now learned as a certainty that free trade is a good thing. They find that by reducing or abolishing the duty on articles of trade, commerce becomes more flourishing, and the nation becomes richer. They have lately reduced the duty on *tea*, and abolished the taxes on other articles which we consume every day. As the people buy these things more cheaply, they can afford to pay the Income Tax more easily than before. But the Government now perceive that free trade will soon make the nation so rich that the Income Tax may be easily abolished.

The years 1845 and 1846 were remarkable for the failure of the potato crop in Ireland, and the severe famine which followed. The distress was increased by the failure of the *corn* crops also in 1846, throughout England, Ireland, and nearly all Europe. The Parliament granted £10,000,000 for the relief of the dying Irish; vast private subscriptions were made, and many thousands of the poor people were sent as emigrants to America.

HAPPY the man who sees a God employ'd
In all the good and ill that chequer life!
Resolving all events, with their effects
And manifold results, into the will
And arbitration wise of the Supreme.

MULTIPLICATION.

THE figure 1 by itself stands for *one* object only; but if another figure be placed before it, it then stands for *ten* objects, thus :

$$\begin{array}{r} X\ I \\ 1\ 0 \end{array}$$

So, also, if you place 0 before any number, it is multiplied by ten; 36 with 0 before it becomes 36 *tens*, or three hundred and sixty, thus :—

$$\begin{array}{r} C\ X\ I \\ 3\ 6\ 0 \end{array}$$

But suppose you place *two* noughts before 36, thus :—

$$\begin{array}{r} I\ C\ X\ I \\ 3\ 6\ 0\ 0 \end{array}$$

Ada. Then the 36 ones become 36 hundred; they are *multiplied* by a hundred.

P. True; and if you place *three* noughts before 36, it is multiplied by a thousand, thus :

$$\begin{array}{r} X\ I\ C\ X\ I \\ 3\ 6\ 0\ 0\ 0 \end{array}$$

You can understand this; therefore, you can easily understand the following sum :—

Multiply 16,426 pins by 4,721.

$$\begin{array}{r} X\ I\ C\ X\ I \\ 16,426\ \text{pins} \\ 4,721 \end{array}$$

$$\begin{array}{r} 16,426 = \text{once the pins.} \\ 328,520 = 20\ \text{times do.} \\ 11,498,200 = 700\ \text{times do.} \\ 65,704,000 = 4,000\ \text{times do.} \\ 77,547,146 = 4,721\ \text{times do.} \end{array}$$

Here is the explanation :—

To take one time the number of pins I multiply by 1.

To take *twenty* times I multiply by the 2, and place 0 after the product, which makes it ten times as much—you know that 2 times multiplied by 10 makes 20 times.

To take seven hundred times I multiply by the 7, and place 00 after the product, thus the 7 times becomes 700 times.

To take four thousand times I multiply by the 4, and place 000 after the product, thus the 4 times becomes 4,000 times.

I then add the different products together—4,000 times, 700 times, 20 times and 1 time added together make 4,721 times.

Now, in multiplying, it does not matter which part of the multiplier you use first. You may multiply by the 4,000 first, and by the last if you prefer it; thus :—

$$\begin{array}{r} X\ I\ X\ C\ I \\ 16,426\ \text{pins} \\ 4,721 \end{array}$$

$$\begin{array}{r} 65,704,000 = 4,000\ \text{times.} \\ 11,498,200 = 700\ \text{times.} \\ 328,520 = 20\ \text{times.} \\ 16,426 = 1\ \text{time.} \end{array}$$

$$77,547,146 = 4,721\ \text{times.}$$

Or, if you like to make a change, you may multiply 700 times first; by the 4,000 times next; by the 1 next; and by the 20 last. You may arrange the different products in *any* way, provided that you do not make the 700 times 70 times by adding only one 0, or the

20 times 2,000 times by adding three noughts to the product, or similar mistakes.

Ada. I think that I can work a long multiplication sum now. May I try?

P. Yes; but before giving you any examples, I would say that you need not always take the trouble to *write* the noughts for multiplying by hundreds and thousands; you may, after a time, make *dots* instead; or you may even omit the dots, if you put the figures *in the place they would occupy, if the noughts were placed before them.*

Exercise 16.

LONG MULTIPLICATION.

764 boys have each 4,621 marbles; how many have they in all?

A man built 28 houses, and each house contained ninety-four panes of glass; how many panes were there?

If fifty-two nails are used in making a trunk, how many will be required for 321 trunks?

4,765 geese were plucked and each goose yielded 26 quills; how many quills were there in all?

A gentleman bought an estate containing 5,968 acres, at the rate of £26 per acre; how much did he pay for the estate?

How many pins may a boy point in 6 days who works 8 hours a day, and points 16,000 pins in an hour?

How often does a clock strike in a year at the rate of 156 times a day?

Suppose the page of a book to contain 49 lines, and each line 47 letters; how many letters does the whole page contain?

A father has five children, their food and clothing cost him two pence a day each; how many pence each does the support of the children come to in the year?

In a school, there were six windows in the boys' room, and twelve in the girls' room; in each window there were eight panes of glass; how many panes of glass were there in all?

How many miles will a person travel in 34 years, supposing he travels nine miles per day, and there are 365 days in the year?

Multiply sixty-four thousand eight hundred and fifty-two by nine hundred and eighty-seven.

Multiply four hundred and fifty-eight thousand six hundred and ninety-four, by eight thousand and seventy-six.

Multiply nine hundred and eighty-six thousand seven hundred and forty, by four hundred and nine.

Edward and William were brothers; Edward used to work every day 2 hours longer than his brother; tell me how many more *minutes* than his brother did he work in one day. Then tell me how many *seconds* he worked longer than his brother did. Then say how many seconds he would work more than his brother, in 313 days.

Multiply 740,321 by	456
" " "	329
" " "	403
" " "	901
" 460,016 "	4,073
" " "	3,002
" " "	3,007
" " "	4,061
" 396,170 "	4,614
" " "	3,009
" " "	7,310

COMPOUND MULTIPLICATION.

P. COME, Ada, and work some *Compound Multiplication*.

Ada. I'm coming, papa.

P. Multiply £46 14s. 8½d. by 48.

Here you are in a difficulty. If you want to take 40 times that sum you cannot do so by multiplying by 4, and putting a 0 at the end of the line.

Ada. Then what am I to do, papa? Am I to write £46 14s. 8½d. 48 times, and add them all together?

P. No, that would be too much trouble. You must find two factors of 48.

Ada. But, suppose I can't find them. What are they?

P. The word *factors* means *makers*. Thus 8 and 6 multiplied together make 48. Suppose I give you 8 times the above sum of money.

Ada. Then I shall possess 8 sums of money.

P. Then suppose I give you 8 times the amount again?—that will be *twice* 8 times.

Ada. Then I shall have 16 sums of money.

P. And if I give you 8 times the amount again?—that will be 3 times 8 times.

Ada. Then I shall have 24 sums of money.

P. And when I have given you 8 times the amount 4 times, you will have received 32 sums of money. When you have received 8 times the amount 5 times, you will have 40 sums of money; and when you have

received it 6 times, you will have 48 times as much money—6 times 8 times are 48 times.

Ada. I can understand that.

P. Thus you see why 6 and 8 are *factors* of 48—they *make* that number. So, to multiply this sum of money by 48, I first multiply by 8; and then, if I multiply the 8 times by 6, it will give me —?

Ada. 48 times, of course. Please do it.

P. Very well.

£	s.	d.
46	14	8½
		8

373	17	8	= 8 times.
		6	

£2243	6	0	= 48 times.
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You may prove this sum by writing £46 14s. 8½d. 48 times, and adding them together, as you first proposed.

If you know your multiplication table you will find it easy to multiply by any number that can be made with two factors. Thus, 4 times 5 times are the same as 20 times; 3 times 5 times are the same as 15 times; 6 times 9 times are the same as 54 times.

Some numbers have more than two factors. For instance, if you wished to take 36 times £46 14s. 8½d., you might take 6 times 6 times, or 4 times 9 times, or 3 times 12 times.

Suppose that you multiply that sum with these three sets of factors, you will find the results to be the same.

Ada. But, suppose that I had to take 37 times? There are no two factors that will make 37.

P. Then you must take 36 times, and add 1 times the sum to the 36 times.

Ada. Yes; that would make 37 times.

P. And if you took 3 times 12 times, and added 5 times the sum to that, how many times the amount would you have?

Ada. 41 times. I will show you how I should take 34 times. I should take 3 times 10 times and add 4 times, or I should take 6 times 5 times and add 4 times, or I should take 4 times 8 times and add 2 times, or I should take 3 times 11 times and add 1 time, or I should take 5 times 7 times and subtract 1 time, or I should take 6 times 6 times and subtract 2 times, or I should take 4 times 9 times and subtract 2 times, or I should take 3 times 12 times and subtract 2 times. There would be 8 different ways of working that sum!

P. Yes, you shall work that example in eight different ways; and others also.

Exercise 17.

COMPOUND MULTIPLICATION.

How much is 40 times 16s. 2d.?

How much is 35 times 15s. 1½d.?

84 pair of gloves cost 3s. 2½d. per pair. What was the cost of the whole?

How much would 7 dozen pair of gloves cost, at 3s. 2½d. per pair?

If I have to pay £9 15s. 4d. each for 16 animals, how much will they cost me? (Work this sum in the following different ways:—4 times 4 times—2 times 8 times—2 times 7 times, and 2 times added to the amount—3 times 5 times, and add *once* the sum. 2 times 6 times and 4 times added to the amount—3 times 4 times and 4 times added to the amount—twice 9 times and 2 times subtracted from the amount.)

I sold 20 sheep, and gained on each £1 3s. 1½d. How much did I gain in all? (Work this sum in four different ways.)

What would a man earn in 6 weeks, if his wages were 3s. 4d. per day? (Work this sum in 8 different ways—remember that the man does not work on Sundays.)

What would a cab-man, or an omnibus-driver earn in 3 weeks, at the rate of 2s. 8d. per day. (These men *do* work on Sundays.)

	£	s.	d.	
Multiply	64	16	7½	by 32
"	86	13	4½	" 72
"	69	12	6½	" 90
"	648	19	7½	" 68
"	367	16	4½	" 24
"	98	13	8½	" 84
"	42	16	7½	" 46
"	63	12	8½	" 64
"	746	0	7½	" 96
"	820	7	6½	" 26

What do 4 lbs. of butter come to at 1s. 1d. per lb.

What do 16 lbs. of tea cost at 5s. 3d. per lb?

What do 27 gallons of spirits cost at 6s. 9d. per gallon?

Patrick gets 1s. 9d. per day; how much is that in 6 weeks?

What is the cost of 72 cwt. of sugar at £3 9s. 7½d. per cwt.?

DIVISION.

P. SUPPOSE, Ada, that you wished to divide 80 marbles among six boys, what would you do?

Ada. I know. I should give them one a-piece all round, to begin with; then if there were any marbles left (of course there would be if there were only six boys), I should give them one a-piece again; and I should go on doing that until I had given them all away.

P. I wish you would show me on your slate how you would do it.

Ada. Yes, I will. It is very easy. You see that every time I give one marble a-piece to each boy I have six marbles less. So I have only to subtract 6 marbles from 80, and keep on subtracting 6 from what are left until they are all gone. So:

Marbles.

80

—

6

—

74

6

—

68

6

—

62

6

—

56

6

—

50

—

44

—

6

—

38

6

—

32

6

—

26

6

—

20

6

—

14

6

—

8

6

—

2

—

So that I should give away 6 marbles 13 times. Each boy would then have 13 marbles, and there would be 2 over.

P. And what would you do with them?

Ada. I don't know—they would be the remainder. I should keep them for myself. They would be like the "remnant" which the linendraper had the other day when he measured mamma two yards of silk, and there was part of a yard over.

P. Very true. What have you learned by the sum you have just written?

Ada. I see that there are 13 sixes in 80, and 2 marbles over for myself.

P. And each of six boys had 13 marbles?

Ada. So there would also be 6 thirteens and 2 over.

P. True; you may therefore say two things of the number 80.

(1.) 80 = thirteen *sixes* and 2 over.

(2.) 80 = six *thirteens*, and 2 over.

You may prove the last statement by trying how many *thirteens* you can subtract from 80.

P. You can now see, that division is a kind of subtraction, just as multiplication is a short way of addition.

But I must show you a shorter way of working your division sums. Suppose, again, that you have 80 *pears* to divide amongst your six friends. You will not take so much trouble this time. You will say to yourself, "I am sure that there is more than *one* a-piece. I could give ten a-piece to each boy, for I know that ten *sixes* are only 60.

Ada. And when I had taken away the ten *sixes*, each boy would have 10 *pears*, and there would be 20 left for myself.

P. Yes; and you would write that in this way—

$$\begin{array}{r} \text{Boys. Pears. Pears.} \\ 6 \) \ 80 \ (\ 10 \\ \underline{} \\ 60 \\ \underline{} \\ 20 \text{ remainder.} \end{array}$$

But you must not keep those 20 *pears* for yourself. You would have first to see if you could get any more *sixes* out of such a large remainder.

Ada. Yes, I could. 3 *sixes* are only 18. So I should give each boy 3 more *pears*, and when I had taken away the 18

from the 20 there would be 2 *pears* left for me—just as before with the marbles.

P. And each boy would have 10 *pears* and 3 *pears*, which are 13. I will write this for you on the slate.

$$\begin{array}{r} \text{Boys. Pears. Pears.} \\ 6 \) \ 80 \ (\ 10 \\ \underline{} \\ 60 \quad 3 \text{ pears.} \\ \underline{} \\ 20 \quad 13 \text{ pears.} \\ \underline{} \\ 18 \quad \underline{} \\ \underline{} \\ 2 \text{ remainder.} \end{array}$$

You see I have worked the sum by *subtraction*, as you worked yours; but how much shorter it is! I only make *two* subtractions. I first subtract *ten* *sixes*, and write 10 on the right-hand side, to show how many I have subtracted. I then subtract 3 *sixes*, which I also mark on the right-hand side.

Ada. Yes; that is better than taking away only one 6 at a time.

P. Here is another way of working the sum. You know, by your multiplication table, that *twelve* *sixes* are 72, which is not so much as 80. So you may at once subtract 12 *sixes* instead of 10, and then see if you can get more *sixes* out of the remainder. Thus—

$$\begin{array}{r} \text{Boys. Pears. Pears.} \\ 6 \) \ 80 \ (\ 12 \\ \underline{} \\ 72 \quad 1 \text{ pear.} \\ \underline{} \\ 8 \quad 13 \text{ pears.} \\ \underline{} \\ 6 \quad \underline{} \\ \underline{} \\ 2 \text{ remainder.} \end{array}$$

Ada. I can understand that sum just as well as the other.

P. But you know that we arrange all large numbers in *ones, tens, and hundreds*. Therefore, when you have to divide such a large number, it is better to subtract the number you are dividing by in quantities of ones, or tens, or hundreds.

Ada. I don't understand what you are talking about.

P. So I expected; let us come to the example.

Pears.

XI

$6 \overline{) 80}$

$13 - 2$ remainder.

2

This sum is done exactly in the same way as my first example. It is only *written* differently. Out of the 8 tens I get 6 tens, and 2 tens remainder. I put down 1 under the tens, and the 2 tens over I write with a small figure underneath, that I may remember them. These 2 tens make 20 *ones*. Out of the 20 ones I get 6 threes and 2 remainder. The 6 tens and 6 threes are 6 thirteens (or 13 sixes)—the working, you see, is the same as before—but instead of *writing down* my subtractions, I do them mentally—in my head, as you say.

Ada. Now, papa, will you let me see you work a good long sum in division?

P. Yes. Here is a question. How many *sevens* are there in 824,692?

$$\begin{array}{r}
 CXI \quad CXI \quad CXI \quad CXI \\
 7 \overline{) 824,692} \quad (100,000 \\
 \underline{700,000} \quad 10,000 \\
 \quad \quad \quad 7,000 \\
 \quad \quad \quad \underline{800} \\
 \quad \quad \quad \quad 10 \\
 \quad \quad \quad \quad \underline{3} \\
 \quad \quad \quad 55,692 \\
 \quad \quad \underline{49,000} \quad 117,813 \\
 \quad \quad \quad \underline{5,692} \\
 \quad \quad \quad \underline{5,600} \\
 \quad \quad \quad \quad 92 \\
 \quad \quad \quad \quad \underline{70} \\
 \quad \quad \quad \quad \quad 22 \\
 \quad \quad \quad \quad \quad \underline{21} \\
 \quad \quad \quad \quad \quad \quad 1 \text{ remainder.}
 \end{array}$$

Ada. That sum seems a dreadful thing to do. You first got out a *hundred thousand* sevens; and when you had subtracted them you took *ten thousand* sevens; from the remainder, again, you took away *seven thousand* sevens; and from what was left you subtracted *eight hundred* sevens; from the remainder you got *one ten* sevens; and from the next remainder you subtracted three sevens. The remainder then was only one, so I suppose you kept that for your trouble.

P. Perhaps I did. At all events I got out 117,813 times 7, which is the same as 7 times 117,813. I will now write the sum in the shorter way. I will then repeat the working to you, which you will see to be the same as before.

$$\begin{array}{r}
 CXI \quad CXI \\
 7 \overline{) 824,692} \\
 \underline{117,813} - 1 \text{ remainder.}
 \end{array}$$

Working of sum:—

In 8 hundred-thousand there are seven 1 hundred-thousand and a one hundred-thousand over (just as in 8 marbles there are 7 marbles and one marble over). This *one* hundred-thousand I change into *ten* ten-thousand, and add them to the *two* ten-thousand, which make *twelve* ten-thousand.

In *twelve* ten-thousand there are seven times *one* ten-thousand, and five ten-thousand remainder. So I put down 1 under the ten-thousand, and carry the 5 ten-thousand. The five ten-thousand make 50 single thousand; these, added to the four-thousand in the next place, make 54 thousand.

In 54 thousand there are seven times 7,000, and 5 thousand remainder. I put down the 7 thousand, and change the 5 thousand remainder into 50 hundreds; these added to the 6 hundred in the next place make 56 hundred.

In 56 hundred there are seven times 800, and no remainder. I write down 800 by putting an 8 in the place of the hundred.

In 9 tens there are seven times *one* ten, and 2 tens over. I put down 1 ten, and change the 2 tens remainder into 20 ones. 20, and 2 ones, in the next place, make 22 ones.

In 22 ones there are seven times 3 ones, and 1 remainder, which you see I have placed at the end of the line of figures.

Before we go any farther, I should tell you that the line 824,692, which is divided, is called the *dividend*; the 7 by which the dividend is divided is called the *divisor*; and the amount produced by dividing the dividend is called the *quotient*. Now will you look at the quotient, while I read to you the different amounts

which we got out of the dividend?

When I divided 824,692 pears into 7 parts, I first got out 7 *one hundred-thousands*; secondly, I got out 7 *ten-thousands*; next, 7 *eight-hundreds*; next, 7 *tens*; and lastly, 7 *threes*. Then there was one pear left for myself.

Ada. That is quite right.

P. Yes. But let me read all the quantities together once more. Out of 824,692 pears I got seven parcels of 117 thousand 813 pears, and 1 over.

Ada. Quite right. You are a *very* good boy, papa! And now that you have done your sum so nicely, you may give me one to do. Please give me a *long exercise*, and you shall see how I will work! I can divide anything now.

P. Anything! Can you? Then divide the 1 pear remainder by 4.

Ada. Oh!—but you can't do that.

P. You shall see (opening his penknife). Do you give it up?

Ada. Yes, it's impossible. "Fours into 1 *won't go!*" That's what Willie says; I've heard him when he has been working on his slate—4 into 1 goes 0 and 0 remainder.

P. Now I will work on the *pear* instead of the slate (Papa cuts it into 4 pieces). You see it is divided by 4!

Ada. Yes! no!—it's *cut*. Let me think! No; it is divided *into* 4; not *by* 4.

P. That is right. To divide means to *cut into*; those are your own words. When we

divided 824,692 pears by 7, that quantity was *cut into* 7 parts, and each part was 117,813 pears.

Ada. And 1 over. Then you would divide that by 7 if you cut it into 7 pieces. Pray what would you call each piece?

P. Each piece would be called $\frac{1}{7}$ th: as I have now divided it into 4, each piece is called $\frac{1}{4}$ th. Such small pieces, which are less than whole ones, are called *fractions*. You see that I have written them with small figures.

Ada. Well, I should never have thought of dividing 1 by 4, if you had not shown me. Yet I have done so myself before now.

P. True. That showed that you had not yet got the right idea of "Division." Be sure and always remember, for the future, that to *divide* any number means to *cut it into parts*. Now, I'll write—

Ada. But just one moment more, papa. You couldn't divide $\frac{1}{4}$ th by 4, could you?

P. Yes I could—I can. See me divide the $\frac{1}{4}$ th of this pear. I have cut it into 4 parts, and I get $\frac{1}{16}$ ths. Again I cut $\frac{1}{16}$ th into 4 parts, and I get $\frac{1}{64}$ ths. Again, I divide $\frac{1}{64}$ th by 4, and I get $\frac{1}{256}$ ths. And, if you will remember that to divide is to *cut into pieces*, you may go on dividing and dividing; and may divide pears, apples, sticks, stones, small numbers, large numbers, fractions, mites, and—as you said just now—you may divide *anything*!

When you have finished your

exercise, you shall divide this pear with me. You shall have $\frac{3}{4}$ ths, which make *one-half*, and I will keep the $\frac{1}{4}$ th and the $\frac{5}{8}$ ths, which make the other half.

Exercise 19.—SHORT DIVISION.

Seven boys had 868 marbles divided equally between them. How many had each boy, and how many were there over?

Five sheep cost £40. How much did each sheep cost?

Our large cistern contained 642 gallons of water; but when we pulled out the plug the water ran out at the rate of 6 gallons an hour. In how many hours was it emptied?

What number is the 8th of 67367

What number is the 4th of 67367

What number is the 9th of 72?

How many eights are there in 72?

How many times can I get 11 out of 88?

How many times can I get 8 out of 88?

How many *sixes* are there in 54?

How many *nines* are there in 54?

Divide four thousand two hundred and ninety-nine by 3.

$$\begin{array}{r} 4) 27645 \\ \hline \end{array} \quad \begin{array}{r} 5) 68764 \\ \hline \end{array} \quad \begin{array}{r} 6) 79687 \\ \hline \end{array}$$

$$\begin{array}{r} 8) 76426 \\ \hline \end{array} \quad \begin{array}{r} 9) 28676 \\ \hline \end{array} \quad \begin{array}{r} 10) 64268 \\ \hline \end{array}$$

$$\begin{array}{r} 12) 76426872 \\ \hline \end{array} \quad \begin{array}{r} 8) 42687642 \\ \hline \end{array}$$

$$\begin{array}{r} 9) 64268762 \\ \hline \end{array} \quad \begin{array}{r} 12) 46876876 \\ \hline \end{array}$$

$$\begin{array}{r} 8) 46876400 \\ \hline \end{array}$$

LET US WITH A GLADSOME MIND.

Let us, with a gladsome mind, Praise the Lord, for He is kind,

For his mercies aye en-dure, E-ver faithful, e-ver sure.

For his mercies aye en-dure, E-ver faithful, e-ver sure.

He by his wisdom did create
The painted heaven so full of state,
For his mercies aye endure,
Ever faithful, ever sure.
And caused the golden-tressed sun,
All the day long his course to run,
For his mercies, &c.

The horned moon to shine by night,

Among her spangled sisters bright,
For his mercies, &c.

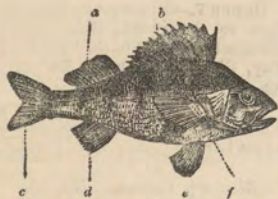
All living creatures he doth feed,
And with full hand supplies their need,
For his mercies, &c.

Let us therefore warble forth
His mighty majesty and worth,
For his mercies, &c.

TWENTY-THIRD WEEK. NATURAL HISTORY.

MONDAY.

FISHES.



The Perch.

a, first dorsal fin; b, second dorsal fin; c, caudal fin; d, anal fin; e, ventral fin; f, pectoral fin.

P. How do you know that this is a fish, Ada?

Ada. Because it lives in the water.

Ion. That is not a sufficient reason. Frogs, &c., live in the water. Here are the distinctions of a fish.

1. It has *cold blood*;
2. Its limbs are *fins*;
3. It *lays eggs*; and,
4. It is covered with *scales*.

P. Which covering is well fitted for its life in the water. Its scales are smooth and slippery, that it may glide through the water easily; they are bright and glistening like the water; they point backwards, and thus favour its forward motion.

The principal instrument of motion is the tail fin (*caudal fin*); the other fins are, with

the *pectoral fins*, fixed on each side of the trunk, behind the head—they correspond to the arms of man; the fins on the back are called *dorsal fins*; those underneath the fish are the *ventral* and *anal fins*.

W. Ion did not mention all the distinctions.

5. Fishes breathe through *gills*.

P. These gills are a series of fine sieves, made to sift out the small quantity of air contained in the water. The impure blood is brought from the heart, and distributed over the gills; water is received in at the mouth, and forced out through the gills; thus the air of the water and the impure blood are brought together.

All the blood of the fish is thus sent to the gills to be purified; it is, therefore, said to have a *complete* circulation, like the mammals and birds. But the quantity of air in the water is very small; thus the blood of the fish receives, perhaps, less oxygen than that conveyed to the blood of reptiles. This is why fishes are, like reptiles, cold-blooded animals.

You may add another distinction:

6. Fishes have air-bladders.

The air-bladder in the fish, when filled, makes it lighter than the water, and helps it to rise; but when emptied, it makes the fish heavier than the water, and helps it to sink.

Fishes generally have teeth, but, like those of the reptiles, they are sharp and pointed, and fitted only for holding their prey.

There is another general particular belonging to fishes which is very interesting—viz.:

7. Fishes migrate, like Birds.

The class fishes may be arranged into nine orders. The first six form one division, called the osseous, or *bony fishes*; the remaining three orders are *cartilaginous fishes*.

(Bony Fishes.)

ORDER 1.—THORNEY-RAYED FISHES, including the Perch, Gurnard, Stickleback, Sea-bream, Mackerel, Tunny, Sword-fish, John Dory, Lancet-fish, Mullet, &c.

ORDER 2.—SOFT-RAYED FISHES, such as the Carp, Gold and Silver Fish, Barbel, Gudgeon, Tench, Bream, Roach, Bleak, and Minnow. The Pike, Flying-fish, Salmon, Trout, Char, Smelt, Herring, Pilchard, Sprat, White-bait, Anchovy, and Sardine.

ORDER 3.—SOFT-RAYED FISHES (*with the ventral fins beneath the shoulder*), including the Cod, Haddock, Whiting, Hake, Ling, &c.—the Flat-fish, such as the Plaice, Flounder, Turbot, Dab, Brill, Sole, &c.

ORDER 4.—SOFT-RAYED FISHES (*without ventral fins*), including

the Common Eel, Conger Eel, Snake Eel, Electric Eel, &c.

ORDER 5.—TUFT-GILLED FISHES, such as the Pipe-fish, Sea-horse, &c.

ORDER 6.—JAW-SOLDERED FISHES, such as the Globe-fish, Sun-fish, Tile-fish, &c.

(Cartilaginous Fishes.)

ORDER 7.—FREE-GILLED FISHES, including the Sturgeon, &c.

ORDER 7.—FIX-GILLED FISHES, such as the Shark, Blue-Shark, Hammer-headed Shark, Saw-fish, Ray, Skate, Thornback, Torpedo, &c.

ORDER 9.—THE FIXED-GILLED FISHES (with *jaws* also fixed), such as the Lamprey, Hag, and Lancelot.

Memory Lesson.—No. 33.

FISHES.

A fish may be known from a reptile, because its limbs are fins; it lives in the water, it is covered with scales, and it breathes through gills.

The class may be arranged into two divisions—viz., the BONY FISHES, which contain six orders, and the CARTILAGINOUS FISHES, of which there are three orders.

P. This lesson finishes our course of Natural History. You have now heard of the four classes of the sub-kingdom of VERTEBRATED ANIMALS. The remaining sub-kingdoms, the ARTICULATED, the MOLLUSCOUS, and the RADIATED Animals, are invertebrated. They may one day form the subject of another Natural History Course.

VICTORIA.

THE remaining events of Victoria's reign may soon be told.

In the year 1848 all the world was startled by the intelligence of a new land of Gold, called CALIFORNIA, situated in North America. All needy people, and all idle people, and all who would make haste to get rich repaired thither from all parts of the world. I need not talk to you about the gold they found; every one knows what riches were discovered in California.

The year 1848 was also famous for its *Revolution*, which caused more confusion than the discovery of gold had done. In the February of that year the violence of the French people, which had been restrained by Louis Philippe for several years, broke out once more. The king had too much confidence in his own power; he treated the people harshly and unjustly; and then tried to prevent them from holding meetings of Reform. The mob of Paris then broke out into open rebellion. The soldiers "fraternised" with the people; the prisons were thrown open; the Palace of the *Tuileries* was plundered; "*Liberty, Equality, and Fraternity*" were proclaimed; and Louis Philippe and his Queen fled in disguise to England. A republic was once more established in France.

This explosion in France was immediately followed by

similar outbursts from the people of other countries. The inhabitants of *Milan* drove out the Viceroy of AUSTRIA, and the standard of independence was hoisted in all the towns of Northern Italy.

The GRAND DUKE OF TUSCANY was compelled by his subjects to grant them a "constitution." In the same year (1848), disturbances arose at ROME, and the Pope was obliged to flee from "the Eternal City," to *Gaeta*, in Naples. In that year also GERMANY and AUSTRIA were disturbed. The insurrection in Vienna was such that the Emperor was obliged to take flight; and soon afterwards the people of Hungary, which was a part of the Austrian Empire, revolted and tried to become an independent nation.

In PRUSSIA also the people of Berlin raised fierce and bloody tumults. The *Danish* provinces of SCHLESWIG and HOLSTEIN revolted to join themselves to Germany; and in SWITZERLAND, SPAIN, and PORTUGAL, there were discontent and disturbances. In all these kingdoms, however, those who revolted were at last subdued; and now, even in France, the Empire is restored.

While the spirit of revolt was so general in Europe, some of the lower classes in England thought that they also ought to make a revolution. The *Chartists*, whom you have heard

of, thought this time a good opportunity to gain the Charter by force. Accordingly in 1846, the year of the French Revolution, they prepared a *monster petition*, and determined to assemble to the number of 30,000, march with it to the House of Commons, and insist upon the establishment of the Charter.

But when the appointed day, the 10th of April, came, nearly all the citizens and young men of London were enrolled as special constables, to prevent any disturbance, should the Chartists attempt it. The Duke of Wellington also stationed troops near the City, to be in readiness; and intimation was given to the Chartists that if their procession were attempted it would be stopped by force. The courage of the Chartist leaders then failed; and although there had been disturbances in nearly all the kingdoms of Europe, there was no revolution in England.

In 1849 the French besieged Rome, and took possession of it, in order to restore the Pope.

The year 1850 is remarkable for the discovery of the *Gold Fields of Australia*, which are even richer and larger than those of California. They promise to become a source of immense wealth. Nuggets of gold weighing 20, 40, 60, and even 110lbs. have been found!

The most peaceful and happy event of Her Majesty's reign occurred in 1851. This was the **GREAT EXHIBITION OF THE INDUSTRY OF ALL NATIONS.**

This exhibition was originated by His Royal Highness

Prince Albert. The Prince had been for some time the President of the Society of Arts, which was established to promote improvements in science and the manufactures of the country. It encouraged the inventors of these improvements by giving prizes; and it held exhibitions of the article sent by the inventors.

It was thought by the Prince that if specimens of new inventions, of improvements in art, in manufactures, and machinery, were sent by all the nations in the world, instead of the English people only, they would form a very large and wonderful exhibition indeed. The Prince thought, too, that the nations would strive with one another to see which could make the best improvements and gain the most prizes. This would be a better rivalry than that of war; it would be a rivalry in the arts of peace. Nations would teach nations lessons in civilisation. They would unite together as brethren instead of destroying each other as enemies.

I dare say you know how this famous plan was carried out—how all kinds of new and wonderful things were sent from all parts of the earth—how a palace was built of glass and iron, called the **CRYSTAL PALACE**—how it was visited by millions of people, and prizes were given, and the men of science and inventors learned many things from each other. This Great Exhibition was so successful that, when it was closed, the people wished the

splendid Crystal Palace to be preserved. It has, however, been pulled down and a larger one is being built at a place near London, called Sydenham.

During the present reign two of the great statesmen of this country have died. In 1850 SIR ROBERT PEEL was killed by a fall from his horse; and in 1852 the DUKE OF WELLINGTON died in his 83rd year.

The year 1851 was remarkable for another Revolution in France. The President of the "Republic" during that year was LOUIS NAPOLEON, the nephew of Napoleon Bonaparte. He found that the representatives who governed the people were divided into parties; that these parties spent their time in violent disputes; that most of them were enemies to himself; and that, before long, the disorder would end in another civil war. He saw that either they or himself must fall, and determined to try his own power. He therefore, one night, suddenly seized the leaders of the government, and put them in prisons. With the help of the army he dissolved the "National Assembly" of

representatives. He caused the old motto, "*Liberty, Equality, and Fraternity*," to be taken down, and he became the sole ruler of the nation. In the following year, 1852, he abolished the republic, and caused himself to be proclaimed "Emperor" of France.

VICTORIA.

Began to reign . . . 1837

Still reigns . . . 1853

The Principal events of Victoria's reign are the various friendly visits of Her Majesty and Prince Albert to SCOTLAND, IRELAND, FRANCE, and GERMANY; the rebellion of the CANADIANS; the CHARTIST riots; the wars in CHINA, HINDOSTAN, EGYPT, and CAFFRELAND; the Repeal of the CORN LAWS, the Famine in IRELAND; the discoveries of Gold in CALIFORNIA and AUSTRALIA, the GREAT EXHIBITION, and the deaths of SIR ROBERT PEEL and the DUKE OF WELLINGTON.

The principal foreign events are the FRENCH REVOLUTION of 1848, and the various commotions which thence arose in the other kingdoms of the Continent.

In the soft season of thy youth,
In nature's smiling bloom,
Ere age arrive and trembling wait
It summons to the tomb;
Remember thy Creator, God,
For him thy powers employ;
Make Him thy fear, thy love, thy hope,
Thy confidence, thy joy.
He shall defend and guide thy course
Through life's uncertain sea,
Till thou art landed on the shore
Of blest eternity.

THE INVENTIONS, SCIENCE, AND LEARNING OF THE 18TH AND 19TH CENTURIES.

P. In the course of our history I have as usual omitted many of the *social* events. If you look back at the lessons beginning on pages 23, 57, 70, and 88, you will find that we talked of the science and literature of the 17th century, to the end of the reign of Queen Anne in 1714. To-day we will see what progress was made during the reigns of George I., George II., George III., George IV., William IV., and Victoria—from 1714 to 1853—a period of nearly 150 years.

We will speak first of the various *inventions* of each reign.

During the reign of GEORGE I. there were not many remarkable inventions. We may notice, first, that soldiers ceased to wear *defensive armour* in battle. Such armour was but little used after the Civil Wars. In the reign of William III. the armour-makers presented a petition to the House of Commons, praying them to *enforce* the use of armour, that their trade might not be ruined; but in the reign of George I. it was laid aside entirely.

Thread was first made at Paisley, in Scotland; *mahogany* was first imported; and I should have told you before, that the *Act for extending the Parliament from three to seven years* was passed in this reign.

In the reign of GEORGE II. the first *lighthouse* was erected. It was built on the Eddystone

rock, about nine miles from Plymouth, in Devonshire; the invention of lighthouses is a very humane one, and has prevented many a shipwreck.

In this reign the *British Museum* was established. The Parliament bought the splendid collection of curiosities made by Sir Hans Sloane, for £20,000; they were deposited in Montague House, and called the British Museum.

The *alteration in the calendar* was another of the social events of George II.'s reign. In the times before the birth of Our Saviour the calculations were not very correct. They were amended by JULIUS CÆSAR, who calculated the length of the year to be 365 days 6 hours. The years reckoned by this measurement were called the Julian Calendar. In the course of time, however, the astronomers found that the years were still eleven minutes too long; so, in the year 1572, Pope GREGORY XIII. reduced the year to its exact length; it was found that by reckoning eleven minutes too much in each year, eleven *days* had been lost since the time of Cæsar; eleven days were therefore cut out of the month of September for 1572, and the 3rd day of that month was called the 14th.

W. That was a curious change, papa. Did all the people of Europe do so?

P. All the nations except

England, Russia, and Sweden. But the English merchants and others who corresponded with foreigners, found the difference of dates to be very inconvenient; so, in the year 1752, it was ordered by Act of Parliament that the Gregorian Calendar, or *new style*, should be adopted instead of the Julian Calendar, or *old style*. The beginning of the year was also altered; for before 1752 the new year began on the 25th March.

During the long reign of George III. the improvements made were of the highest importance. The inventions of the first ten years gave a new impulse to the prosperity of the kingdom. In the first place, Mr. JAMES WATT, as you have already read in PLEASANT PAGES, greatly improved the *steam-engine*; 2ndly, JAMES HARGREAVES, the carpenter, invented the *spinning-jenny*; 3rdly, RICHARD ARKWRIGHT, the hair-dresser, invented the *spinning-frame*; 4thly, the *spinning-mule* was invented by SAMUEL CROMPTON; and, lastly, the *power-loom* was invented. These improvements produced immense wealth; and the cotton manufacture has since become the chief source of the riches of Britain. Arkwright realised nearly a million pounds by his invention.

With such extensive manufactures, *superior means of conveyance* were necessary. You have read in PLEASANT PAGES of JAMES BRINDLEY, who made canals, and of his patron, the DUKE OF BRIDGEWATER. In the first year of the reign of

GEORGE III. the famous Bridgewater Canal was opened; the charge for the carriage of goods was then reduced from 12s. per ton to 6s. The *steam-engine* of Watt, which had worked the machinery of the mines and spinning-mills with such power, was soon used on the water for conveying goods also.

In 1788, a model vessel, moved by a steam-engine, was tried by Mr. PATRICK MILLER, a Scotchman. A larger steam-vessel was soon after exhibited on the Forth and Clyde Canal, yet the idea was not carried out until the year 1807, when Mr. FULTON, an American, started a steamer for conveying passengers, on the river Hudson. In 1812, Mr. BELL launched a similar vessel on the Clyde, which was the first seen in Europe; and soon afterwards steam-vessels became numerous.

Steam was next employed for conveying men and goods on the land. The first iron-railway was laid down between London and Croydon in 1801. Carriages were first drawn by steam-engines at Newcastle, in 1824; but the first complete railway was opened between Liverpool and Manchester in 1830. On that occasion the famous Mr. Huskisson, whose *free-trade* measures had given such life and activity to commerce, was accidentally killed.

In 1784 an Italian introduced balloons into England for sailing through *the air*; and in the present reign, Mr. Brunel completed the Thames Tunnel for travelling *under water*!

THE INVENTIONS, SCIENCE, AND LEARNING OF
THE 18TH AND 19TH CENTURIES.

THERE have been several most useful discoveries since the reign of George III. The wonderful improvements of the steam-engine, steam-vessels, railroads, and balloons were surpassed in the reign of William IV. by the invention of the *Electric Telegraph*. The first was made in 1837. Man thus tamed the lightning, and brought it into his service; it was found to perform its duties a thousand times more quickly than steam; it carried intelligence hundreds of miles instantaneously, and thus our means of communication has become most perfect. To walk under the water in the Thames Tunnel was esteemed a wonderful thing, but the electric telegraph has beaten even that wonder; for now it carries its messages under the sea!

The establishment of the Penny Post in 1840 must also be mentioned. This may, perhaps, be reckoned as a greater improvement in the means of conveyance than the *Electric Telegraph*. It has been found so useful, that a splendid scheme, called "*Ocean Penny Postage*," has been set on foot for establishing a similar system all over the world. The postage to the colonies has already been reduced to 6d., and books may now be posted to India at the rate of 6d. per lb.

Amongst the miscellaneous improvements, I may mention

that of *umbrellas*. They were introduced from INDIA in the reign of George III., and they created a riot amongst the hackney-coachmen, who feared that every one would walk, and that their business would be ruined. You remember that glass-coaches were introduced in the seventeenth century; that the first hackney-coach stand was made in the reign of Charles I. It was still the fashion to attend evening parties in sedan-chairs in the reign of George III. Sedans and hackney-coaches were however displaced by new vehicles, called *Cabs*, which we now use. Besides the cab, we have still cheaper conveyances, called *Omnibuses*. This most useful means of travelling was introduced from France in 1830, the year in which the first great railway was opened. The first omnibus was started by a coachman named SHILLIBEER; he carried passengers between Charing Cross and Greenwich, at 6d. a-head.

Another improvement in the streets was made in 1815. Several were then lighted with gas for the first time. The use of gas for the purposes of light was another of the most important improvements: it seemed necessary that such a brilliant and cheap light should be invented to keep pace with the improvements which were made in travelling. Coal-gas was

invented, though not used for light, in the reign of George I., by Dr. HALES, of Kent.

Indian-rubber was used for the first time in the reign of George III.; and in the present reign *gutta percha*, an equally useful substance—one, indeed, which seems destined to be used for nearly every purpose—has been introduced.

Lastly, various *public buildings* may be reckoned among the late improvements. Besides the *British Museum*, which has been mentioned, the *Foundling Hospital*, and the *Mansion House*, and *Blackfriars Bridge* were built in the reign of George II. In the reign of George III. the *London Docks*, *Southwark Bridge*, and the *Mint*, where money is coined, were built.

In the reign of George IV. several new streets were opened. *Regent Street*, which is almost the finest street in London, was built where narrow streets and shabby houses formerly stood. Where there were only pasture-fields, with sheds for cattle and a few mean buildings, the *Regent's Park* was formed; it is now surrounded by splendid villas, and contains beautiful shrubberies, agreeable drives, the *Zoological Gardens*, and a building called the *Colosseum*. In this reign, also, the *Menai Suspension Bridge* was begun in 1819, and *New London Bridge* in 1824.

During the reign of William IV., in 1834, the *Houses of Parliament* were destroyed by fire; and in the present reign, 1838, the *Royal Exchange*, and in

1841 the armoury of the *Tower of London*, have been burnt down. The *Tower* has been repaired, and the other two buildings have been rebuilt with great magnificence. During the present and preceding reigns several splendid *railways* have been opened; large *Club-houses* have been built; the *Waterloo Bridge*, *Hungerford Suspension Bridge*, and the *Conway Tubular Bridge* have been opened.

Lastly, the other public buildings to be mentioned are the late *Crystal Palace*, the *New Crystal Palace* at Sydenham, the *New National Gallery*, which is shortly to be built, the *Nelson Monument*, and the *Wellington College*, which is to be erected to the memory of that great commander, for the gratuitous education of the sons and daughters of needy officers in the army.

But, after all, most of the subjects we have been talking of are *external* improvements. We must not close our History Lessons without looking at the *internal* improvement of the people. How much has the *soul* of the nation grown during the eighteenth and nineteenth centuries?

To answer this question, I must tell you who have been the nation's teachers—what men of religion, science, and learning have lived and died in these times.

In the reign of George II. the religious enthusiasm which had animated the old Puritans had died away. The reaction

had begun in the times of the profligate Charles II., and the nation had since become more and more indifferent about religion. There had never been so many writers against the doctrines of Christianity as at this period.

An enthusiastic clergyman of the Church now arose. With the help of other zealous individuals, he preached earnestly against the infidel writers, and tried to arouse the spirit of piety. The name of this clergyman was JOHN WESLEY. He was much assisted by another clergyman, named WHITFIELD. Whitfield had great power as an orator, and he travelled over all the country, preaching to immense congregations. The exertions of these men laid the foundation of a new religious sect, called "THE WESLEYAN METHODISTS." They are now a very large and important body.

The religious spirit of the people has grown since the times of Wesley and Whitfield. It has since led to the formation of large societies for teaching the Gospel to all the world, and for other benevolent objects. Thus we have the *Bible Society* (instituted 1804), the *London Missionary Society* (instituted 1794), the *Church Missionary Society* (1800), the *Religious Tract Society* (1799), the *Society for the Conversion of the Jews* (1808), the *London City Mission*, the *Peace Society*, and a great many others. Amongst the benevolent societies which are not purely religious, are the *Society for Teaching the Blind*,

the *Philanthropic Society* for preventing crime and reforming young criminals, the *Royal Humane Society*, the *Society for the Prevention of Cruelty to Animals*; and others.

The religious spirit has also led to improvements in the education of the poor. Their religious education was provided for by the establishment of SUNDAY SCHOOLS. These schools are conducted by voluntary and unpaid teachers. They were commenced by Mr. Robert Raikes, a wealthy printer of Gloucester, in the year 1788, and they have since overspread the whole country.

Benevolent plans for the daily instruction of the poor have been of great service to the nation. Dr. BELL, of Madras, originated a plan of teaching great numbers of children at a small expense, by employing the best pupils as assistants, or monitors. A similar plan was formed by a good man, named JOSEPH LANCASTER. A society was formed, called the NATIONAL SOCIETY, for carrying out the system of Dr. Bell; while that of Joseph Lancaster was adopted by THE BRITISH AND FOREIGN SCHOOL SOCIETY. Since the formation of these systems, the principles of education taught by the benevolent PESTALOZZI in Germany have become known in England; the plans of both societies have thus been improved, and other societies for training teachers have been established. We have the *Home and Colonial School Society*, the *Congregational Board of Education*, the

Glasgow Training Institution, founded by the philanthropic Mr. Stow; the *Battersea Training Institution*; others at *Cheltenham*, *Highbury*—and, indeed, in more places than I can now mention. These societies and institutions have all been of service in setting up schools in the districts where they were most needed.

Besides these means for educating the young, MECHANICS' INSTITUTIONS have been formed in nearly every town in England. Their object is to supply instruction by means of lectures, a library, and classes, to youths and adults who have left school. The first of these institutions was founded by Dr. Birkbeck in 1821.

A still higher means of educating the nation has been supplied during the eighteenth and nineteenth centuries.

An association of the great scientific men of the day has been formed. It is called THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, and is divided into seven departments:—viz., 1. Mathematics and Physics; 2. Chemistry and Mineralogy; 3. Zoology and Botany; 4. Anatomy and Physiology; 5. Geology; 6. Statistics; and 7. Mechanical Science. The association meets every year, and papers are then read on the various subjects of these sections by the most eminent men.

The people of this century are instructed in the arts by the SOCIETY OF ARTS, which you have already heard of. We have, also, a *Royal Aca-*

demy for students of painting and sculpture, and similar societies for water-colour painters, &c.; two or three *Schools of Design*, a Royal Academy of Music, the Sacred Harmonic Society, and others of a similar character. Separate societies, for the advancement of Geology and other sciences, which are almost new; and, lastly, a *Photographic Society*, which has lately been formed, for I ought before to have spoken of the Daguerreotype or Photography as one of the important inventions of this century.

I can only now mention the names of the principal men by whom these improvements have been effected.

The principal religious teachers and literary men of the eighteenth and nineteenth centuries, are Dr. BUTLER, author of "*Butler's Analogy*;" Dr. WATTS, Dr. DODDRIDGE, Dr. PALEY, Dr. BLAIR, THOMAS SCOTT, JOHN WESLEY, GEORGE WHITEFIELD, ALEXANDER CRUDEN, Dr. LARDNER, Dr. CHALMERS, Dr. CHANNING, ROBERT HALL, and the earnest but fanatical EDWARD IRVING.

The principal poets are THOMSON, COLLINS, YOUNG, GAY, BURNS, GOLDSMITH, COWPER, AKENSIDE, BLOOMFIELD, BEATTIE, GRAY, FALCONER, SIR WALTER SCOTT, SHELLEY, BYRON, KEATS, KIRKE WHITE, POLLOCK, WEBER, MRS. HEMANS, L. E. L., COLERIDGE, HOGG, WORDSWORTH, SOUTHEY, CRABBE, ROGERS, CAMPBELL, MOORE, LONGFELLOW, MACKAY, MRS. BROWN-ING, and TENNYSON. The chief

novelists, FIELDING, DEFOE, SMOLLETT, SIR WALTER SCOTT, COOPER, GODWIN, BULWER, DICKENS, THACKERAY, LEVER, MARYATT, and others.

The great historians of this age are WHISTON, HUME and SMOLLETT, GOLDSMITH, GIBBON, FERGUSON, NIEBUHR, MITTFORD, HALLAM, GROTE, MACINTOSH, and MACAULAY.

The principal miscellaneous and political writers are BLACKSTONE, celebrated for his Commentaries on the Laws of England; SIR WILLIAM JONES, the Author of JUNIUS, ADAM SMITH, HORNE TOOKE, LAURENCE STERNE, LORD CHESTERFIELD, HORACE WALPOLE, EDMUND BURKE, CHARLES LAMB, COBBETT, WILLIAM HONE, LORD BROUGHAM, LORD CAMPBELL, DISRAELI the elder and younger, DOUGLAS JERROLD, and the other contributors to PUNCH!

The principal musicians are MOZART, HANDEL, BEETHOVEN, SPOHR, GRAUN, ARNE, ARNOLD, HAYDN, ROSSINI, AUBER, DONIZETTI, MEYERBEER, CARL VON WEBER, BELLINI, DR. CALCOTT, HUMMEL, CHERUBINI, MENDELSSOHN, GLUCK, SIR HENRY BISHOP, &c.

The principal painters and sculptors are SIR JOSHUA REYNOLDS, SIR THOMAS LAWRENCE, SIR DAVID WILKIE, HOGARTH, BENJAMIN WEST, GAINSBOROUGH, NOLLEKENS, FLAXMAN, and CHANTREY.

The principal men of science, physicians, and other men of note, are DR. HALLEY the astronomer, FAHRENHEIT (a Prussian), and REAUMUR (a Frenchman), both of whom improved the thermometer; LORD ANSON, celebrated for his voyage round the world; CAPTAIN ROSS, BENJAMIN FRANKLIN, noted for his discoveries in electricity; SIR WILLIAM HERSCHEL, and FERGUSON; LORD ROSSE; WERNER, the German mineralogist; LINNÆUS, the Swedish botanist; CUVIER and BUFFON, the great students of the animal kingdom; DR. EDWARD JENNER, who discovered vaccination in 1799; SIR ASTLEY COOPER; JAMES WATT, the improver of the steam-engine, and the other inventors who have been mentioned; SIR DAVID BREWSTER; LIEBIG, the German chemist; PROFESSOR FARADAY, DR. LYON PLAYFAIR; DR. CARPENTER, celebrated for his works on physiology and natural science; PROFESSOR DE MORGAN, the mathematician; and others.

These are the men who have formed the character, and have governed the English nation, even more than the kings and queens have done during the eighteenth and nineteenth centuries; and with their names we will close our History of England.

THROUGHOUT mankind, the Christian kind at least,
There dwells a consciousness in every breast,
That folly ends where genuine hope begins,
And he that finds his heaven must lose his sins.

COMPOUND MULTIPLICATION.

Ada. WILLIE has given me such a puzzling question for you, papa. Suppose that you have to multiply a sum of money by 500, where will you get your *factors* from?

P. There are not two factors smaller than 12 which will make 500, but *three* such factors will. Let us take as the sum of money £61 4s. 1½d. If I multiply this by 10, and then multiply the ten times by 10, how many times shall I have multiplied the sum of money?

Ada. 100 times.

P. Then suppose I take 5 for my next factor, and multiply the 100 times by 5?

Ada. Then you will have 500 times. But I can find you a harder question. Suppose that you have to multiply by 573, what three factors will make 573?

P. Do you not see that I could take 500 times the sum, and then add 73 times to it? You shall see it done.

£	s.	d.	
61	4	1½	+ 3
		10	
612	1	3	= 10 times + 7
		10	
6,120	12	6	= 100 times
		5	
30,603	2	6	= 500 times
4,284	8	9	= 70 times
183	12	4½	= 3 times
35,071	3	7½	= 573 times

Now examine this. You find that I have first taken 500 times; I have multiplied the ten times by 7 for the 70 times, and the top line by 3 for the 3 times. By adding 70 times and the 3 times to the 500 times, I make 573 times.

Ada. Tell me, papa, what you would do if you had to multiply by *thousands*. Suppose that you had to take 5,736 times the same sum, what would you do?

P. I should first multiply by 10 and by 10, for 100 times; and then if I multiplied the 100 times by 10 that would make 1,000 times. For 5,000 I should of course multiply the 1,000 times by 5. You would then see that I could easily get 700 times, and 30 times, and 6 times, and add them to the 5,000 times.

Exercise 19.—COMPOUND MULTIPLICATION.

How much would 548 ounces of gold cost, at £3 7s. 6d. per ounce?

What would the rent of a house amount to in 139 years, at £76 10s. 6d. per year?

I divided a large sum of money among 651 boys; each boy had £2 3s. 4½d.: how much money did I give away?

	£	s.	d.	
Multiply	80	14	6½	by 343
"	70	3	4½	" 609
"	141	14	1½	" 700
"	743	1	11½	" 390
"	416	4	3½	" 419
"	310	0	0½	" 307
"	46	15	3½	" 1,472
"	31	0	11½	" 1,009
"	42	3	6½	" 5,108
"	42,104	14	1½	" 12,989
				365

COMPOUND DIVISION.

P. WHEN you understood simple multiplication, Ada, you found compound multiplication to be nearly as easy. Now that you understand simple division, you will find it equally easy to divide money; you will merely have to change your pounds into shillings and your shillings into pence, just as you change thousands into hundreds and hundreds into tens

I will divide £34,671 16s. 4 $\frac{1}{2}$ d. into 6 parts.

$$6 \overline{) 34,671 \text{ } 16 \text{ } 4\frac{1}{2}}$$

$$5,778 \text{ } 12 \text{ } 8\frac{3}{4} + \frac{1}{4} \text{ remainder}$$

You see that after dividing the £34,671 into 6 parts, there were £3 over. I changed the £3 remainder into 60s., which, added to the 16s. made 76s.; out of these I got 6 times 12s. and 4s. remainder.

I change the 4s. into 48d., which, added to the 4d. make 52d. From these I get 6 times 8d. and 4d. remainder.

The 4d. and the $\frac{3}{4}$ make 19 farthings, from which I get 6 times $\frac{3}{4}$ and $\frac{1}{4}$ remainder.

You need not yet work any examples in compound division, as you have to learn to divide by a larger number than 12. Let us suppose that you are to divide 254,088 marbles amongst 24 boys, you may divide by the *factors* of 24, which are 4 and 6. Thus you may first divide the marbles amongst 4 boys, and each boy will then divide his

share into 6 parts; there will then be 24 parts for 24 different boys. Thus—

$$\begin{array}{r} \text{Marbles.} \\ 4 \overline{) 254,088} \\ \hline 6 \overline{) 63,522} = 10\frac{1}{2} \text{th} \\ \hline 10,587 = 1\text{-}24\text{th} \end{array}$$

Ada. Then if I find any number that can be made with two factors, if I divide by those two factors, will the answer be the same as if I divide by the number itself?

P. Yes. I will prove this to you. We will divide the number of marbles by 24, by the method called *long* division.

Boys.	Marbles.	
$24 \overline{) 254,088}$	$0 \text{ } X \text{ } 1 \text{ } 0 \text{ } X \text{ } 1 \text{ } 0 \text{ } X \text{ } 1 \text{ } 0 \text{ } X \text{ } 1$	
	2 5 4, 0 8 8 (. 1 0, 0 0 0	
	2 4 0, 0 0 0	0, 0 0 0
		5 0 0
	1 4, 0 8 8	8 0
	1 2, 0 0 0	7
	2, 0 8 8	1 0, 5 8 7
	1, 9 2 0	
	1 6 8	
	1 6 8	

Ada. That seems a hard sum to understand.

P. But it is not. Here is the working:—

The first 2 in the dividend stands for 2 hundred thousand marbles. I ask—"Can I get a hundred thousand marbles for each boy, out of 2 hundred thousand?" As there

are 24 boys, of course I cannot. So, in the quotient, I place a *dot* under the C, which stands for hundred thousands.

2nd. I change the 2 *hundred* thousand into 20 *ten* thousand, making 25 ten-thousand. I ask—"How many ten thousand marbles for each boy can I get out of this sum?" Answer, 1 ten thousand each, so I write 10,000 in the quotient. As 24 times 10,000 are 240,000, I take this away from the dividend and have 1 ten thousand and 4,088 remainder.

(Note.—It is as easy to divide 25 ten thousand amongst 24 boys, as it is to divide 25 *pigs*. From 25 *pigs* we should get 1 pig for each boy, and 1 remainder. The ten thousands should each be treated of as a thing—an article—a distinct quantity; thus, in course of time, a child will multiply or subtract any given quantities (whether they be tens, thousands, ten thousands, or hundred thousands), as easily as if they were stones, pins, or pigs.)

3rd. I change the 1 ten thousand remainder, and thus get 14 single thousand 088. How many thousand marbles can I get for each boy out of 14 thousand? Answer, none. I therefore write 0 thousands in the quotient.

4th. I change the 14,088 into 140 hundred and 88. How many times can I get a hundred marbles for each boy out of 140 hundred? Answer, 5 times; for as 5 times 24 pigs are 120 pigs, so 5 times 24 hundred are 120,000. If I take 100 for each boy 5 times, then each boy has 500; so I write 500 in the quotient.

5th. On taking away the 12,000 from the 14,088, I have 2,088 remainder. I change these marbles into 208 *tens* 8. How many 24 ten-marbles can I get out of 208 tens? Answer, 8; because 8 times 24 are 192. Each boy then has 8 tens, so I write 80 in the quotient,

and take away the 192 tens from the 2,088.

6th. The remainder is 16 tens, 8; these make 168 ones. I can get 24 marbles exactly 7 times out of 168. So, as each boy will then have 7 marbles, I write 7 in the quotient.

Thus, you see, I took out of the 254,088 marbles,

		X I C X I
24 parcels of	.	1 0, 0 0 0
" "	.	5 0 0
" "	.	8 0
" "	.	7

which making in all

24 parcels . . . 1 0, 5 8 7

Ada. I am glad, papa, that you have *written* this explanation, because it is so long that I must read it again to understand it.

P. You will not find it difficult. "*Long division of money*," as it is called, is worked upon the same plan; if you are dividing pounds and there be a remainder you change it into shillings, and if there be a remainder of shillings you change them into pence, and so on. Here is an example:—

Divide £69,200 14s. 6d. amongst 69 boys.

	£	s.	d.	X I C X I
69)	69,200	15	6	(1, 0 0 0
	69,000			0 0 0
				0 0
		200		2
		138		
				1, 0 0 2
		62		
		20		
69)	1,255	(18		
	69			

$$\begin{array}{r}
 565 \\
 552 \\
 \hline
 13 \\
 12 \\
 \hline
 69 \overline{) 162} \text{ (2 } \\
 \underline{138} \\
 24 \\
 4 \\
 \hline
 69 \overline{) 96} \text{ (1 } \\
 \underline{69} \\
 17 \text{ remainder}
 \end{array}$$

Thus you see, that when the above sum of money is divided into 69 parts, each part is £1,002 18s. 2½d., and there are 17 farthings over.

After a time you will find that the number of "noughts" now used are unnecessary; the places of the figures will show whether they represent tens, hundreds, or thousands, &c.

The following is the last exercise in Arithmetic which I shall give you for some time. I have tried to make you *understand* numeration and the first four Arithmetical rules. If you will make yourself perfect in the practice of these rules, then you will understand the "elements" of "Arithmetic."

When you work more difficult questions, you will find that all Arithmetic is accomplished by two methods, addition and subtraction (for you have seen that multiplication is only another form of addition, and division is another form of subtraction). So let me advise you to learn to add, subtract,

multiply, and divide "anything" in every possible way. I hope that before you can do so, I shall have time to prepare you some harder lessons, which we will print in another book.

Exercise 20.—LONG DIVISION.

	£	s.	d.	
Divide	6	4	6¾	amongst 3 boys
"	39	9	6	" 4 girls
"	716	14	3¾	" 5 friends
"	300	0	0	" 7 schl. boys
"	450	0	0	" 8 pa. girls

Give £451 to Mary, and £449 to Samuel, and tell them to divide all their money amongst their friends. If they had only 8 friends, how much would each have; how much would there be for each if they had 12 friends; how much if they had 11 friends; how much if they had 9 friends; and how much would each friend have if they had only 5 friends?

Divide £7,041 14s. 5½d. amongst eight thousand two hundred and twelve persons.

Divide	7,198,641	by	2,864
"	3,641,201	"	1,407
"	2,480,708	"	2,600
"	7,864,126	"	7,410
"	3,002,602	"	8,000
"	4,020,264	"	9,600
"	9,687,600	"	4,300

Divide six millions seven hundred and ninety-four thousand, by four hundred and eighty thousand six hundred and nine.

Divide £79,648 among 274 persons.

What is the nineteenth of £6,037?

The earth is about 95 millions of miles distant from the sun: how many days would a horse take in reaching the sun, supposing he went at the rate of 45 miles per day?

What is the 240th part of £1,426 14s. 9d.?

TWENTY-FOURTH WEEK. MORAL LESSONS.

LOVE.

FIRST LESSON.

P. We have talked of *Compassion, Mercy, and Charity*; let us learn about LOVE.

L. What a long time you have kept us waiting, papa! We have not had a moral lesson for seven weeks.

P. Because I have felt too sad to talk about love. And I have left this subject to the last, not because it is the least, but the greatest. During all this week we will talk of nothing but love. If you learn to love rightly, I need not teach you more; you will soon know and feel far more than has been written in this book; the days of your life will be a new series of "Pleasant Pages."

L. Why is love so great a subject, papa?

P. Because love is LIFE. He who has no love is dead.

W. I don't understand that.

P. But you can do so. I was reading the history of a poet who was a great and good man, though he was sometimes mistaken. This poet was once looking for a favourite book, when he said to a friend:—

The principle of all life is love; at present I am in love with the lost volume of "*Cabanis*." My desire of obtaining it makes me

give testimony of my vitality by looking for it.

Again he says:—

We exist because we sympathise.

W. I can understand that, papa. You mean that our spirits are only alive when they have something to be interested in. But the beasts of the field *live*, papa; what do they love? A sheep or a cow would not love a volume of *Cabanis*.

P. No, yet they have a "sympathy" for other things. The moment an ox or a beast of prey wakes from its sleep, it finds within it a love for its food, and it goes forth to seek it. There is something *good* in its food, and it feels a sympathy for it; this *sympathy for the good* which the animal finds in its food is "love."

W. How curious! I never heard it called love before.

P. No. Because it is the very lowest form of love—it is the A B C of love; for the purest love is begun in this way.

You, Willie, you will never forget your dear mother, whom God loved so much that He has taken her away to Himself. Now that she is in heaven, and is learning high lessons of love

from Him, let me show you how you learned love from her.

When you were a new-born baby, and began to *know* in this world, the first love that you knew, was a *sympathy for the good* in the milk which flowed from her. You could not have any better sympathy then, for you did not know anything better. But by and by your young spirit grew, and then she fed your soul from her gentle eyes; you saw, too, sweet smiles of love on her cheeks, and your little soul felt a *sympathy for the good* in these things. This was a higher love than the other; it was *spiritual* love, while the first was only *sensual* love.

W. That is because it grew from the sense of taste. That, then, is the love which the cow has for its food.

P. Sensual love is generally called *appetite* or desire. There are many kinds of sensual love; mankind find them so pleasant that they sometimes indulge in them too much; they are then called "passions."

But your life, Willie, may be made up of better love than this. I was showing you how your body and soul derived life from your mother after you were born; its love grew not only from her looks, and smiles—in time you drank draughts of life from her *lips*; the spirit of God, and then the name of God was learned from those lips. We will talk more of this soon.

W. And I learned other things as I grew older. I remember loving a Noah's Ark.

And there was a book called "Rural Scenes"—I loved some of the verses in it, and used to say them to myself. And our box of objects, which dear mamma used to get out, how I liked to hear her talk about their qualities and to know their history! I wanted to know where they all came from, and where the animals in the Noah's Ark came from. I had a *desire to know* everything about everything.

L. Just as Ada had the other day, when she broke open her musical cart to see how it made the music.

W. And when I had a desire to know so much, mamma said I had "curiosity." What is curiosity?

P. You have just told us what it is. Curiosity is a desire for knowledge. This love is an important part of our life; it is a *desire for new ideas* which arises from the mind within us, it is called *intellectual* love.

W. So my life is made up of three kinds of love.

P. Exactly; there are three loves which "make up" our life. Ada felt them all when I gave her that musical cart.

She thought that my kindness in giving her the cart was good. Her spirit felt a "sympathy for the good" in my kindness; so she came and kissed me; that was *spiritual* love.

She next loved the cart. Her senses felt a "sympathy for the good" in the pretty colours, the round wheels, the spotted horses, and the sound of the music; that was *sensual* love.

When her senses were satis-

fied, and she was tired of seeing and hearing the cart, another love, which was stronger, made her break it open. Her INTELLECT felt a "sympathy for the good" in knowing how the sound was produced. That love or "curiosity," as we call it, next wanted to be satisfied; that was *intellectual love*.

Now, all this love in Ada was so much life.

W. Yes; I noticed that she was more "lively."

P. And then you saw, as the poet has said, that "*Love is Life*." To be quite sure that you understand this, let us imagine a man who is without love. I imagine that you hear him saying, "I don't love what is good. I don't care about *honesty*. I don't love the *truth*. What do I care for *justice*? I don't see any good in *industry*, in *perseverance*, or in *patience*!—Do you love *order*, and cleanliness, and neatness? I don't see any beauty in such things." If you tell him that *mercy* and *charity* are more beautiful than anything else on this earth, and ask him to love them; should he stare at you, and not know what you mean, then you will say, "That man has no 'spiritual love' at all—he is *half dead*!"

And next, if you heard him saying, "Don't bring me any books. I don't want to read. I don't want to know how the world was made—I don't want to know how the trees grow, or the strata of the earth were formed—I don't want your botany, or the history of your animals—I don't want to read about Egypt, or Greece, or

Rome, or of any people who have gone before me or are living now. I don't love such knowledge." Then you would say, "Poor man, what do you live for? You have no *intellectual love*—you are—"

Ion. *Three-quarters dead*, I should say.

P. And more than that. Suppose the man said also, "I don't love *music*—my ears take no pleasure in sounds. Don't put flowers to my nose! I don't love their smell—no, nor show them to me!—I don't love their shape or their colour. Pull down the blinds! I don't love the light. Don't bring me sweet things to eat. Take away my food—I have no love for it—my appetite is gone. I love "nothing at all!"

L. Then we should say "He has lost his *sensual love* too; he is quite dead"—that is to say, his soul—yes, *he* is, because his body may be kept alive by forcing it to eat—but his soul is asleep.

W. And you may read in PLEASANT PAGES,

For the soul is *dead* that sleepeth.

P. Now I think you can't help understanding that LIFE is LOVE. It is a sorrowful thing, but it is true, that these are thousands of people who will go down to their graves not having half lived; and worse still, some poor oppressed people who have left this world, have hardly lived at all—they have had scarcely anything to love.

W. People who grumble and

take very little pleasure in anything, don't love much.

P. True. Thus you can understand the words which I have

often said to you—"Live as much as you can."

W. Yes; we are to love as much as we can.

LOVE.

SECOND LESSON.

Ion. I want to ask you a question, papa. Is it not possible to love wickedness? When a man loves to deceive others, or to be cruel, do you call that sensual, or intellectual, or spiritual love?

P. We cannot say properly that a man *loves* wickedness. The evil nature within him has a "sympathy" for what is evil. But love, you remember, is a "sympathy for all that is good."

The Bible tells us this, for it says that "*God is love.*" The word "God" means *good*. We all have something of God within us; therefore we have some good to sympathise with the good which we find in His words.

L. Then that cannot be a part of God which has a sympathy for evil.

P. No. So we cannot talk of loving evil.

W. If you are going to teach us spiritual love, papa, I think it will be hard to learn.

P. Why?

W. Because Charity, Truth, and all the other good feelings you have talked of in PLEASANT PAGES, are so hard to think about. It is not so easy to look at them with our mind's eye, and love them, as it is to love what we see with our senses.

P. No; for we are "naturally" sensual. But you can love

Honesty, Willie. You are perhaps reading of some man or some boy who has been tempted to do wrong, but has resisted to the last—

L. Like the boy whom we read of in PLEASANT PAGES, who broke the nobleman's window.

P. And when you read of that boy did not your heart burn?—and did you not feel that you loved him? It was the honesty within you that loved his honesty; and your feeling of honesty then became stronger by doing so.

And when you sometimes read in history of truthful men, then, again, your heart warms up. The truth within you loves their truth and is strengthened. And when you read of courageous self-denying men, your courage and self-denial live and grow.

L. And that is why you tell us tales of Mercy, and Compassion, and Justice, and Order, in PLEASANT PAGES—so that when we see these things in others, and love them, they may grow within us, and become stronger.

P. True. And thus, as you grow older, you will be able to think of them as great and good things, which are a part of God. If you pray to God for His help, His spirit within you will grow, so that you will feel great sym-

pathy for all good. Then you will have PERFECT LOVE and perfect life!

But let me tell you a tale to show you *what may be done* by those who have perfect love.

THE SPARK OF LOVE.

One day two gentlemen were walking down Holborn Hill. MR. EDWARDS, the elder, was a man full of love. He loved all men. It did not matter who it was, he found something in him to love. He and his friend, MR. STRICT, were talking of a bad boy who had been the servant of the latter.

"I have no hope whatever of the boy," said Mr. Strict. "I have tried him in every possible way; he seems to have no honesty in him. He was brought up amongst thieves; his two brothers are thieves; and he seems quite unable to understand the advantage of doing right. I told him that if he acted rightly he would become respectable; and, that if he did not, I would turn him out of doors."

"And what then?"

"I found him telling untruths the very first day; he deceived me three times. Two days afterwards I found that he had been stealing."

"And what then?"

"And then," added Mr. Strict,—"by the way, I think we shall get home sooner if we go down *Field Lane*. Mind your pockets, for this is the place where stolen pocket-handkerchiefs are sold; you may have your pocket picked also—and then I sent

him away, for I believe he will be a thief all his life—the boy seemed as if he *must* steal."

"Ah!" exclaimed Mr. Strict, for he felt some one pulling at his pocket-handkerchief—then turning round sharply he caught a ragged boy by the back of his neck, and threw him on the ground.

"Police!" he cried, for the boy actually had the pocket-handkerchief in his hand. But before a policeman could arrive, Mr. Strict was astonished to find that the culprit was no other than PHELM, the very boy whom he had been talking of to his friend.

"Don't send for the police," said Mr. Edwards. "Wait a minute. Let us think."

"No, no," was the reply; "the boy deserves to be punished—'twill do him good. You ungrateful young rascal!" he added.

"But," remarked Mr. Edwards, quietly, "it will not make him better to call him an ungrateful rascal. I wish you would let me be the policeman! I'd take him in charge at once."

Mr. Strict laughed, and after a time was persuaded to give the boy up to his friend, who straightway took him home.

I think if you had gone home with Mr. Edwards, and had been with him when he examined the boy, you would have said, as Mr. Strict had said, that there was no hope for him.

"Here, my dear," said Mr. Edwards, as he called his wife into the passage (for the boy was too dirty to be taken into

the parlour), here is a boy named Phelim. I have brought him home to see if we can do him any good."

Phelim looked as if it would be necessary to do him a great deal of good. He had changed the clothes which Mr. Strict had given him for a bundle of filthy rags. His face, hair, and hands were as filthy as his clothes, and he gnashed his teeth at Mr. and Mrs. Edwards with a look of determined revenge.

"Well, my boy," said Mr. Edwards, "would you like to stop with me?"

"No!" was the sullen reply.

"But we will be very kind to you," said Mrs. Edwards.

"I know yer," said the boy, with a look of more intense hatred than before.

"But would you not like to be honest?" said his friends.

"No!" was the reply again.

"But we will keep you, and be kind to you."

"No, you won't—I'll bolt!"

"And what will you do if you get away?"

"Thieve! My daddy thieves, and Jen thieves, and so does Mike."

"But, let me be kind to you," said Mr. Edwards.

"Won't!" said the boy. "You'd better not come near me—I can fight!"

Mr. Edwards was obliged to send the lad into the kitchen without making any apparent impression upon him; at the same time he ordered him to be washed.

The next day when Mr. Edwards met his friend Strict, he was obliged to confess that the

boy had not yet begun to improve. Morning after morning did he try to gain the favour of Phelim, but to little purpose.

"I cannot understand," said Mr. Strict, "how you can be kind for so long a time to such an uncouth being. I hear that he disturbs your whole household. It is impossible to make him love you."

"Don't say that!" was the reply.

"But such is the case. He is one of those who have been called 'City Arabs,' because their hand is against every man, and every man's hand is against them. The boy declares that he won't work; that he likes stealing better than honesty. Now, what can you do with such a boy? He is sunk in the darkest ignorance and vice. Not a ray of good feeling ever lit up his soul. He is quite dead."

"Then," said Mr. Edwards, "if he has sunk so low, the contrast will be greater when he rises. Depend upon it he will learn to love. There is no human being without a spark of love in him. But this spark may be so weak as to need cherishing. When you turned him away you nearly put it out. But if I can only keep on loving him, so as to encourage him—"

"And what then?"

"You shall see," said Mr. Edwards, smiling; "only wait a year or two!"

In less than two years Mr. Edwards had succeeded in his efforts. The "City Arab" had become a kind, humane, and civilised being.

No one was more surprised at this change than Mr. Strict. "Do you know, friend," he one day said to Mr. Edwards, "that I saw a strange sight last night?"

"Where was it?" was the reply.

"At your new *Ragged Schools*," said Mr. Strict. "I saw a large class of rough fellows, some ten, some fifteen, and some twenty years old; and in their midst stood a teacher, making immense exertions to teach them A B C. He was smaller than many of his pupils, and his back was turned to me; but as he turned round I saw that he was no other than PHELM! Two of his pupils were his own father and brother."

"True; and, what is more, he is a very *kind* teacher."

"Well," said Mr. Strict, "I should have thought it impossible. Pray tell me how this wondrous change was wrought?"

"By LOVE, of course," was the reply. "I knew that if I had sufficient kindness in me to keep on loving him, I should conquer. I did all I could to delight his ears and eyes, and gave him good food and tempting luxuries to gratify his palate. Thus I roused his *sensual* love. Again, I gratified him by telling him tales of history; by reading to him pleasant books; and by giving him information on the objects around him. Thus I tried to awaken his *intellectual* love. Poor boy; he was indeed ignorant! He had never heard of JESUS CHRIST. I showed him pic-

tures from the New Testament. I pictured out to him the self-denial of Jesus; his love, and his sufferings on the cross. I told him, too, that this wonderful Jesus was really the Son of God; and when he heard about God, and the angels, and heaven, and that Jesus had left all those angels and his high place in heaven to come down to this world, he listened and wondered."

"And what then?"

"He wondered why Jesus should have done such a thing. But he was soon more astonished when he heard that Jesus had done this for *his* sake! He thought for a long time that I was in jest; but by degrees he understood that he was really cared for by God's Son, and then he began to believe in *my* love for him also."

"A *spiritual* love now began to glimmer within him. The desires he had felt for all kinds of wickedness were turned towards honesty, truth, justice, and the other virtues, which are a part of God. His 'sympathy' for evil was changed for a *sympathy for good*; and though he was very slow in perceiving good, he was reminded every day that Jesus loved him, and he saw, too, that I loved him. Thus his love warmed and grew."

"And then?"

"Then the love of knowledge began to grow also; his spirit, his intellect, his senses were all three awakened, and — but you see what he is now. Here is a lesson for you:—

"Every man has some spark of love in him, which may be nourished until it burst into a flame."

LOVE.

THIRD LESSON.

W. You said, papa, that every one has some love in him. Is that because our spirits come from God?

P. Yes; for the Bible tells you "God is love." You may learn, by your last lesson, that those who have most of God in them are the best to teach love to others.

L. I noticed that. Mr. Strict could not cure Phelim, because he could not love him.

P. And that reminds me, Lucy, of something of your dear mamma, which I must tell you. I can remember when you were little children, and she stood in the middle of the babies' class in our school. Her holy spirit of love—bright as that of an angel—shed beams of happiness in all the little one's eyes, so that they twinkled like stars around the sun.

L. I remember that, papa; but we were all good children in that class. Mamma said so!

P. Your mamma made you so. It was then she taught me that great lesson in love which I have tried to teach you by the story of Phelim. When I saw that all the little ones in her class were good, I found out why.

W. Why was it? I wish I had been there.

P. Because your mamma's love did not let her see any evil

in them. When a child was brought to her to be taught, she found out the good in it; then she fastened herself on to it, and nourished it until the child became like herself.

W. And I suppose that the children would not like to do wrong, because mamma loved them so.

P. True; her kindness was not only reflected in them, but it was round about them. It acted as the remembrance of your mother's love acts upon you now. When you think of her still loving you in heaven, and of all her affection for you on earth, its remembrance warms your heart; and you do not like to do wrong. Her love is still as a sacred fence, which you dare not break through! A mother's love never dies—whether in heaven or earth. It is eternal, for it is part of that great love of God which has "beset us behind and before."

L. I wonder, papa, whether mamma loves the little children in heaven—those that go there when they are young. Do you think that she will have a class to teach?

P. Very likely. We did not love her half enough on earth; but the angels will soon find her out. The spirit of God within her cannot be hidden,

as it was when it dwelt here in flesh, but—Ah, now that I think of it, I'll tell you a little anecdote about *hidden* love.

HIDDEN LOVE.

Mr. Manly and Mr. Good were next-door neighbours. If you had asked the former what sort of a man Mr. Good was, he would have said, "I don't know. I cannot be friendly with him, for he never showed any good-will to me. If you had asked Mr. Good the same question, he would have said exactly the same thing about Mr. Manly. Again, if you had asked any *friend* of Mr. Manly for his character, he would have replied that he had a great deal of good feeling—while all Good's friends gave as good an account of him. Thus these two neighbours might have shown each other a great deal of kindness; but each kept it hidden within his own breast.

But this evil was at length put an end to.

It was a sunshiny afternoon. The sun was scorching the hay, and a certain hay-field, which I know, was filled with hay-cocks. In the course of the afternoon a troop of merry young ladies came laughing, and skipping, and carrying long wooden rakes. With these they had determined to make war upon those hay-cocks, until the innocent battle-field should be strewed with *dead* (grass).

In the corner of the field there were two young ladies, working and talking almost alone. The elder was named Martha, and the younger was

Ellen Manly, the daughter of Mr. Manly.

"I am sure, Ellen," said Martha, "that if you would only give MARY GOOD another trial you would like her very much—I wish you went to our school. And it does look so odd, now that we are out on a party of pleasure, for two people not to speak to one another."

"Perhaps so, Ellen; but it is impossible for me to love Mary. My father and her papa never speak to each other. Ellen knows this, and treats me very badly. When I meet her in the street, instead of saying 'How d'you do?' she sometimes crosses over to the opposite side of the way. The other day I asked her to throw my shuttlecock over the garden-wall, but she would not do so. Indeed, she has done a great many things on purpose to vex me; so that I really cannot love her."

"Yes you can, indeed," said Martha; "see how you love every one else!"

"But there is no reason why I should love Mary. I have asked my conscience whether I ought to do so, and it tells me 'No.'"

"But does it not say that you ought to love your enemies?"

"Yes; but it says, too, that if I loved Mary, I should show that I approved of her conduct. Then the remembrance of all the insults she has shown me comes back so strongly that I say 'No!' it is not *right* to love her! I have prayed to God to help me to love her; I

have read about good and kind people who have forgiven others; and I have reason'd with myself, but it is of no use."

"Ah, I see!" said Martha; "you have not been loving anybody lately. You have been shut up by yourself. But I will make you love Mary soon, I am sure."

About two hours after this conversation, as the young ladies were going home, you might have seen Ellen and Mary walking together like the best friends in the world. Martha was at some distance behind them, and was looking very pleased.

"How is it," said one of her companions, "that they were reconciled? I have heard Ellen say that it was impossible to love Mary."

"And she said so a little while ago, but it was only because she had shut up her love; it wanted exercising."

"What do you mean?"

"I mean that Ellen has lived alone in her father's house for a long time, and has had no one to be kind to. So her love was not strong enough to *break through* the ill-feeling which Mary seemed to show her."

"Then how did it become 'strong enough' so quickly?"

"Very easily. I first made her love me, and then I made her fall in love with the hay-field and the sunshine. Then you know how fond she is of my little brother—I brought him to her, and she helped me to make daisy-chains for him, and to wreath him round with

convolvulus; and, at last, when Ellen and Mary were both quite happy, and were playing near each other, I contrived to make them play together. All the rest was very easy—very!"

W. Ah, I understand that tale. The other day one of my schoolfellows had behaved so badly to me that I was *sure* I should never speak to him again; but do you know that, in the evening, just as we came home, after a game at cricket, we were quite good friends again. I can't tell how it was.

P. I can tell you. Your love had *broken through* again, when playing at cricket. I said that we all have some love within us. But it is sometimes like the hidden spring in a mountain, it is not strong enough to break through the dark earth above it; but, at length, it arrives at a spot where the earth is not strong enough to restrain it; it almost sees the light; then it bursts forth, and flows down the mountain-sides in a bright stream, which gladdens and freshens everything around it.

L. Just as the love which Ellen and Mary showed each other made them glad.

P. Yes; they not only gladdened each other, but, in time, each was the means of leading her father to love his neighbour as himself. A lasting friendship between Mr. Manly and Mr. Good sprang up, and flourished beside the stream of love which had broken forth from the two girls.

LOVE:

FOURTH LESSON.—ETERNAL LOVE.

THE last moral lesson which Lucy, Willie, Ion, and Ada received, was given them by their grandfather. He had come to visit their papa for a few days, and was resting in the summer-house—a pleasant place, where they were all sprinkled over with the light which shone between the clematis leaves.

"Come, Grandpa!" said Willie, "please sit in this easy seat and make yourself comfortable, and tell us a tale to put in PLEASANT PAGES. Whatever words you say shall be printed, and they shall form the last lesson."

Grandpa. Then say that I cannot tell tales. No—stop! I'll tell you one or two particulars about myself.

To begin: I have led a very happy life; and this is because *I have never had any reason to complain*. When I was young I thought that I would be very rich; I worked hard for twenty years, and often had scarcely time to sleep. And when I had a large house and many servants, and a wife and three children, we were all ruined by some dishonest people, and we became very poor indeed—oh! we were "wretchedly poor."

W. And had you no reason to complain then?

Grandpa. No. And in the course of ten years I became rich again. I had all the hap-

piness that this world could give. Your grandmamma, and your uncles, who were growing up to be men, they, too, were quite happy, when all were taken away by death, except your papa! Then I thought for a moment why should I want to live any longer in this world? but soon afterwards I was happy again.

Ion. Though, I should think that you had *some reason to complain*?

Grandpa. No. During the remainder of my life I have still laboured. I have also tried to read many books, to learn many languages, and to study the beautiful works of God; but here, too, I have been stopped by ill-health and other causes.

L. Then why have you "no reason to complain" if you have had so many misfortunes?

Grandpa. Because I know that this world is governed by **ETERNAL LOVE**. Learn first that all our *motives* and our *actions* should spring from love; but they may have only unfortunate results. Then, if you learn that these *results*, also, are ordered by love, you may see why I have been happy.

It was my duty to work hard, and to do whatever God told me was right. But if I did not succeed, I had "no right to complain." I could only say "I have done my best; I must

leave the rest to His providence, for love reigns over all. Yes! we have not only love within us, but the ETERNAL LOVE of God which orders all things—it reigns throughout the universe.

W. Now, give us another lesson, Grandpa!

Grandpa. I can only repeat, for the last lesson of PLEASANT PAGES, that which you were told in the first lesson. *Get all you can, that you may give all*

you can; for love is like light—the brighter the star the stronger are its rays. Remember that the love in *you* is eternal, for it comes from God. Therefore love beauty, love knowledge, love truth, love holiness, love as much as you can, live as much as you can. Then, when you die, you will be “a living sacrifice, holy, acceptable unto God, which is your reasonable service.”

SONGS ABOUT ANIMALS.

THE SONG OF THE HEDGE-HOG.

ARM'D with many a piercing spine,
Like the quill of the fretful porcupine;
Measuring about in inches nine

From the short and scaly tail
To the top of the black and pointed snout;

With bead-like eyes, that glance about
Now in eagerness, now in doubt
Of the foes that may assail.

Short are his legs, and small his ears,
Brownish grey is the coat he wears,
And when awakened are his fears,

His body, quick as light,
He rolls into a prickly ball,
Which boys may toss up, and let fall,
And dogs may bark at—and that's all,
For it they dare not bite.

He's a discriminating brute,

Seldom it is he eateth fruit,
But beetles best his stomach suit,

And on these he loves to prey;

In the dim light of eventide
You may see him by the greenwood side;

Beneath the bank where chaffers hide
He sleepeth through the day.

With short and vacillating gait,
He passeth by the old park gate,
Or through the stubble lands, where late

Ripe corn stood in the sun;
He catches humble-bees that nap,
And takes the spider from his trap,
And e'en a squeaking mouse mayhap
In vain from him does run.

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J. & W. Rider, Printers, Bartholomew Close, London.

'Tis said that of the speckled snake
He hath been known a feast to make,
And lively lizards green to take

From underneath the leaves;
And once (if but once it were well)
A leveret 'neath his sharp fangs fell,
And eggs of partridge: this to tell,
It much my spirit grieves.

But seldom of such dainties he
Doth make a feast, and should not be
Accused and punish'd wrongfully,

As he too often is;
The udder of the cow, 'tis said,
He sucks, when all is dark o'erhead,
And she lies on her grassy bed;
An idle story this!

Yet by such tales men oft are led
To cruel deeds; and stricken dead,
The harmless creatures that have fed
On insects, or vile weeds,
Have raised the shrill reproachful cry,

And turn'd the mute appealing eye,
To him at whose barbarity
The heart that feebleth bleeds.

A lesson from the hedgehog learn;
When faileth strength to serve our turn,

We oft by skill may safely earn,
And baffle thus the foe;
However injured and oppress'd,
By those who wrongfully molest,
Passive resistance is the best
To ward off every blow.

H. G. ADAMS.

V. LESSONS

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