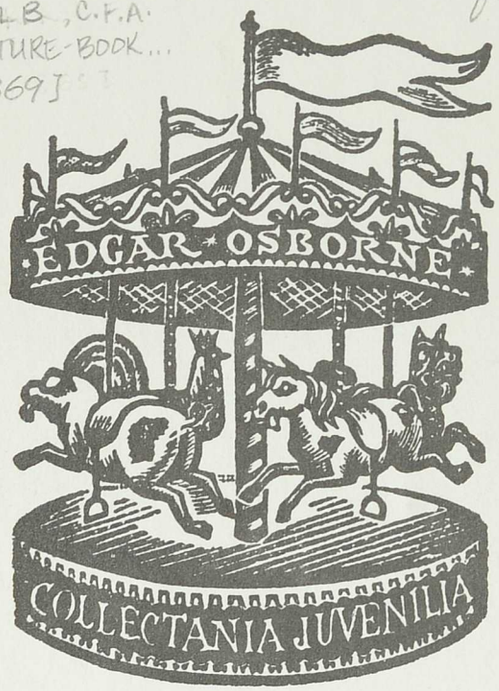
THE PICTURE BOOK

OF ELEMENTARY IDEAS.



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The Picture-Book

OF

Elementary Ideas,

FOR THE

AMUSEMENT AND INSTRUCTION OF CHILDREN.

TRANSLATED FROM THE GERMAN

OF

C. F. A. Lehrer

BY

MADAME DE CHATELAIN.

With Thirty Plates of Coloured Illustrations

BY

C. Offterdinger, H. Leutemann and C. Kolb.

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PREFACE.

No present is more welcome to children than a picture book. They prefer it to everything else, — it is their favourite plaything, and they take a lively interest in it. Still they generally do little more than merely turn over its leaves, and at most only say the names of the things represented, such as: "This is a house" — "This is a tree" — or "This is a soldier". And then after a while, the book is closed, without the prints having been minutely examined, and the children snatch hold of something else. Such is usually the only and very insignificant result obtained from even the most meritorious picture books.

The picture book which we here offer to the little ones, will, we trust, afford more lasting pleasure, and prove of more genuine use. They must learn to look at it with intelligence, and talk about it correctly, distinctly and perspicuously. The first development of infantine capacities, entrusted to maternal care, is gradually unfolded through the medium of sight and speech, and it is to mothers especially that we recommend our work.

Let the mother place one of the prints before her children, for their quiet contemplation. Their attention should be drawn to such objects as they may not themselves perceive. The description of the plate ought, indeed, to be first of all read through by their mother (or by whosoever else may busy herself with the little ones) and only so much of it retailed to the children, as may be adapted to their powers of comprehension. But little should be told at once. The remainder of the text may be reserved for future occasions. Children listen eagerly and delightedly, when you talk to them about pictures, and their questions are never ending as long as you can tell them anything new and unknown to them about the scenes depict d; in most cases therefore, you may rest satisfied at first with merely answering the questions the children themselves propound. Moreover, it would be very easy to change the simple theme of the text into questions. It would be all the better if one asked the little ones questions fitted to their individual capacities. The questions should, however, be merely an incitement for the children to see things for themselves, and to express correctly whatever they may discover. Therefore, as a general rule, the children should speak more than their mother, who leads the conversation.

When you come to question the children, in a lively manner, about what has been said relative to the pictures, they generally volunteer to repeat it all, as an amusing game.

Although these plates were not intended to form a methodical course of instruction through the eye, but merely to serve as a ground work for unconstrained conversation, still it is easy to perceive that they have been selected in accordance with a well matured plan.

We begin with looking at things, giving them their right names, and reckoning. The first plates are therefore devoted to giving a few notions about reckoning, which develope themselves so late and so slowly in the minds of many children. To a child, figures present but an empty sound, of the meaning of which, it can form no idea. This must be conveyed to the child's mind through ocular demonstration, beginning by single numbers and easy examples. The next plates display a complete whole and its several parts; the place, direction, aim, form, and colour of different objects. Then follow the occupations of man, trades and their implements, soldiers and their weapons.

We then make an excursion with the little ones, into the animal kingdom, visit towns and villages, see the peasants at their various occupations, and conclude with a summary of the seasons of the year, and the hours of the day.

Those mothers who undertake these conversations, and have the art of interspersing them with short descriptions, anecdotes or fables, will of course render them still more interesting and useful.

We would also urgently recommend this picture book to older children, who are able to read and to whom it may serve as a self-relying occupation, blended with amusement.

The Author.

Plate 1.

In our first plate, we see a little boy, carrying a knapsack full of books on his back, and a slate under his arm. The boy has probably just come from school. Children who go to school, are called school boys and school girls. The boy carries a small fir-tree in his hand. Firs grow in forests. This little tree has been put in a stand. The boy is carrying it home. His mother will deck it with tapers, apples, and gilt nuts. It will then be called a Christmas tree.

Here stands one little girl beside another little girl. 1 girl and 1 girl make 2 girls. Both girls have dolls. One carries her doll, the other leads hers by the hand. The girl on the left wears a hat; the other is bare headed. The former has on a red frock, the latter a blue one, with a white apron.

Further on, we see one boy and one girl — 1 boy and 1 girl are two children. The children are at play. The boy has a whip. He is whipping a couple of tops — 1 top and 1 top make 2 tops. The girl is playing with a couple of balls — 1 ball and 1 ball make 2 balls. One ball is red, and the other blue. Which ball is uppermost, and which under?

Whom do we see in the middle of our picture? What is the boy carrying on his back? What under his arm, and what in his hand? What is the name of that little tree? Where did it grow? Whence comes the boy, and whither is he going? What is the tree placed in? What is done with such trees? And what are they called in their altered state? Have they usual leaves or needle leaves? Point with your finger to the top of the tree, to the knapsack filled with books and to the slate.

One girl and another girl — say how many girls do they make? How many dolls do you see here? How does one of the girls carry her doll? Does the other carry hers the same way? Suppose one of two girls were to go away, how many would be left?

How many children do you see on the right? Are there two boys or two girls? What is the boy doing? What does he hold in his hand? How many tops has he? What is the girl about? With how many balls is she playing? Has she a ball in her hand?

Here stands a soldier, he has grounded arms. Beside him stands another soldier who has shouldered his gun — 1 soldier and 1 soldier make 2 soldiers. Near these two soldiers, stands another soldier. He is loading his gun — 2 soldiers and 1 more make 3 soldiers. These soldiers wear a sword on their left side. One soldier wears a helmet ending in a spike, with the badge of an eagle in front. He is a German. Another wears a cap and feather, and is a Scotchman. The third wears a cap with the visor turned up. He is a Frenchman. At their feet lie one, two, three, balls. If 1 of 3 soldiers goes away, two still remain. If two of 3 soldiers go, then only 1 remains. They shoot with their guns, and give thrusts and stabs with their swords. A soldier's dress is called a uniform. Soldiers are drilled, and taught the use of arms. They march, perform military exercises, fight, load their guns, and fire. They defend their country in times of war.

Some men are crossing a bridge. One goes first, and two others follow — 2 men and 1 man make 3 men. Each has a gun, a game bag, and a dog. They are huntsmen, and kill mischievous animals, such as bears and wolves, and foxes, both in forests and in the open country, besides animals whose flesh is eatable, such as deer and hares.

On the right are three youths, journeying along. Each has a staff. The first carries a knapsack on his back, the second a kind of roll round his shoulders, while the third carries his coat on his stick. They are wandering journeymen. Each has learnt a handicraft, and they wander from town to town, in search of work.

Where are soldiers to be seen in our plate? How many soldiers do 1 soldier and 1 soldier make? If one out of three soldiers marches away, how many are left? How do they hold their fire-arms? Which weapon has a bayonet? How is this weapon used? Have they any other arms? How many balls are lying on the ground? How many of these are close to each other? Are they musket balls? What are the soldiers doing? What do they do in battle? How is a gun to be used? And what is to be done with a sword?

How many men are going over the bridge? What is each man carrying? Has every one of them a gun? Do we see them in front or behind? Whither do they seem to be going? And what will they do yonder? And what are these men?

How many journeymen have we here? What are they carrying in their hands? And what on their backs? How many are walking side by side? And for what are they searching?


Schul Haus

Plate 2.

Here we see the entrance to a house. The door of a house is called a street door. This is the school house, where a school is kept. One must go up steps to enter the house — 1 step, 1 step, 1 step and 1 step make 4 steps — 1, 1, 1 and 1 make 4. There are children on these steps. On the first step are 2 children, on the second we see 1 child; there is no child on the third, but there is a child up above — 2 children, 1 child and another child make 4 children. Amelia is sitting, Fred is jumping, Gus is lying, and Lizzie is standing. Amelia has been learning at school; and so now doggy must learn something also.

Several children are leaving school. Three of them are walking abreast. The boy with the cap is little, the girl is smaller still, the boy with the knapsack is least of all — 1 child is walking behind them. Add 1 child to three, and you find 4 children — 2 of these are boys, and 2 are girls — 2 boys and 2 girls make 4 children — 2 and 2 are 4. These children are carrying the things they will require at school. We see them from behind.

There are children coming to school. And these we see in front — 1 child is a boy, the three others are girls — 1 child and three children make 4 children — 1 and 3 are 4.

How many steps lead up to the house? How many children are there on the first, how many on the second, how many on the third, and how many on the fourth step? Which child is sitting, which is lying, which jumping, which standing? If one of them went away, how many children would remain? 1 child, 1 child, 1 child, and 1 child make — how many children? If 2 of them are boys, how many are girls? What is the girl on the first step doing? Which child carries something in its hand? Which of these children is the youngest? How many children are leaving school? How many are walking side by side? Are these children of equal sizes? Which is the biggest and which the smallest boy? And which is the biggest and which is the smallest girl? What are each of these children carrying? Whither is the boy going? Whither is the smallest girl going, and whither the biggest?

How many children are going to school? How many children are walking abreast? If one of them is a boy, how many are girls? Why must children go to school? What do they learn at school? Who instructs them at school?

In this plate we see several horses — 1 horse, 1 horse, 1 horse, 1 horse and 1 horse make five horses — 1, 1, 1, 1, and 1, make 5. A horse has 2 fore feet, and 2 hind feet. Twice 2 feet make 4 feet. A horse has large, bright eyes, short, pointed ears, a slender neck, with a mane, a long tail, slim legs, and hoofs. Horses are of various colours, such as black, white, gray, bay, chesnut, and piebald. Ponies are of a smaller size than other horses.

The horses we see, are saddled and bridled. The bridle of the piebald horse is fastened to a post. The bay horse is fastened by the fore legs. The pony has a girth round him, and the black horse carries a cloak bag. The gray horse has a horse-cloth thrown over him, and the bay horse bears a saddle with stirrups. A bundle of lances has been set up near the horses. Each lance has a shaft, a point, and a streamer.

Soldiers in the field — 3 soldiers are fighting — 1 soldier is running away — 1 soldier is killed. Add to 3 soldiers — 1 that is running away, and one killed, and that will make 5 soldiers. If from 5 soldiers, 1 runs away and the other is killed, there remain three soldiers.

The Turk charges with his bayonet, and stabs. The second soldier defends himself with the butt end of his musket, the third slashes with his sword. The fourth escapes. The fifth is killed, and lies dead on the ground.

How many horses have we here? How many legs has a horse? How many legs do 2 hind and 2 fore legs make. What do 2 and 2 make? What is the Horse's long hair called? What is his foot called? Point out the piebald, the gray, the black and bay horses, and the pony.

How many soldiers are to be seen here? How many are fighting? What is the Turk doing? and what is the second, third, and fourth soldier about? Which soldier's head is bound up? Why is one soldier lying on the ground? What is the colour of these soldiers' uniforms?

Plate 3.

In this plate we see dogs of various kinds — 2 large dogs in the middle, and 2 smaller ones on the left, make 4 dogs — 4 dogs are 2 pair of dogs. If you take away three dogs from 6, it will leave three dogs — 2 dogs taken away from 6 will leave 4 dogs.

The largest of these dogs is a Newfoundlander. His coat is shaggy, his ears hang down, and his tail is long and bushy. Beside him runs a pointer. He is slimmer, his hair is shorter, and his tail is straight. The pointer accompanies sportsmen when they go out to shoot. He starts the game, and fetches the partridges that have been shot. Facing the large dog, sit two smaller ones, a poodle and a terrier. The poodle has fine curly hair. He is good tempered, and fetches and carries willingly. The terrier's legs are short and crooked. He creeps along and digs up a badger out of his kennel. The greyhound has a long snout, a slender body, thin legs, and a long thin tail. The wolf-dog has upright ears, long hair, and a bushy tail curling upwards.

It may be seen that a dog has a head, a neck, a body, four feet with toes, and a tail. His head is furnished with a snout, a forehead, two eyes and two ears. A dog can learn all sorts of things. He is very docile. He defends his master, guards the house, the farm-yard, and the flocks, and seeks for anything that is lost. Dogs lap milk, eat meat, bread and greens, but they prefer meat. A dog can howl, growl, and bark.

Which are the two largest dogs in this plate? How many dogs are to be seen on their left? How many dogs do 2 dogs and 2 dogs make? How many pairs of dogs do 4 dogs make? How many pairs of dogs do we find in 6 dogs? How many dogs are there on the right hand side? How many dogs do 4 dogs and 2 dogs make? How many dogs do 3 dogs, and 3 more dogs make? How many dogs should we find in 2 dogs, twice 2 dogs, and thrice 2 dogs? How many dogs would remain, supposing 1, 2, 3, 4, and 5 dogs ran away?

Which of these dogs is lying? Which sitting, and which walking? Which looks to the right, and which to the left? Which dog sits lowest, on the left, and which in the middle, above? In what way is a dog useful? What does he eat? And what does he best like to eat?

These lively boys are marching like soldiers on drill. Charles is the officer. He has a sword, besides a scabbard, a scarf and a hat and feather. He wears spurs, and has a wooden horse at home. Fred is file-leader of the first rank. He carries a gun. Gustavus marches in the middle. He wears a shako with a plume, and bears a smart flag. By his side marches Paul with his cross-bow. 1 soldier and 3 soldiers make 4 soldiers. Walter leads the second file. He is a proud knight, with a golden helmet and iron breast plate; only his sword is merely a wooden one. Little Max has nothing but a stick, and a paper cocked hat, instead of a shako, which vexes him very much. Still he is a brave soldier all the same. Ernest wears grandpapa's Prussian hat, a shoulder-belt, which reaches to the ground, and a most formidable spear — 3 soldiers and 3 soldiers make six soldiers, and if we add the officer, seven soldiers — 3 and 3 and 1 make seven — 4 soldiers and 3 soldiers make 7 soldiers. Thrice 2 soldiers and 1 soldier make 7 soldiers -- 3 times 2 are 6, and 1 more makes seven.

"Forward! March!" cries the little officer. "The left foot foremost; keep the step! One, two! one, two! Halt! Right about — march!"

What are these boys about? In how many ranks are they marching? How many march in the first rank, and how many in the second? How many soldiers do 2 soldiers added to three soldiers, and one soldier make? If two went home, how many soldiers would Charles have left him? What is the amount of half his soldiers? Which two march in the middle? Which two on the right? And which on the left? Which of these boys carries a sabre? And which a sword? Which has a gun? Which a cross-bow? Which has only a stick? How is the officer equipped? What head-gear do these soldiers wear? Which of them have a plume? Which boy is without a hat, and which has no waistcoat? Are these soldiers keeping pace with one another? Which have just put forward the right foot, and which the left? What is the colour of the flag? Of what colour are the plumes?

Plate 4.

Here we see a carrier with his horses and cart. 1 horse has 4 feet. 2 horses have 5, 6, 7, 8 feet. The cart-rails consist of 4 rails in front, and 4 rails behind — 4 rails added to 4 rails make 8 rails — 4 rails are 2 pairs of rails. 8 rails are 4 pairs of rails. The carrier's load consists of chests. I see 3 chests in front, 3 in the middle and two behind. 3 and 3 are 6, and 2 more make 8. If one were to unload the chests in front, 5 chests would still remain in the cart. Take 3 from 8 and there remain 5. Take 6 chests from 8 chests, and there remain 2 chests — 6 taken from 8, leaves 2. If you were to unload half of 8 chests, 4 chests would still remain.

The carman walks in front of the cart. He carries a whip. His dress consists of a hat, a neck-cloth, a smock-frock, leather knee breeches, stockings and shoes. The horses are harnessed. The harness is made of leather. The component parts of a cart are the fore and the hind wheels, the pole and the top rails. The cart is clouted with iron. The wheel-wright makes the wheels and the frame, and the smith undertakes the iron work and the chains. The cart is conveying wood, mould, stones, fruits of the earth and other goods.

What does our plate represent? Where does the carrier walk? What does he carry in his hand? How many feet has a horse? How many feet have two horses? What do you observe in a cart? How many rails are in front and how many behind? How many rails do 4 rails added to 4 rails make? How many pairs of rails are there to be found in four rails? And how many pairs in 8 rails? How many rails do 4 rails added to 2 make? How many chests are to be seen in front in the middle, and behind, on this cart? How many chests do 3 chests, added to 3 chests and 2 chests make? What is the total of 3, and 3 and 2? What is the cart made of? Who makes the wheels and the frame? Who makes the iron work and the chains? What is the cart intended for?

These boys are playing at ninepins. The ninepins stand in a corner. 6 boys are standing in pairs. Two of them hold bowls in their hands. Paul has just thrown his. But the bowl runs so feebly, that he would fain help it with his foot, and is eager to see how many ninepins will fall. A boy stands by him. His turn has now come. A little boy who is not playing with the rest, is sitting on one side. One of the skittle players is shoving a bowl through the conduit. 6 boys and 3 boys make 9 boys. 9 boys are 4 times 2 boys added to 1 boy. On the skittle board stand once, twice, thrice 3 ninepins. 3 times 3 skittles make 9 skittles. The king stands in the middle. 9 skittles consist of 4 pair and one skittle. When 3 skittles fall, 6 still remain standing. If 5 fall, then four skittles are left.

Four bowls lie on the floor, 2 bowls are held by the players, 2 bowls are rolling, and one bowl is in the conduit — 4 bowls, twice 2 bowls and 1 bowl make 9 bowls. The number of ninepins each player has overthrown, is written down on the slate. Each player tries to knock down a good many ninepins. But in order to do so, the bowl must run over the board.

A badly aimed blow seldom hits anything. If the bowl is feebly thrown, it will not hit the ninepins, however much the player tries to help it to do so. Playing at ninepins strengthens the arm, and teaches the eye to take a good aim. It also makes one learn how to reckon. It is in short a useful amusement.

Hurrah! the bowl comes rushing into the board, and knocks the skittles down. "All nine of them!" cry the boys. Paul is the best hand, and has overturned the most ninepins. That is all very fine. Only it would be better if, when they count up all the blunders made in school, he had not always the largest share. For that is not quite so pretty!

What are these boys about? How many boys are standing in pairs? How many boys are to be found in 3 pairs? How many boys do 6 boys added to 3 boys make? How many skittles are there on the board? How many skittles do 3 times 3 skittles make? What is the largest skittle called? Where does it stand? If 1, 2, 3, 4, 5, 6, 7, 8, and 9 skittles fall, how many will remain?

How many bowls are lying together? Are they of equal size? How many bowls are there besides? Where are these bowls? Who carries the largest bowl? Which bowl rolls from right to left? How many bowls are rolling? How many are carried? How many boys stand, sit, or stand upon one foot? What happens if one does not throw the bowl straight, or if one casts it too feebly?

Plate 5.

Edward asked the fruitwoman: "How many pears do you give for threepence?" "Six, my child," said she. "Only six!" cried Neddy — "that is too little. Can't you let me have five?" The woman looked hard at the boy, and said: "As you are such a clever little fellow, you shall have five pears. I only give six to other people." Edward ran home joyfully with his pears, and told his mother what a good bargain he had made. "Oh!" cried mamma, "what a foolish boy my son Edward is, to be sure!" And she explained the matter to him. Then Edward was ashamed. "But do you know what I'll do, mamma?" said he, "I'll go to school with the big boys, and then I shall not be such a foolish fellow." Then mamma looked pleased, and said: "You are too young, my child, to go to school yet, but you shall learn how to reckon, this very day." So saying she brought out a small board, on which 100 spots were painted.

"Number 1 stands to the left on the undermost line my child," said she, "and 100 to the right on the topmost line. Now begin to count, and touch a spot at every number." — "1, 2, 3, 4, 5, 6, 7, 8, 9, and 10" — "Right," said the mother, "now tell me where stands 3? Where is 5? Where is 8? and where is 10?"

Edward showed the different spots quite correctly. "Now you are getting on capitally" said mamma — "go on. In the second row you begin with 11. Now count up to twenty. That's right. Now show me where are 12, 17, and 19." Thus he went on through the whole board, and in a few days, Edward could tell the right number of any spot his mother pointed to. "The first spot below, on the left is number 1," said Edward, "and the first to the left on the top line is 10, the last on the right below, is 91, and the last spot to the right on the top line is 100. The 4th spot in the second row is 14, and the 6th in the third row is 26, the eighth in the 5th row 48, the second in the 6th row is 52, the ninth in the 8th row 79, the ninth in the 9th row 89, and so on. 2 spots after 3 is 5, 4 added to 8 makes 12, 4 added to 20 makes 24; 6 added to 50 makes 56, 6 added to 57 makes 63; 7 added to 48 makes 55, and so forth.

If you proceeded 2 spots backwards from 6, you find 4, and 4 backwards from 16 is 12, and 4 backwards from 21 brings you to 17.

Three times 2 make 6, twice 4 makes 8, three times 5 makes 15, six times 3 makes 18, and so forth.

The mother now took up a die, and asked: "How many have I thrown?" "4, 2, 5, and 6," answered Edward, without stopping to count. She then threw a pair of dice. "You have thrown 4 and 3, mamma," said he. "Right; but how many does that make?" "7" — answered Edward. She now tried with 3 dice. "6 and 4 are 10, and 5 are 15," reckoned Neddy. Thereupon mamma laid 3 playing cards on the table. "8 and 5 are 13, and 1 makes 14" — said Edward. Mamma was pleased, and presently brought out a box of dominoes. This was not so easy. But Edward had a mind to learn and was soon able to reckon up correctly the amount of pips on three dominoes. "There are 21 pips," said he, "for 6 and 5 make 11, 11 and 4 make 15. 15 and 3 are 18, 18 and 2 are 20, 20 and 1 make 21." "Well done!" said mamma, "you will certainly not take 5 pears now, when you are offered 6."

The next time Edward again sat at the table, and wished to learn something more, his mother brought out a large wooden cube (No 1). "But I can't learn from that," objected Edward. "Patience" — said mamma. "A die has an upper and under surface, a front and back, and a right and left one as well. Each surface is surrounded by 4 straight lines. It is a square. Where 3 of these surfaces meet, a corner is formed. A die contains 4 front, 4 back, 4 upper, and 4 under corners. 4 corners added to 4 corners give 8 corners. One die has 8 corners. 4 lines or edges surround the front surface. 4 the back, and 4 extend over and under the side surfaces. 4 and 4 and 4 are 3 times 4, or 12. A die has therefore 12 edges."

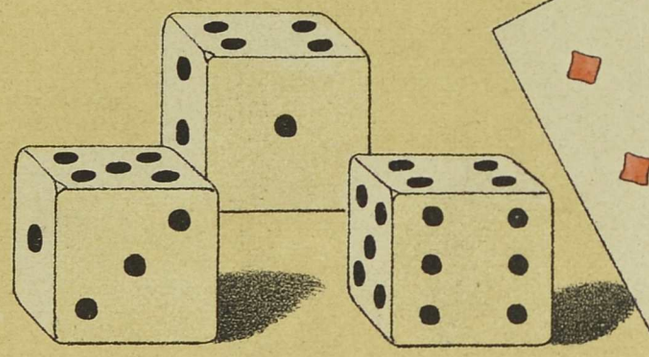
Another time mamma brought out cubes and blocks of bright and dark colours. "This second block" (No 2), said she, "is half of the first cube. The upper and under surfaces are of equal length and breadth, and the 4 side surfaces are half as high as they are broad. A whole consists of 2 halves."

No 3 is a cube divided by two lines, one perpendicular, and the other horizontal. These form 4 parts. The fourth of a whole, is a quarter. These quarters are longer than they are high and broad.

No 4. This cube is divided by 3 lines — 2 perpendicular and 1 horizontal. This gives rise to 8 squares. 4 are in front, 4 behind, or 4 above and 4 below. 4 squares to the right and 4 to the left make 8 squares. Each is an eighth of the whole.

No 5. A cube divided into 4 quarters by a perpendicular and a horizontal line. These quarters are twice as long as they are high or broad. Each quarter is subdivided into 4 parts. 4 times 4 quarters make 16 quarters.

No 6 is divided by two oblique lines. Each part is 1 quarter. Each quarter has 5 surfaces.



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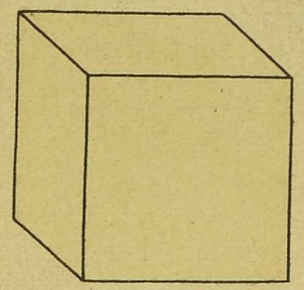

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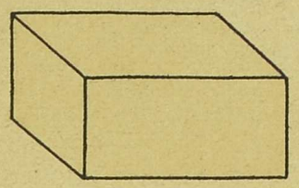

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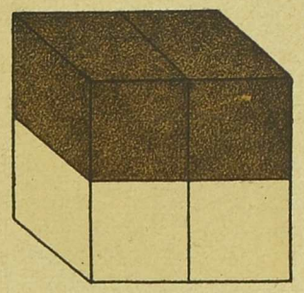

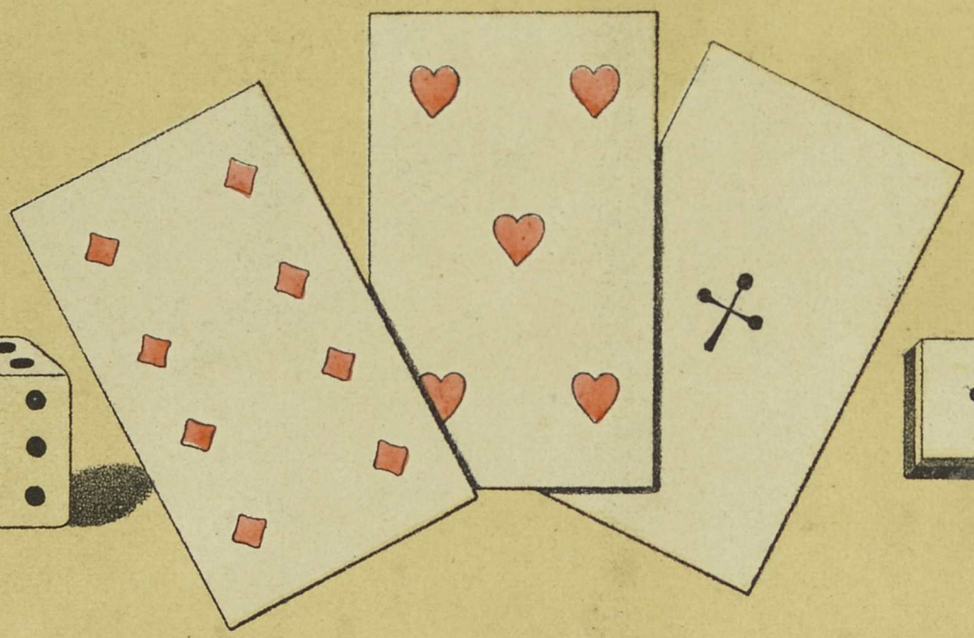

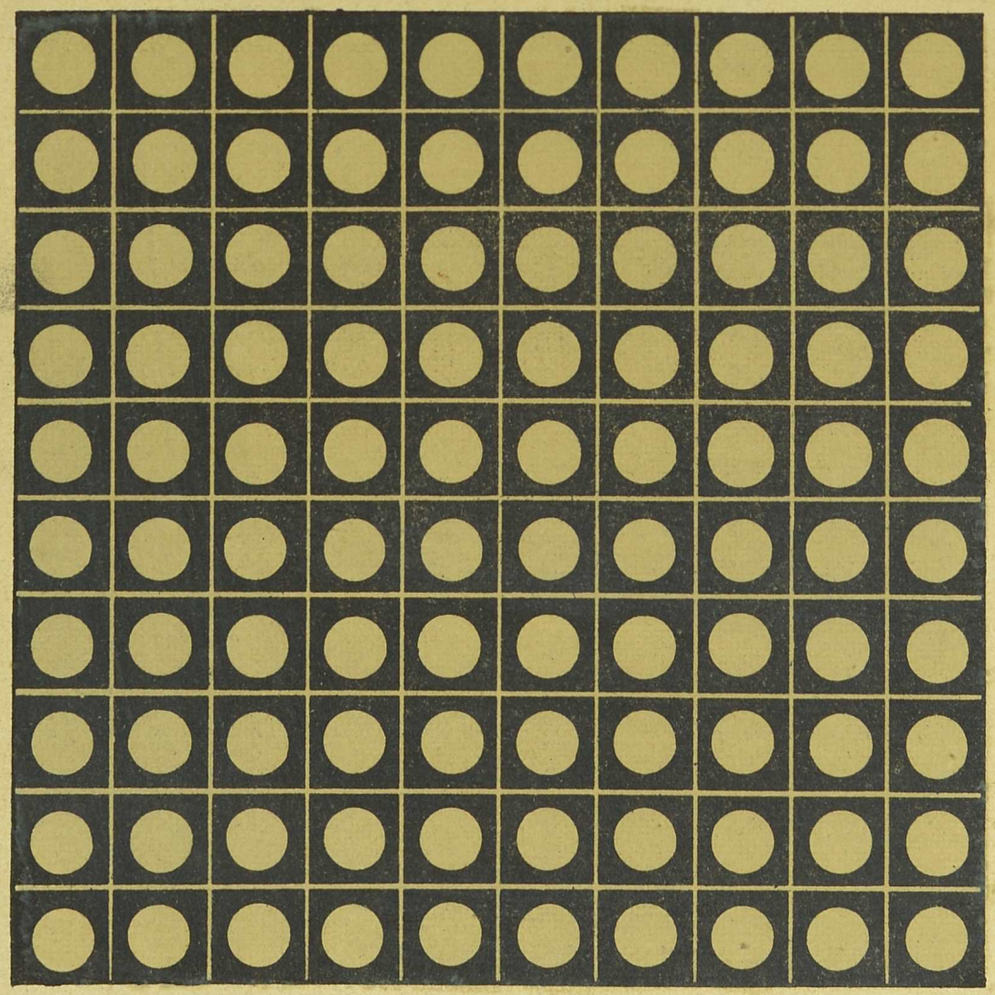

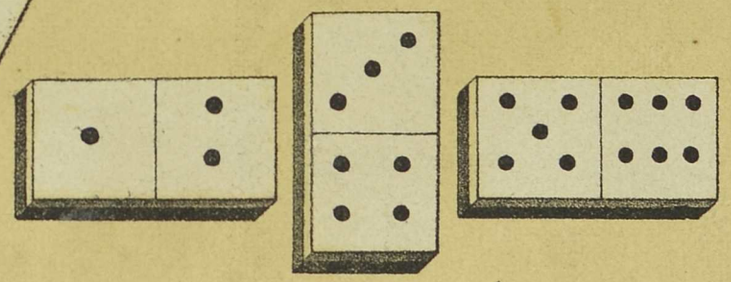

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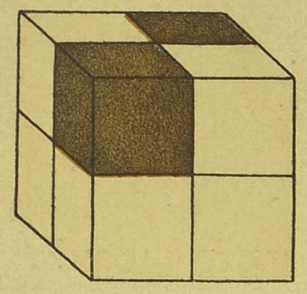

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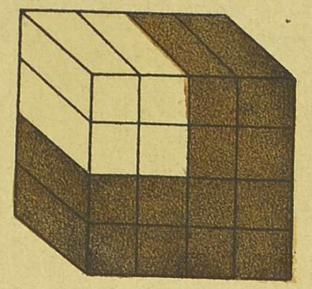

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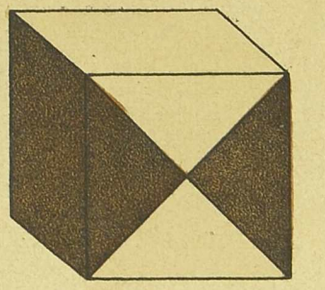

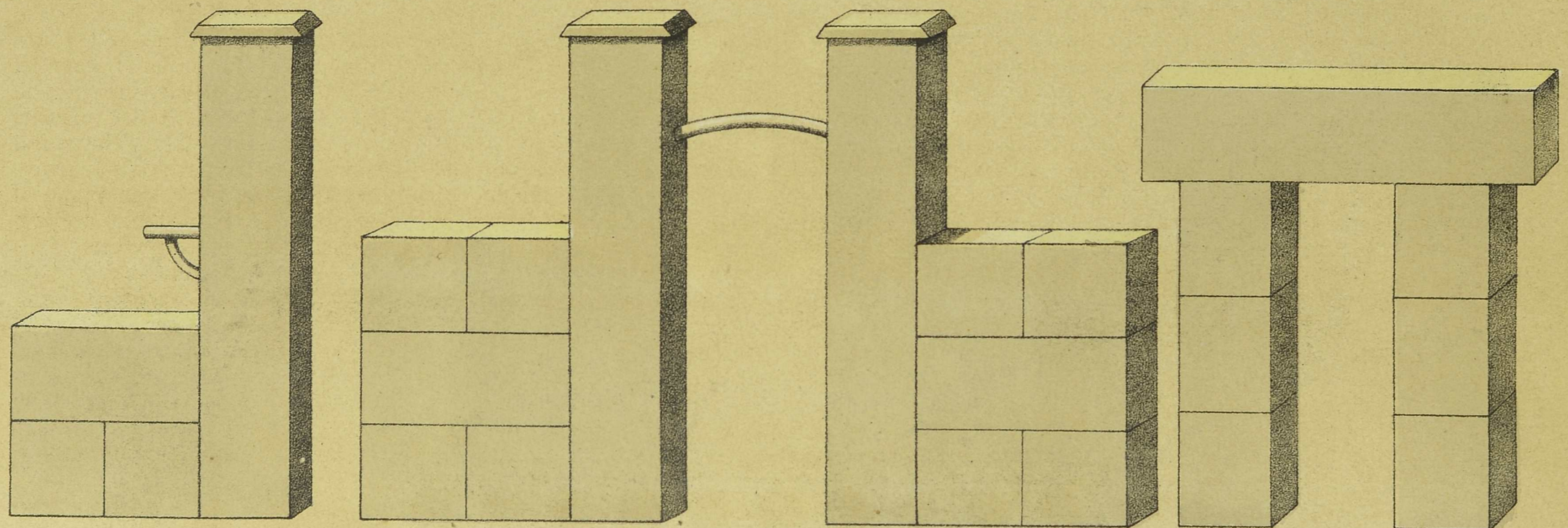

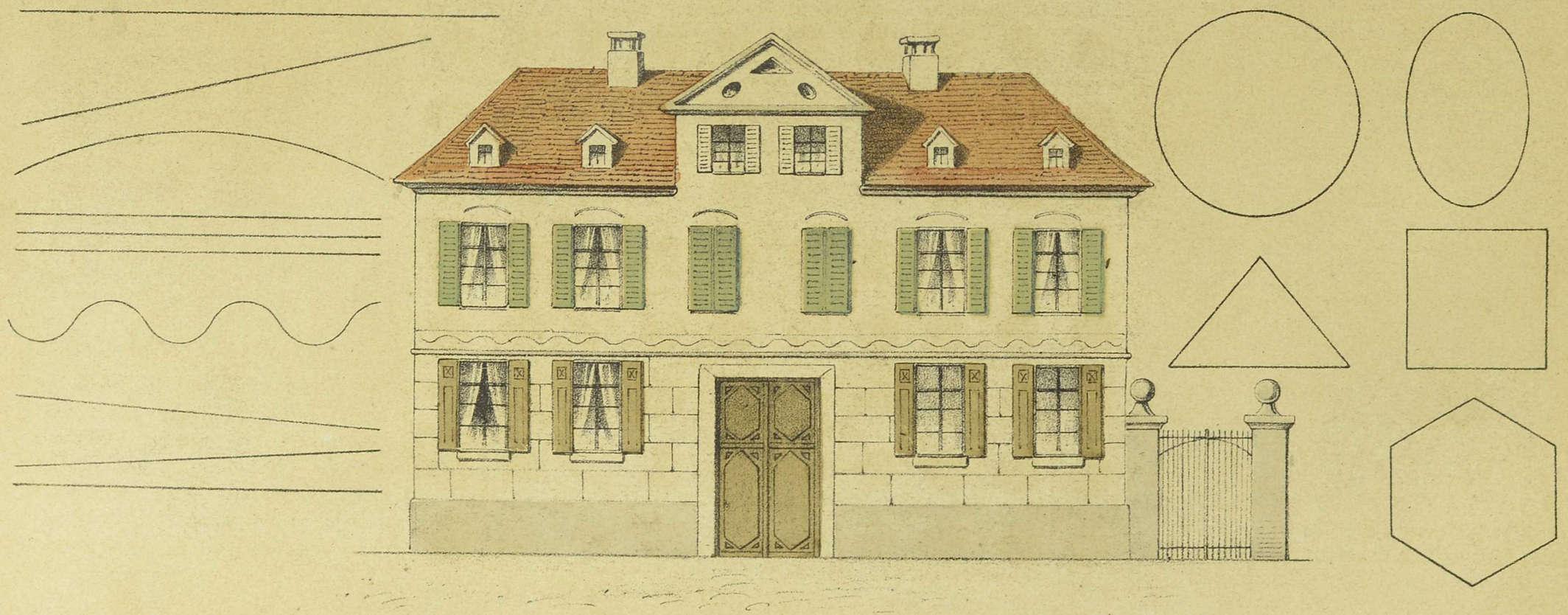

Plate 6.

"Now take out of the box containing the building materials, the smallest cube or building stone, which we call number one," said mamma, "and then add a second to the first, and then lay a third as big as the two combined, on the two first. Now we'll place upright a number five stone, in which we have bored a hole, and into the hole we'll stick a little bit of wood. What does the whole look like?" "Like a pump," answered Neddy. "Now tell me, my child, how many of the number 2 cubes and how many of the number one cubes were necessary to complete our pump?" "If we make use of the second size," answered Edward, "we should want 4 of them and 1 number one. If we use only number one cubes, we should require 9 of them." "Take 2 cubes number one, lay a number two upon them, and then again 2 of number one size upon it, and add a perpendicular number five. The whole resembles a wall with a jamb beside it. We will now build up a similar one, so that the two jambs should form a gate. We can build this up with one number 1 cube, and 5 number twos, or 3 third size cubes, and 1 second size, or 11 of the number one size. Take 2 number threes, or twice three number ones, and place them near enough to each other to admit of only 3 cubes being placed between them, and then lay a fourth on the top. The whole resembles a bench to rest upon."

"You are now quite a clever architect," continued his mother, "so we will go on building, and before long you will be able to build whole houses and castles, and to make use of the larger building cubes, such as number six, number eight and number ten. But architects generally make a drawing of the houses they are about to build. So here is a sheet of paper and a pencil, to draw a house." "Oh mamma," objected Edward, greatly surprised, "I can't draw." But his mother answered: "Nobody knows what he can do till he tries. So take courage, and draw the lines which I tell you, namely horizontal, perpendicular and oblique ones. A horizontal line lies flat, like the surface of a table, or of the floor or the ceiling. A perpendicular line stands upright, from below to above, like the walls of a house, the trees in the field, or a plumb-line. An oblique line runs sloping either upwards or sideways. — Lines may run parallel or not. Parallel lines always remain at an equal distance from each other, and run neither together nor asunder. Draw 3 lines, not parallel ones, that either approach or recede from each other. The spiral or serpentine line is composed of bows that run alternately above and under. A circular line coils round a centre, in the shape of a wheel. An oval is a longish round. It is shaped like an egg. A triangle is formed by 3 straight lines. A quadrangle is composed of 4, and a hexagon of 6 straight lines. Now try and copy all these lines and figures as I have drawn them."

"You get on pretty well," said the mother, "and if you pay attention, you can put together a pretty house with these lines. Just draw a horizontal line for the basis, on which the house is to stand, and then two perpendicular lines at some distance from each other. These will form the side walls. Next draw a line up above, that will be parallel with the basis, to serve for the rafters; and then a second line for the top of the roof."

"The basis, the cornice, the rafters, and the top of the roof are horizontal. The walls of the house, the sides of the doors and windows stand perpendicularly. The sides of the roof are sloping. The lines forming the sides of the house, of the windows, and of the bricks, are parallel; those of the roof are not. The walls, windows, and bricks are four-cornered. The front wall is broader than it is high. Doors and windows are higher than they are broad. The window panes are as high as they are broad. The gable-end and the gable windows form a triangle. There are two small oval windows in the gable-end. The door is ornamented with 4 hexagons."

"And now my child," continued the mother, "the house is finished, and if you draw it once more, it will turn out still prettier and more regular."

"In the meantime let us look at our work, and talk it over.'

Show me straight, perpendicular, and sloping lines. Which are parallel lines, and which are not? Where is a bow, and where is a spiral line? What is a circular line? What is the shape of an oval? Of how many lines do a triangle, a quadrangle and a hexagon consist? Where do you find perpendicular lines in the house, where horizontal lines, and where parallel ones, and lines that are not parallel? Where is a spiral line? Where are curves, triangles, and quadrangles?

How many storeys high is this house? How many windows are there on the first floor, how many on the second and third floors? How many shutters are open on the first floor? How many are closed? How many windows are there in the gable-end? How many in the roof? How many panes are there in each window? How many windows have French sashes? How many panes are there in 2 and 3 sashes? Where is the house door placed? Where do the chimneys peep forth? On which side stand the gates leading into the court yard?

Plate 7.

Frank had a basket of eggs given him at Easter. His father gave him one more to add to the rest. "Oh!" cried the boy laughing, "that is not a real egg; I saw that at once, father." "And pray," asked the latter, "why should it not be an egg?" "Well, it is an egg to be sure," said Frank, "only not an egg laid by a hen, but one that has been made by some clever man. It is much heavier and smoother than a hen's egg." "Right, my son," said the father, "this egg is a work of art, but the marble it is made of, is a natural production. All stones, plants, and animals, together with what they yield, are natural productions, but what is made from them are artificial productions. Wood, clay, wool, and the skins of animals are all natural productions but this little wooden chest, this earthen vessel, as well as cloth, leather, and paper, are all artificial productions." "Now, here is a stone and here a plant" — continued the father. So saying he broke the stone and cut the plant to pieces. "Now what is lying before you?" asked he. "Here are pieces of stone, and there are leaves, twigs and buds," said the boy. "Right," said papa. "The fragments of the broken stone, are stones still, but is this (pointing to a piece of the plant) still a plant?" "No, father," answered Frank, "it is only a leaf, which is a part of a plant." "Right. Now tell me whether you see here all the parts of a plant?" "No," said Frank, "the root is wanting." "Is the root a necessary part of a plant?" "Yes surely," replied Frank. "You see by this, that, certain portions of plants, the same as it is with animals, are necessary to their existance. But such is not the case with lifeless objects, like stones."

Another time, papa asked: "What is the largest plant you have seen?" "The large oak on the skirts of the forest," answered Frank. "Well," said the father, "here is the picture of an oak. I'll tell you all that I see in it. A tree has a top, a trunk, and roots. The roots are in the earth. The tree draws from them the sap necessary to its nourishment. The trunk stands perpendicularly on the earth. It consists of bark, bast and wood. There are rings in the wood. The trunks of old trees have many rings. The bark of the oak is rough and cracked. Its top consists of branches, twigs and leaves. You see above, on the left, a branch which has dry twigs without any leaves. Branches grow sometimes perpendicularly like the willow and the poplar, and sometimes horizontally like the oak and the fir. A branch contains many twigs. A branch is thicker than a twig. Above, on the right, is a branch covered with leaves. The leaves of this oak are elongated, jagged, and furnished with a stalk. The leaves have an outside and an inside. Each leaf is indented in the middle, and on each side.

"On the right, you likewise see a twig with blossoms and a few leaves. The blossoms of the oak are green and drooping. The fruit of the oak is unfolded from these blossoms. On the left is a twig bearing the fruit. This consists of round nuts called acorns. The acorn is placed in a small cup. It has a shell and a kernel. The kernel is woody, and not fit to eat.

"At the foot of our oak lies the trunk of a tree. Two woodcutters are chopping and sawing off its branches. The trunk is round and long. It presents two surfaces that have been sawed smooth, and a rough curved surface. The carman has come to fetch the wood furnished by the trees. The trunks of trees serve to make boards; and sometimes they are hewn into beams, and billets.

"Many trees bear fruit that is eatable. Such are called fruit-trees. They are planted in gardens and orchards. Other trees yield no eatable fruit. They grow in woods and forests, and are called forest trees, The oak is one of the finest and largest of all forest trees. Forest trees have either flat leaves and foliage, and are called leafy trees, or narrow, pointed leaves and are called coniform trees. The oak, the beach, the birch belong to the former species. The fir, the pine, the larch, to the latter sort."

What appearance does a tree present? What is the bark of an oak like? How does the trunk look? Which is thicker a branch or a twig? What kind of tree is here depicted? What are oak leaves like? What is to be seen on a leaf? What are the blossoms of the oak like? What is the friut of the oak called? How many acorns are to be found on this twig? How does the tree look all the year round? And what do trees only exhibit in spring? And what only in autumn? What is done with acorns? What are wood and bark used for?

What is lying at the foot of this oak? What are those two men doing? How does a felled trunk of a tree look? Who fetches wood from the forest? What is done with trunks of trees? What use is made of branches and twigs?

What are the names of the trees that bear eatable fruit? Where do fruit-trees grow? What are the names of trees that grow in forests? What sort of leaves belong to the leafy trees, and which to the needle-leaved or coniform trees?

Plate 8.

We see here a school, but we do not see all the scholars. On the left stand 1 table and 1 bench, on the right 3 desks and 3 forms. On the left, there are 3 school girls reading. On the right are 6 boys who are supposed to be writing. The girls are reading in their books. The schoolmaster is standing by them. He is listening, to see whether they are getting on as they ought to do.

The boys are not all diligent. Two of them are chattering instead of writing. Another has laid his slate upon his knee. The master does not see them just now, as his back is turned, but he hears their prattle. He will admonish the naughty and the lazy ones. If they do not become good and diligent, he will punish them. He has something ready for that purpose, in his hand.

These boys write upon slates. A Slate consists of a piece of slate and a frame. Slate is a blackish kind of stone. The frame is of wood. It is made of four pieces. They write, with a slate pencil, on lines which are drawn with a ruler. The ruler is generally made of wood, though the pencil is of slate.

Against the wall stands a bookcase with 5 shelves. On the uppermost shelf we see 10 books — 3 stand upright, 5 lean slantingly towards them, 2 lie one upon the other. On the shelf beneath, the same number of books are to be found. One stands in a sloping position, 2 books are lying, and the remainder are placed some standing upright and some diagonally. The third and fourth shelves each contain 6 books, while the lowest shelf numbers 8 books.

A book has a cover on each side, a back, an edge, and a number of leaves. Each leaf has two sides, on the sides are printed subjects, words, syllables, and letters.

The master teaches his scholars to speak, to read, to write, to sing, and so forth. He has to take a deal of trouble, and must talk a great deal, and show things over and over again, and has often to blame and admonish his pupils. The latter ought not to be idle, neither should they chatter, and disturb one another.

What does our plate represent? Where do the boys sit, and where the girls? How many girls are there, and how many boys? How many tables, and how many forms? Are the tables horizontal or sloping? What are the girls and the boys doing? Are all the boys doing what they ought to do? What are they about, instead of writing?

How many shelves are there to the book-case? How many books are there on the first shelf? (whether beginning from top or bottom,) On which shelf stand the largest, and on which the smallest books? How many books stand perpendicularly, how many in a sloping direction? What do the scholars learn? How ought they to behave?

"Who is the man who sits all the summer through, out there on the heath near the mill, and who always lives in company, though no human being is near him, who carries a staff, that does not serve him for walking, and whose small house stands on wheels?" Papa asked this of the children, who replied laughing: "Why, the shepherd, old Phil, to be sure. How funny!"

Our shepherd sits on a stone bench. He tends the sheep, and leads them to pasture and drink. In winter, he drives them into the stables but in summer he folds them in the pen towards evening, and sleeps beside them in his little house upon wheels. His dog remains awake, and barks if anybody comes near. The shepherd wears a three-cornered hat, and a long great-coat. He carries on his arm a long handled shovel, which he flings after his flock, if they are about to trespass on cultivated fields. His watchful dog sits by his side. To the right we see a running spring, at which the sheep drink. To the left stands the shepherd's cart, a kind of wooden hut upon wheels, in which he spends the night.

The sheep is a useful domestic animal. Instead of hair, its body is covered with wool. Its feet are cloven. Its tail is long and hanging. The male is called a wether. The wether's horns are twisted outwards. A young sheep is called a lamb. Some sheep are white, others brown, black, and spotted. They eat grass, clover and hay, and are fond of salt. In summer, the sheep are washed and then shorn. Their wool makes cloth and stuff. Their flesh is nutritious and relishing. Sheep may also be milked, and cheeses are made of their milk. Sheep are timid, patient animals.

What do you call the man who tends the sheep? What does the shepherd carry in his hand? Whither does he lead his flock? Who helps the shepherd to guard his flocks? Where are sheep put in winter? Where do they spend the night in summer? What does the shepherd's little hut stand upon? What is it used for?

Which animals are called domestic? What is sheep's wool called? How is the wether distinguished? What are the little ones called? Of what colour are sheep? What do they eat? Of what use is their flesh and their wool?

Plate 9.

Birds can fly. They are feathered and have wings. The large bird with brown feathers and a hooked bill is a bird of prey, namely an eagle. The great white bird with long wings tipped with black is a stork. To the left, beneath the stork, flies a dove. She is of a reddish brown. Above the eagle flies another bird, that is grayish brown. He is a woodcock. To the right fly 3 swallows. To the left fly three other swallows. Their wings are long and narrow, their tails forked. Their wings and tails are of a darker hue. The two swallows with reddish brown heads and throats, are village or house swallows. The swallows with white bodies are town swallows.

The eagle darts down from the upper regions of the air upon some animal whom he seizes and devours. He is letting himself down, and flying downwards. The stork flies upwards in a slanting direction. One often hears him clucking, and sees him walking near the brook searching for frogs, or sitting in his nest, on the steeple. The dove on the left, is flying upwards, the dove on the right is flying downwards. Wild doves build their nests in hollow trees, in the forest. One hears them cooing. They live on seeds, and feast in cornfields. Two swallows fly downwards and one flies upwards. Two swallows fly towards the left side. One swallow flies towards the right side. Swallows build their nests on the outside of houses. They eat insects, which they catch on the wing. Whole flocks of swallows fly as swiftly as arrows through the streets, skim the surface of water, or cleave the higher regions of the air. They disport gaily, and keep crying: tsit! tsit!

How many birds are flying here? Which two birds are the largest? Which birds are of middling size? Which are smaller? What is the name of the large bird with brown feathers? What is the name of the large white bird with black wings? Can you tell me what is the blueish white bird under the stork, and the reddish brown one above the eagle? What is the name of the grayish brown bird between the stork and the dove? What do you call the birds with the long, narrow wings, and the forked tails?

Which birds fly upwards? Which downwards? Which fly to the right, and which to the left?

Merry children are here playing at hide and seek. Whoever the number one thousand falls upon, must go and seek for the others. Charles counts: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 1000! The little girl has lost her reckoning and must go and seek for the others. Fred has hid close by her, under some planks. Only a few boards stand between little Amelia and Freddy. It is to be hoped the boards will not fall! Charles sits on the barrel. Only think if the bottom of the barrel were to give way! Lizzie stands close to the wall. As she sees nobody she fancies nobody can see her. Felix is comfortably ensconced inside the barrel. It may roll away or fall to pieces. One hoop has flown asunder. Julius sits behind, and bends down when Amelia draws near. Sophia sits contentedly under and behind the leaden gutter; for it does not rain just now. She thinks: "Never mind even if I am caught." Gustavus slips away through the palings, which is not fair play. Amelia sees him first — so it is his turn, and it serves him right. One of the boys lies beneath the straw. He holds a hoop in his hand. He is safe. Another sits behind Felix, inside the cask; and he is safer still. Another sits in the barrel close to Charles, and he is safest of all.

"Shall I come?" cries Amelia. "Yes, do," answer the children. Gustavus alone cries out: "Not yet!" because he has stuck fast in the hedge. Now all must be as still as mice, for Amelia is coming! How cunning she looks! She spies Lizzie first, because she is so badly hid, "I see Lizzie!" cries she, "it must be Lizzie next!" All now come forth from their hiding places. "No," say they, "it must be Gustavus. He slunk away, and that's not fair play. So come in Gus, and take your turn, or you shan't play with us any more."

How many children are at play in this yard? How many boys are there, and how many girls? How many children are there, supposing three to be so well concealed as not to be seen? What are they playing at? Who is to seek for the others? Who is hidden nearest to the little girl who is seeking? Where is the boy in the blue jacket? Where have the two smallest boys placed themselves? What is the fifth boy doing? Which place have the two girls chosen? What is the boy on the barrel pointing to? Where might another of the players be hid? What might happen to the boy on the barrel? Which children are standing? Which are sitting? Which boy is kneeling? Which children turn their backs to us?

Plate 10.

"What beautiful fruit!" cried the children, when their mother showed them this plate — "how nice it would be, if we had it all to eat!" But their mother observed: "It is only those who are moderate and unassuming in their wishes, that can expect to have them granted. When grapes are ripe, the early fruit such as cherries and currants are over. But there is some fruit in this basket, which I will divide amongst you, as a reward, if you are attentive.

"In this plate we see depicted fruits from the tree and fruits from the field." "But, mamma," objected Lina, "are cabbages and turnips fruit?" "Not indeed such fruit as apples and pears, but still all eatable vegetables may be called fruits of the earth. Fruit trees and many sorts of bushes furnish us with what is more particulary called fruit, and which contains seeds. We only eat the leaves of cabbages, the roots of turnips and radishes, and the tubercles of potatoes. Trees that bear eatable fruit, are called fruit-trees."

Mamma now took an apple out of the basket, and cutting it in two, showed the children the parchment looking capsule, containing the seeds. "Look," said she, "this capsule has 5 compartments. In each compartment may be found one or two pips." The mother next opened a peach, and showed them the stone it encloses. She likewise opened a walnut, and took the pips out of a grape. Fruit has a kernel or a stone. Apples, pears, and quinces are kernel-fruit. Cherries, damask plums, apricots and peaches are stone-fruit. Grapes, currants, and gooseberries, all belong to the family called berries. Nuts have oily kernels.

Apples, quinces, apricots, cherries, and berries, are ball shaped. Plums, damascenes, nuts and gooseberries are egg shaped. The nut has a pulpous husk, surrounding its hard double valved shell. Within the shell lies the kernel. Berries contain a sweet juice. The seeds are to be found in the juice.

What are the trees called that bear fruit? What is found in apples and pears? And what in cherries and plums? Of what colour are the kernels of ripe fruit? What fruit is round as a ball? Which is egg shaped? What is the shape of the two shells of the nut? What is to be found in the juice of currants and gooseberries? How many sorts of fruit are here displayed? Which of them lie in heaps together?

"To-day there are surely fruits of the field in the basket," said the children. "Yes," said the mother, "and let me tell you that some of them are far more indispensable than the produce of fruit-trees." And so saying, she laid on the table two ears of maize, several potatoes, turnip-cabbages, carrots, radishes, onions, and cucumbers, in order to talk about them with the children.

Maize has large yellow or reddish-brown grains, which lie in rows lengthways on the ear. They are ground, or roasted, or cooked in many different ways. They make very good food for geese. Potatoes are round tubercles, which grow on the roots of the potatoe plant. Potatoes are dug up in autumn, and carried into the house, and kept in the cellar. They have a skin, and a number of eyes. The cabbage has pulpous leaves that are strongly ribbed. The leaves lie in layers one over the other, and form a kind of head. A cabbage is green or reddish. It furnishes greens, and fodder for cattle. Plants that have leaves of this kind are called cruciferous. A turnip is a cylindrical root, ending in a sharp point, and having many fellow roots. There are both white and red turnips, the latter are globular. A carrot is yellow, and fines off to a sharp point. It is a good vegetable. The root of the raddish is similar to that of the turnip. It is either white, pinkish red, or of a blackish colour, and its taste is pungent. Kitchen onions are shaped like a flattened ball, and have slender roots underneath. The onion consists of pulpous layers, and has cup-shaped leaves, and is coated externally with a reddish skin, as shining as silk. A cucumber is elongated, its rind is rugged, and its colour though green at first, turns to yellow at a later period. Its pulp is juicy, and contains numerous seeds.

"There is nothing in the basket, for us to eat to-day," said little Max, half ready to cry. "Perhaps there may be," laughed mamma, as she took out four eggs. — "As all colours are represented here, even including white, and also in order that you might have something to nibble, I brought with me a few eggs, although they are not field produce. They are boiled, so take them, and they will serve for your luncheon. Only you must first answer several questions."

What field produce is to be seen lying in a heap in the middle of our picture? How many samples are on the right, and how many on the left? Which fruit is red? Which bright red? And which dark red? Point out the green, yellow, brown, blue, black and white samples. Which field produce is cultivated on account of its root? Which vegetables have tubercles, and which are cruciferous?

Plate 11.

"To-day I bring you leaves, which I have plucked in the garden, and in the little wood just by," said the mother. "Only look at them, and see how beautiful they are; they will surely furnish us a pleasant subject to talk about." "Aye," quoth our forward Master Frank, "but we know them already, and have seen them lots of times!" "Very well, my dear, then you will directly be able to tell me which tree the leaf I now show you, belongs to." "Oh! that comes off a pear-tree," cried Frank hastily. "You are a long way from the mark, young gentleman," said Mamma laughing, "the leaves of pear-trees are narrower, longer, and more shining." "I now remember it is an apple-tree leaf," interrupted Frank, "I made a mistake." "It is not that either," said the mother, "so little master knows nothing at all about it, although he has seen similar leaves many a time. The leaf comes from yon lime-tree, under which you children daily play, yet none of you know what the leaf is like. The shapes of leaves are not only elegantly beautiful, but of manifold variety, as you may see from these nine leaves, which I now show you. The leaves of firs and pine-trees have narrow leaves, as sharp as needles. The leaves of fruit-trees are broad and smooth. The stem of simple aves, only bears one leaf. But the stem of compound leaves bears several or many leaves. The component parts of a leaf are the stem, the flat, the veins, the edge, and the tip. Leaves have an upper and an under surface. The rib in the middle of a leaf runs from the stem to the tip. The veins run from the middle to the sides of the leaf. The lime-tree has round, heart-shaped leaves. The stem is longer than the leaf itself. The edge is sharply indented. The upper surface is smooth and bright green, the under rather hairy, and of a greyish green."

"Now children, which leaf is egg-shaped, with a short point, a blunt edge, and a dingy, grey back?" "Mamma surely means the leaf of an apple-tree!" cried the children. "Right," said the mother, "I'll describe a leaf and you shall show it me. Which leaf is elongated, has a stem, is smooth, and has a jagged edge, but is not indented?" "Here it is. It is an oak leaf." "Which leaf is roundish, heart-shaped, with five lobes, and an unevenly dentelated edge?" "A vine leaf." "Which has three lobes, is smooth and shining, and has an unbroken edge?" (not dentelated) "The ivy leaf." "Where is a triple leaved stem, each leaf of which is dentelated, and dark green on the upper surface, and dingy white on the back?" "Here it is. It is a blackberry leaf." "And which stalk bears seven arrow-shaped, jagged, pointed leaves?" "The leaf of the horse-chesnut tree." "Which leaves are long, narrow, shaped like a ribbon and smooth at the edges?" "Blades of grass." "Which tree bears stiff, narrow, needleshaped leaves, standing two and two, in rows?" "The scotch fir. Here it is."

Next day the children again assembled round their mother, who opened her basket, and displayed five beautiful garden flowers, "We know these flowers better than the leaves," said the children. There is a tulip, a lily, a pink, a rose, and a blue-bell." "Right," said the mother, "but do you know the component parts of the flowers?" "Yes," said Frank, "they have green leaves, and coloured leaves, and inside sits a cock with all his hens." "You mean green leaves round the calix, and petals. The calix of this pink is long and cylindrical, and the petals stand in it as the flowers do in a flower-pot. But what you call the cock and his hens, is the pistil and the stamina by which the seed is produced. The tulip has no calix. Before it is expanded, the tulip is egg-shaped, but when it has blossomed, it becomes bell-shaped. Six variegated leaves enwrap the three-sided pistil, which is surrounded by six stamina with coloured anthera. The lily has six snow white petals. It has no calix. The bud is cylindrical, and the flower when unfolded, funnel-shaped. You see within it, a pistil with 3 stigmata, which pistil is surrounded by 6 stamina with yellow anthera. The pink has a cylindrical calix, with 5 crenated leaves round its edge. The corolla is composed of many petals. The petals are notched, or fringed at the top, and nail-shaped downwards. The pink is sometimes of a uniform colour, and sometimes variegated. The leaves are narrow, partaking of the nature of grass blades, and pointed. The calix of the rose is notched in five places. At the tip of the calix are lobes resembling leaves. The wild rose has only 5 petals, but the garden rose numbers a great many. The petals are rounded, and concave. The thorny stalk has green leaves with a jagged edge. The garden blue-bell or campanula, has a calix divided into five parts. The corolla is of a single, bell-shaped petal, with five notches round the edge. The pistil has five stigmata.

How many component parts have most flowers? What is to be found in the corolla of flowers? What are the names of the flowers here represented? What is the shape of the unfolded tulip? And that of the tulip in full blossom? How many petals has the tulip? How many petals has the lily? What is the shape of the bud, and that of the full blown flower? What is to be seen within its calix? Of what shape is the calix of the pink? How is the edge of the calix fashioned? Are the petals easily counted? What is the shape of the leaves? Into how many parts is the calix of the rose divided? What do we see at the tip of the calix? How many petals has the wild rose, and how many are to be found in the garden rose?

Plate 12.

"Why must papa be giving money every day?" asked Lina. "Tell me," said her mother, "what do you require, besides air, in order to live?" "Why, I must have food and clothes." "And a dwelling," added mamma. "But nobody can himself make all the things he requires. The farmer, miller, and baker provide us with bread; tailors, shoemakers, and other tradespeople provide our clothing; while masons, carpenters, joiners and locksmiths fit up our houses. Each earns money by his work."

A house consists of stone and wood. The quarry-man digs the stone out of the stone-pit or quarry. The carman conveys the stones to the place where the building is being raised. The stone-cutter gives them the necessary shape. The mason lays the foundation of the house, and builds up the walls. When the walls are somewhat higher, the mason erects a scaffold. Masons and stone cutters use hammers of various sorts, crowbars, chisels, carpenter's rules, squares, trowels, and so forth.

Can we make all we want ourselves? Who are employed to build houses? Who provides our clothes and nourishment? Where do building stones come from? Who hews them into shape, and makes them square? What does the mason do, when the walls have reached some height?

"What is the workman called, who makes beams out of trunks of trees?" asked the mother. "He is a carpenter," answered the children. "So he is," said mamma. "He saws and planes the required number of beams according to the exact measure wanted, and then has them conveyed from his workshop, to the spot where the building is being carried on. He lays beams horizontally on the foundation walls, and places perpendicular ones on them, to serve for walls. He dovetails horizontal and slanting rafters in the walls. The space between the beams is filled with bricks. Now, have you not seen such a house being built?" "Yes, to be sure" cried the children. "The carpenters stood so high up on the rafters, that we were always afraid they would fall down." The mother went on to say: "When the house is safely built up, a carpenter recites some pious sentences from the Bible, from the gable-end, and the workmen have something to eat and drink given them, and they sing and rejoice at having concluded their work."

How does the carpenter obtain wood for building? What are beams? What tools are used by carpenters? Where do they plane the beams? Where are they set up? What does the carpenter lay down on the foundation wall? What does he place between the horizontal beams? What does he add to the perpendicular beams?

"Now, you boys, have often stood before the smithy, when the forge blazes, the hammers resound, and the sparks fly. What is to be seen in the smithy? In the blacksmith's workshop stands a forge, near which may be seen a pair of bellows and an anvil. Iron becomes malleable and red hot when exposed to the action of fire. The blacksmith manufactures iron. Iron is dug out of the earth as ore. The iron is melted out of the iron ore. The blacksmith makes locks, nails and countless indispensable things out of iron. The red hot iron is laid upon the anvil and forged with a hammer. The left hand holds the tongs, and the right the hammer. The bellows serve to make the fire blaze. The blacksmith makes tools for the wood cutter, the carpenter, the mason, and the farmer; such as hammers, axes ploughshares, scythes, sickles, mattocks, hatchets, pitchforks, horseshoes, chains, and all the iron work belonging to carts. Many blacksmiths manufacture weapons. They likewise shoe horses.

What work does the blacksmith perform? Whence is iron to be obtained? What does it serve for? What is to be seen in the blacksmith's smithy? What does he do to the iron, before he hammers it? What is the use of the bellows? Which articles are made by the blacksmith, and which by the locksmith?

"But our house, dear children, is not yet finished. When the carpenter has set up the framework, and the mason has walled it up, who is to come next?" "The joiner," answered the children. "Quite right. He has to lay down the floors, make the doors, the window-frames, and the shutters. The locksmith makes ferrules, bolts, screws, locks, keys and the iron work of doors and windows, which he fixes on. The glazier furnishes the windows, the potter the stoves, and the plasterer whitewashes or stuccoes the walls.

"The joiner makes wooden articles. He fashions household furniture such as tables, chairs, benches, boxes, chests of drawers, press-beds, foot-stools and so on. It is he who makes the cradle in which lies the suckling, and the coffin, in which the dead are buried. The joiner smoothes the wood with a plane, measures it with a pair of compasses, and an inch stick, cuts through the wood with a saw, drills holes, makes grooves and upright and reversed edges with an auger, a fret-saw, and chisel, and joins the pieces with pegs, nails or glue. Last of all he polishes his work, or stains it, or varnishes it."

What kind of work does the joiner perform? How does he obtain planks, laths and so forth? With what tools does he plane, measure, cut, and join wood? How does he finish his work?

Plate 13.

"What do we require," asked mamma another day, "in order to cut a slice of bread?" "A knife," said the little ones. "And what if we wish to write or to paint." — "A pen or a brush." "True," said the mother, "there are many sorts of work that cannot be performed with the hands alone. The things we require, to perform different kinds of work, are called tools or implements. Still when we want to make an article, we require something besides tools. Suppose a goldsmith wants to make a ring, he will need to have gold. That which is used to make different articles, is called the raw material. We have already looked about us in the smith's work-shop. His largest and heaviest implement is the anvil, which has a broad surface, rounded at one end and sharp pointed at the other. The smith holds the iron fast with the tongs, and wields his hammer with the right hand. In our plate, we see besides the anvil, 3 files, one saw, one pair of compasses, 3 pair of tongs, 3 hammers, and one vice. The forged iron is screwed into the vice, and is polished with a file."

"As we have also taken a peep at the joiner's workshop," said the mother, "you will surely recognise his tools. You see here a plane, a hammer, a saw, a pair of pincers, an auger, a chisel, a mallet, and even the glue pot. Now let us ascertain what these tools look like, and what are their several uses. The plane is longish, and square, and is provided with an iron, that cuts off long thin chips or shavings. The saw has a notched blade, two handles, a cross piece of wood, a cord, and a stretching rail. It serves to cut through timber. The gimblet has a sharpened screw which easily penetrates wood. The centre-bit has a point, a stock and a handle. The hammer serves to knock in nails, and for many other purposes. You can strike with the mallet upon the nails. With the pincers one can draw out nails. The glue is boiled in the glue pot."

Why does the smith make the iron red hot? When busy forging, what does he hold in his right hand, and what in the left? What use does he make of the file and the vice? Of what use are the compasses and the saw?

What materials does the joiner work upon? What does he make out of them? What tools does he use? What does a plane look like? Of what use is it? What are the component parts of a saw? Of what use is it? How does a gimblet look?

A husbandman cultivates the soil. He sows corn, pulse, herbage for fodder, potatoes, flax and hemp. He traces furrows with his plough, and casts the grain into the furrows. He then smoothes the furrows with the harrow. He reaps the ripe ears with his sickle. He binds the corn into sheaves. The sheaves are thrashed in the barn. When the grass is ripe, it is mowed with a scythe, then dried in the sun, gathered into heaps with a rake, and then piled upon the waggon with a pitchfork. The clods in the fields are broken with a spade and a pickaxe. Plants newly set, should be watered with a watering pot. Young trees are pruned with a knife.

The children were quite delighted when they saw the picture of the musical instruments. Each one pretended to play on one of the instruments, until the fine concert ended in a general laugh. "Many musical instruments consist of stretched strings, like the violin and guitar" — said the mother — "Other musical instruments are reed shaped and must be blown into. Those are called wind instruments. The french-horn, the trumpet, the clarionet and the flute are all wind instruments. The violin is played upon with a bow. The bow is composed of wood and horse-hair. The strings of the guitar are made to vibrate by the fingers. Wind instruments have a mouthpiece. A horn is coiled round. A drum is a tall cylinder, covered at the top with parchment. The drum is beaten with drumsticks."

What does a husbandman do? What does he chiefly cultivate? How does he set about ploughing, sowing, harrowing, gathering the harvest and thrashing? What implements does he require? What implement does he employ for the hay-harvest? What use is made of the pickaxe and the spade, the pruning knife and the watering pot? Which of these implements are entirely of wood? Which three serve for cutting? Which of these implements are composed of several pieces?

Which of these instruments are wind instruments? Which have strings? Which amongst them consists of only two pieces? Which are of metal, and which of wood? Which is used for hunting, and which is sounded when soldiers are marching?

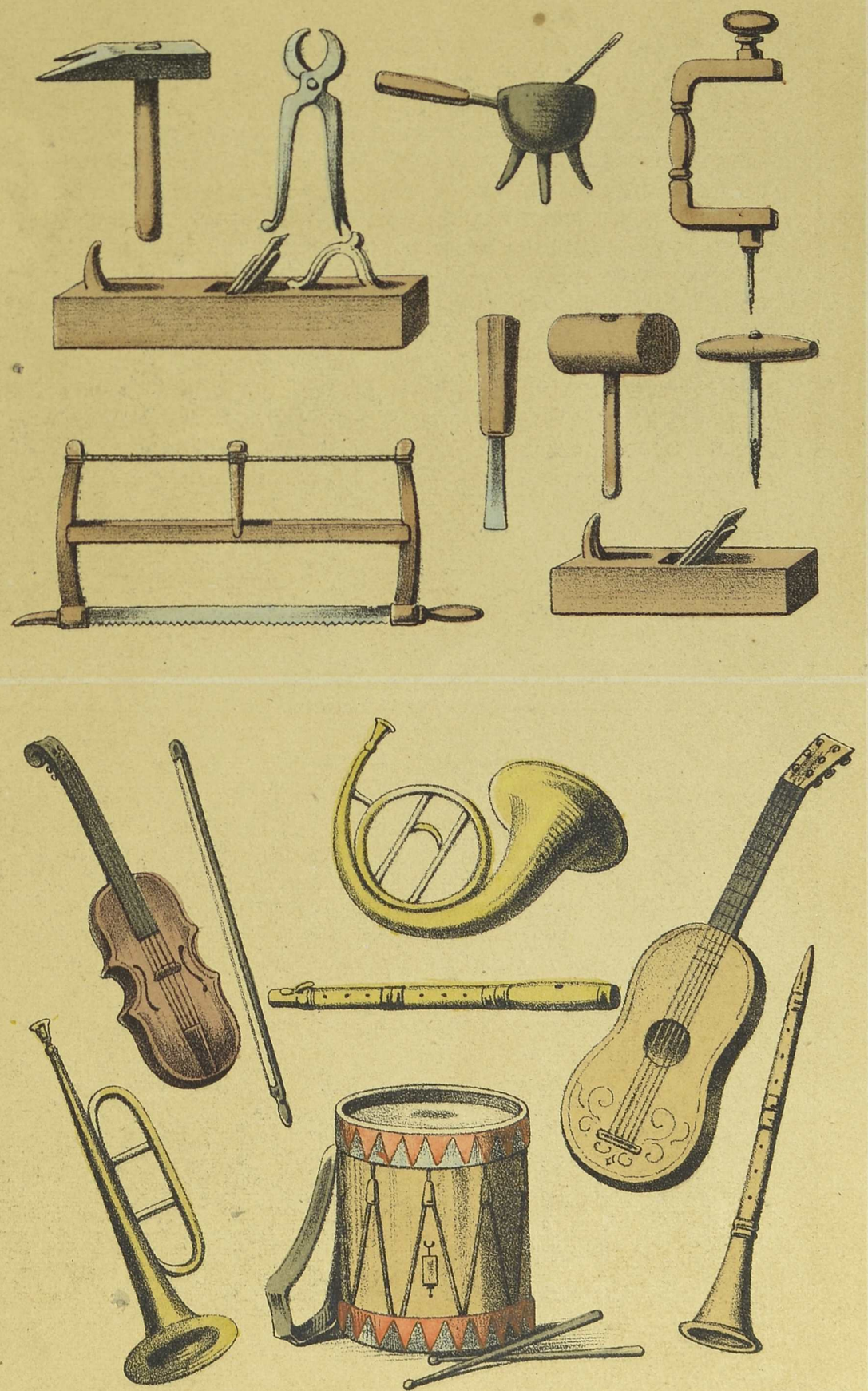

Plate 14.

"Mamma," asked Frank, who wanted to become an officer, and already possessed a number of submissive soldiers, made of lead, wood, and paper — "are there no soldiers in our picture book?" "To be sure there are," answered his mother, "but I know so little about soldiers, that we must beg papa to explain this pretty picture to us."

"Soldiers," said papa, "are young men who have been trained up to make use of weapons, in order to defend their country in times of war. They are dressed in the same uniform, their arms and equipment are alike, they live in a common dwelling called barracks, and receive pay for their necessary expenditure. They are called soldiers because their pay is denominated sold. Soldiers are either foot soldiers (infantry), or horse soldiers (cavalry). War is also carried on in ships upon the sea. Soldiers on board a man-of-war are called marines. The usual weapons of soldiers are fire-arms, such as: muskets, rifles, carbines and pistols. Fire-arms require to be loaded. The barrel is loaded with gunpowder and a bullet. On pulling the trigger, the powder takes fire and drives out the bullet. The bullet wounds or kills him whom it strikes. A bayonet can be stuck into a musket. The bayonet is a weapon for stabbing. Besides his musket, a soldier wears a weapon at his side, such as a dagger, a sword, or a hedging-knife, and many troopers carry a lance. Side-arms serve for stabbing and slashing, and lances for stabbing. A soldier carries his ammunition, namely powder and shot and cartridges, in his cartouch-box. When he is on the march, he carries the necessary luggage in his knapsack.

"Soldiers learn to march, to shoulder their guns, to slope arms, to present arms, to order arms, to trail arms. They learn how to load their guns, to shoot and hit the mark, to stab and to slash.

"Soldiers," continued the father, "perform the exercise, and march in rows or files. Several rows form a platoon, several platoons a company, several companies a battalion, and several battalions a regiment. Those who lead the soldiers are inferior officers, such as sergeants and lieutenants. The leader of a company is a captain, and the leader of a regiment a colonel. The commander of several regiments is a general. The divisions of an army have different names, uniforms and equipments. The body guard of a prince is called the horse guards. Amongst the infantry there are musketeers, sharp-shooters, chasseurs, and amongst the cavalry we find hussars, dragoons and lancers.

"Our picture represents soldiers of different corps, variously armed, such as: An Austrian chasseur, two Prussian musketeers, a Hungarian and an Austrian; a Prussian hussar belonging to the horse guards, an Austrian hussar, an Austrian dragoon, and a Prussian lancer.

"In war they make use of large fire-arms, such as cannons. The cannons are placed on a carriage provided with wheels. Behind the cannon is placed a powder chest. The ordnance is served by artillery-men. Cannons and bombs are made use of to storm or to defend fortresses. The besiegers stand behind gabions, or in trenches, while the besieged protect themselves behind the fortifications, the walls, and the loopholes.

"In our plate we see French artillery-men going up a hill, with a piece of ordnance drawn by eight horses, to besiege a fort, which the troops on the left have already begun to bombard."

What have soldiers to do? What are their clothes called? Where do they live? What designation is given to those who go on foot, and those who ride? What are a soldier's usual weapons? With what is a gun loaded? What is stuck into a gun? Has a soldier any other arms? Which arms serve to shoot, and which for slashing and stabbing? What must an able soldier be able to do? Where does he carry his ammunition? What does he carry on his back when marching? What is the difference between a company, a battalion and a regiment? How are the different leaders of soldiers styled? What is the commander of several regiments called? Name the different sorts of weapons wielded by different corps (such as chasseurs and so forth)? What head-gear is worn by the soldiers represented in our picture? Which wears a cap and plume, which a képi (a kind of cap with a visor in front) and which a helmet? How many soldiers in the upper part of our picture, belong to the infantry, and how many to the cavalry? What is the name given to the large fire-arms used in war? What are the soldiers called who serve such kind of fire-arms? What is the purpose aimed at by the soldiers represented in the under portion of our picture?

Plate 15.

"Our next conversation, children, shall be about sucking animals. Four-footed, hairy animals are called sucking animals (or mammiferous in more learned terms). Now do you know where such are to be found?" "In the stable," answered one. "In the house, in the woods, in the Zoological garden," added the rest. "Quite right," said the mother, "sucking animals are to be found in all those places. Which are to be found in the stable and farm-yard?" "Oxen, cows, sheep, horses and goats," answered the children. "Right. These are the most useful of animals, and have therefore been tamed. They are called domestic animals. And which animals live in the house?" "Dogs and cats," said Frank, adding: "and rats and mice." "Well, I'll let even those latter pass muster," returned his mother: "But which live in the woods?" "Stags, does, hares, wild boars, foxes, squirrels and hedgehogs." "That's right, children! And what are the inmates of the Zoological garden?" "Lions, tigers, elephants and so forth." "That will do," interrupted mamma, "they are mostly such animals as are not allowed to go loose about amongst us, therefore from foreign parts. For to-day we will take into consideration a few of the domestic animals.

"The ox has a broad head, round curved horns, a dewlap hanging from his throat over his chest, a tuft of hair on his tail, short, sturdy legs, cloven hoofs, and brownish red or speckled coat. The bull is larger and stronger than the cow. The young one is called a calf. A she-goat is slender and elegant. Her crooked horns are bent backwards, and she has a beard, a long neck, and a short tail. Her hairs are long, and either white or black. The male is called a he-goat, and the young one a kid. A rabbit resembles a hare. It has long ears and a short tail. The hair of its skin is yellowish grey, or blueish, or snow white."

Which are the most useful of domesticated animals? How are the male, female and young of the bovine family respectively called? What has the ox on his head, and on his throat and breast? What is his tail like, and how are his hoofs called? Of what use are these animals to us? How is the goat formed in comparison with a cow? What does she bear on her head, and on her chin? What is her tail like? How do we designate the male, female and young ones of the same family? How many rabbits are here represented? What are they about? Which animals do they resemble? What are their tail and ears like? How do we call the animal crouching down near the house door? Which are the smallest animals here depicted? What is the cat about? What ought she to do? How many animals are represented in this picture?

"You have surely seen alive in the woods, all these mammiferous animals depicted in our plate?" "Certainly," replied the children. "In the royal park are a number of deer. The wild boars are kept in a separate park, that they may not injure the cultivated fields. We sometimes see does in forest parthways. But we more often meet with hares. They gambol about merrily in the clover, but soon take flight when disturbed. The forrester has tamed several foxes, and keeps them in the yard like so many dogs. We have often caught squirrels and hedgehogs ourselves."

The stag is one of the handsomest of mammiferous animals. His antlers are branching and upright. The tips are called trochings. His head is small, his ears are sharp, his eyes are lively, his neck and body slender, the lower part of his legs are very thin, and his hoofs are cloven. His hairs are reddish brown, and in winter of a greyish brown. The hind has no antlers. The fawn has short antlers with few trochings. Its head is small, its ears sharp, its neck long, its legs slender and it has no tail. A young doe is slender, smaller than a fawn, and without antlers. Its hairs are reddish brown. Wild boars, from whom domestic swine derive their origin, have a snout, the blunt end of which exhibits a couple of nostrils. Their eyes are small, their ears large, their tusks prominent, their necks stiff, their legs short and sturdy, and their tails thin and coiled up. The hog is covered with blackish grey bristles. The hare has a roundish head, large ears, long hind legs, and a short tail. The fox has a broad head, with a sharp snout, upright, sharp ears, a bushy tail, and thick reddish brown fur. The squirrel is slim and elegant, with a narrow head, large ears, finely marked, and a bushy tail. He eats nuts, builds a nest, gathers provisions, and can be tamed. The hedgehog is short and thick, prickly on the top of his back, and hairy underneath his body, with a conical shaped head, and short ears and tail. He rolls himself up so as to form a prickly ball, lives in holes, and eats mice, chafers, and worms.

Which animals are allowed to be loose about amongst us? Which of such are here depicted? Which is the largest and handsomest of all? What does the stag bear on his head? What sort of tail has he? What kind of legs, and what is the colour of his coat? What is the difference between the antlers of a fawn and a stag? Which of these animals has a sharp and which a blunt snout? Which has a long tail, and which a short one? Which has hoofs, and which toes?

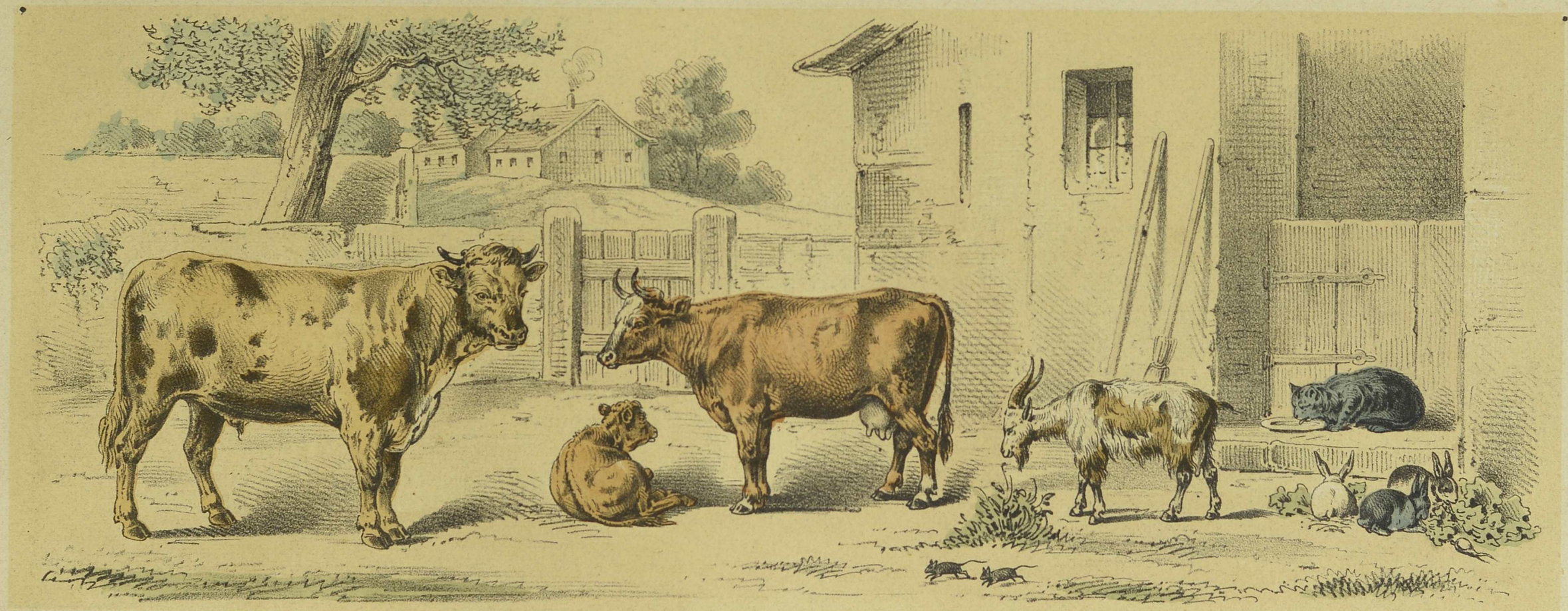

Plate 16.

The children begged their father to take them to the Zoological Garden, that they might likewise become acquainted with foreign animals. Papa was quite willing to do so. "Zoological gardens," said he, "are institutions in which animals from foreign countries are maintained and taken care of, for the instruction and amusement of all who love animals. They are allowed to move about freely, and endeavours are made to accustom them to our climate."

The children accordingly went into the Zoological garden. But how frightened they presently were, on suddenly beholding an elephant's long trunk hovering right over them. "Never fear," said their father, "he will not hurt you." But the elephant drew a roll, which his father had bid him purchase, out of Frank's pocket, amidst the laughter of all present. "You here behold the largest land animal," said the father, "whose native home is in Asia. Two long tusks project from his upper jaw. His feet are nearly of equal thickness both above and underneath, and his toes are enclosed in five hoofs. An elephant eats leaves and fruit, lives to a great age, and allows himself to be tamed. Next to him there was a camel or dromedary with two humps, a long neck, and two toes with little hoofs. In Asia he is kept as a domestic animal for drawing and carrying loads, while his hair is used as thread, and to make woven tissues."

On the other side stood two stately giraffes, with long slender necks, sloping backs, long front and short hind legs. Each animal was 18 feet high, and of a yellowish white, adorned with angular brown spots. The giraffe when in its native African wastes, lives upon acacia leaves.

Opposite the elephant, stood an ostrich, the largest of feathered animals. It was 7 feet high, its head and neck almost bare, and its feathers black and white. Its long, sturdy legs had two toes. Like the giraffe, the ostrich lives in Africa, and lays eggs that weigh three pounds each. Some peacocks were strutting past the children. The peacock is reckoned the most beautiful of birds. The male has a tail composed of long feathers that sweep the ground like a train, and are ornamented with spots called eyes. There are coloured and white peacocks. They are natives of India. Their screech is most disagreeable.

What does the upper part of our picture represent? What are the names of the animals we see in this Zoological garden? Which is the most bulky, and which the tallest of them? Which are seen singly, and which in pairs? Compare their heads, tails, necks, legs and toes. Of what colour are these animals? How are mammiferous animals distinguished from birds?

"As the fair is being held just now," said the father, "we have the opportunity of seeing the foreign animals of a menagerie. Generally menageries are chiefly filled with beasts of prey of the feline (or catlike) genus, such as — lions, tigers, leopards; of the dog like genus, such as: wolves, hyenas, and jackals; with bears of different species, such as — raccoons, polar bears, and brown bears — ruminating animals, such as lamas, gazelles, antelopes, — and besides these, a number of monkeys, parrots, birds of prey, crocodiles and serpents. If you fill your pockets with fruit and gingerbread, you will always be a welcome guest in such places." When the children entered, a tamer of animals was standing right in the middle of six wild beasts, whom he had reduced to obedience by rewards and punishments. — Now only look at this majestic lion, with his large, thick head, his brawny neck and shoulders covered by a flowing mane, his claws, and powerful paws. His voice is a fearful roar. The tiger is of a yellow red, with black cross stripes, but white beneath his body. He is the most pitiless of all wild animals, and the most dangerous to man. Tigers are still found in abundance in India. The leopard somewhat resembles the tiger, but is smaller. His coat is tawny, with brown spots. The spots are like rings or rosettes. He is a treacherous animal, to be met with in Asia and Africa, and he frequently attacks mankind, without the slightest provocation. Hyenas have a blunt snout; the fore part of their backs is high, and their fur is of a yellow grey, with black cross stripes or spots. They are wild beasts that prowl by night, in South Asia and North Africa. Bears are large, awkward animals, with shaggy fur, blunt snouts, rounded ears, a short tail, and strong nails to their paws. They live on mountains, and feed upon roots, fruit, and flesh. In the two smaller cages close by, we see a mandril (a sort of baboon) from Africa, and a wild goat from the High Alps.

What does the under portion of our picture represent? Which animals are chiefly to be found in a menagerie? Say the names of the animals depicted in the plate. How are lions, tigers, and leopards to be distinguished one from the other? Which of these animals are all of one colour, which are striped, and which spotted? Which has a mane on the nape of his neck? Which has a mane on his back? Which has shaggy hairs over his whole body? Amongst how many wild beasts stands the tamer of animals? Which are about to devour their share? What animals are to be seen in the menagerie that are not wild beasts? How many animals taken altogether, are to be seen in the menagerie here represented? How many people are assembled in front of the cage?

Plate 17.

We will talk to-day about two footed animals, that have a couple of wings and a beak. Most birds build a nest, and lay pretty little eggs in it, and brood them, till the young birds are hatched. You have seen alive the largest and strongest birds, namely the ostrich and the eagle, besides a number of parrots — but the smallest of birds, called the humming bird, is only to be seen in his own warm home. Still you are acquainted with a number of other birds. Doves, fowls, geese, and ducks are domestic animals. A bird with yellow feathers, sings in almost every house; and a pert little fellow, who has no song at all, scuds about on the roofs and through the streets. In the spring, the finch warbles in every garden. The blackbird sings from the tree top. The swallow darts like an arrow through the streets. Then in the winter, ravens, finches, and titmice come in front of our windows, to seek for something to eat. There are birds of prey, woodpeckers, singing birds, fowls, ostriches, morass-birds and aquatic birds. The eagle is a bird of prey. His beak is short, but strong, and the point of the upper beak is bent, or hooked. His feathers are dark brown. His head and neck are the colour of dust. He dwells on mountain tops, and lives upon prey. The owl is a nocturnal bird of prey. His head is catlike, and his beak is small. His large eyes are surrounded by a circle of feathers. His yellow brown feathers reach down to his claws. Owls build their nests in hollow trees, and old towers, and eat birds, mice, and moles. Woodpeckers are climbing birds. Their beak is strong and straight. Two of their toes project in front and two behind. The black woodpecker has a red crest; the green woodpecker is green with a red crest, and a red stripe on each side of his bill; the speckled woodpecker or woodpie is white and black, with a red crest. Woodpeckers brood in hollow trees, but without a nest. You may hear them knocking in the woods, when they are pecking insects. Fowls are domestic animals. They have three toes in front and one behind. On their head is a fleshy comb, and under their beak, they have wattles. The cock is larger than the hens. He struts about proud and erect, and is fond of fighting. He has a spur on each leg, and his tail consists of long upright feathers.

Which animals are called birds? Say the mames of those here depicted. To what classes do they belong? How are their beaks and claws formed? What coloured feathers have they? Where do they live, and of what does their food consist?

The Golden Oriole belongs to the class of singing birds. The male has bright yellow feathers with black wings. The female is greenish, and the under part of her body is yellowish white streaked with black. They build a pretty nest in the form of a basket, in which the female lays five whitish, shining eggs, spotted with black. Golden Orioles possess a sweet, flute-like voice, and sit on a leafy bough, and trill their song. Every child knows the stork with his long legs and long neck. He is a morass-bird. His feathers are white, his wings and tail black, his legs and beak red. He delights in watery districts, builds his nest on roofs, likes to fly in the upper regions of the air, and claps his beak noisily. He eats mice, frogs and lizards. Storks are migratory birds, that come in March and go away in August. The swan, the goose and the duck are aquatic birds. They walk awkwardly, but they swim admirably. Their toes are joined by a web. The swan has a long neck, and dazzlingly white feathers. His beak is broad, and red, and there is a black knob at its root. He swims about proudly on the lake, bends his neck gracefully, and flaps his wings. His food consists of aquatic plants, grain, and insects. He has a hoarse, hissing voice, and behaves in an envious, unsociable manner. The wild duck has a broad, flat beak, a short neck and short legs. His feathers are light grey, his head and neck of a greenish black look glossy, he has a white ring round his neck, his breast is chesnut brown, and in the middle of his wings may be seen a dark blue and shining band. Ducks are easily tamed, and take to the water, and return to the stable at night. Both their flesh and their eggs have a very nice taste.

To which class of birds does the Golden Oriole belong? Why is he called so? Which of the male's feathers are yellow, and which are black? What does the nest look like, and how are the eggs? To which class of bird does the stork belong? What sort of legs has he? Why must his beak be long? Of what colour are his beak and legs, and his feathers? To which sort of birds do the swan and the duck belong? What sort of feet and beaks have they? Of what colour are the swan's and duck's feathers? Which of these birds has eatable eggs and flesh?

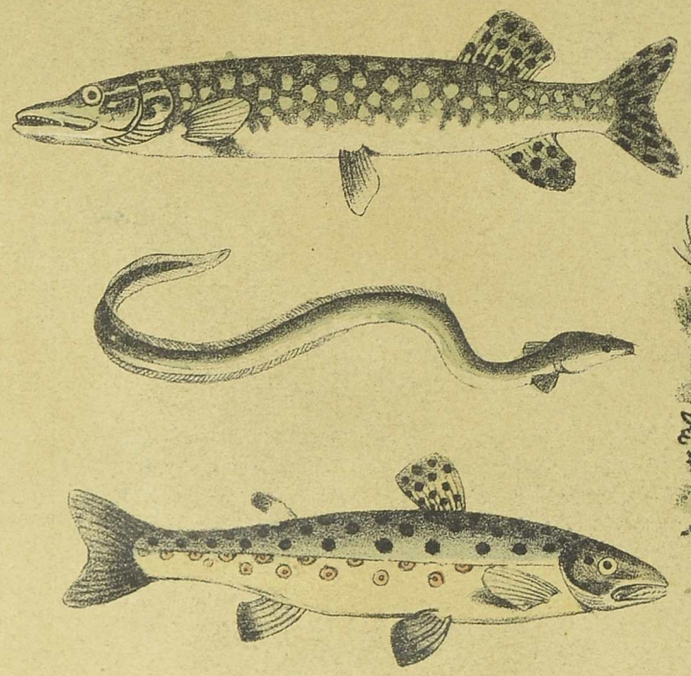

Plate 18.

"My dear children," said the mother, "we will talk to-day about cold-blooded animals, scaly ones, or such as have bare bodies, and that lay eggs. Such animals are called reptiles, and reckon amongst their numbers, turtles, lizards, serpents, and frogs, which you see represented in our picture." "Oh!" cried Lina, "what nasty things they are! I dont like them at all." "No, they are not nasty," said the mother. "It is true, they feel very cold, and are lazy and sleepy, and cannot be tamed, nor be as frolicsome and joyous as other animals. Still if we consider them attentively, we shall find them to be remarkable in many respects, and their eyes especially to be extraordinarily beautiful."

The turtle is one of the most remarkable of reptiles. Its bones are outside, and the soft parts inside. The bones form a double shield, within which the animal can conceal both its head and legs. Lizards are the reptiles we see the most frequently in our country, next to frogs. They station themselves in front of sunny walls and bushes, where they can hunt insects and worms, and take refuge in their holes at the slightest alarm. A lizard's body is spindle shaped, and it has four feet. Most serpents, and all the larger ones live in the warm latitudes. Serpents are covered with scales. We have only one venemous serpent amongst us, the adder, while the ringed snake is harmless and inoffensive. The latter has a steel coloured coat spotted with black, and is easily recognised by a crescent-shaped yellow mark behind its head. It feeds upon frogs and mice, but likewise lies in wait to pounce upon birds and their eggs. You are best of all acquainted with the frog family. They squat pleasantly on the banks of a pond, or on the broad leaves of aquatic plants, and make music after their peculiar fashion — croak — croak — cro — ak! If they hear the slightest noise, off they sheer with their long hind legs, and plump they fall into the water. They have a bare, smooth skin, and four feet with toes. A water-frog is green, spotted with black.

Which animal is protected by a double shell? What are the colours of a lizard's body? How many feet have they? What do they eat? Which animals have no feet? What is a serpents body encased in? How is the ringed snake to be recognized? Which animals have a bare skin? What sort of hind legs has the frog? What is the colour of the water-frog?

"We now come to the animals that live exclusively in water, namely fishes. They devour animals smaller than themselves, and are always on the watch lest they themselves should be gobbled up by the giants of the finny tribe. Most fishes, especially fresh water ones, have a longish body, that fines off to a point on both sides. They breathe through their gills, which draw in such air as is to be found in the water. Instead of legs, they have fins. The pectoral fins (those on the breast) and the fins on the under part of the body are two-fold, while those belonging to the back and the tail, are single.

"Perhaps you have only seen alive, gold-fishes, trout, eels, carps, whitings, and gudgeons; dead salmon and pikes at the fishmonger's, dried stockfish, and pickled herrings. In our picture you may see a pike, an eel, a trout, a carp, a herring, and a gold-fish. The pike has a long snout, with large teeth. Its pectoral fins are placed behind its gills, and the ventral fins underneath the middle of its body, while the fin on the back is above, and those behind are near the forked fin of the tail. The pike is olive green, speckled with black or yellow; the three hind fins have black spots. He lives on prey, and seizes on other fishes, and young birds. His flesh is eatable. The trout has a small, fat fin behind the back fins. Its back is blueish, its sides yellow with reddish spots, and the underpart of its body is white. It lives in mountain streams, and its flesh is very savoury. The carp has a very long fin on its back. It has barbules near its mouth. It is greenish or of a yellow gold. A gold-fish is of the family of carps, and was originally brought from China. It is kept in glass bowls, or in ponds in warmer countries. The herring is blackish on the back, and silver white on its sides. It is a sea-fish, and is caught in countless numbers, and salted. The eel has a body like a serpent, but with pectoral fins. The hind fin merges into the tail. The head is smooth, and small scales are hidden in the skin."

What is the shape of a fish's body? How do they move? With what are their bodies covered? How many fins are seen on each fish? Which fish has a serpent-like body?

What are the two boys, in the middle of the picture, doing? What have they fastened to their line? Are fishes caught in any other manner? Which kind of fishes are kept alive in houses?

Plate 19.

"Quick, come along!" cried the children, "papa has brought us such a pretty animal from the woods." And they all assembled round the table in a moment. Papa opened a box, when out came from amidst a few sprigs of ivy, a large reddish brown horned-beetle, with long mandibles resembling a stag's antlers. His head and the corcelet round his neck, were black, the sheathes that covered his wings, brown, the middle feeler was bent, and he had claws to his feet. The horned-beetle who is also called a bull-fly, lives in oak forests, and draws his nourishment from the sap of trees. The father took a small sprig, and dipped its tip in honey, and then presented it to the horned-beetle, who began to lick it, and followed the sweet twig, like a little dog, to the great amusement of the children. The horned-beetle belongs to the insect tribe. It has a head, a chest, a body, 6 feet, two skinny wings, and two horny sheaths to cover them. One of the most plentiful kind of chafers, is the cockchafer. He has white, three cornered spots at his sides, and his body ends in a sharp point, bent downwards. He buzzes about in the evening and lays waste the trees. In the garden you will find the green, shining rose-chafer amongst the roses or the elder bushes. His wings are striped with white, diagonal lines, and his sturdy legs are provided with sharp points. On the willows we find the slim, golden green musk-beetle with long legs, and very long feelers. On the ways one meets with the green or blue ground beetle. His feelers are like threads, and he cannot fly; he eats caterpillars, slugs and other noxious insects. The aquatic beetle who has a yellow edge round his body, is to be found in stagnant water. His body is broad, and oblong, and pitch brown. He has thread-like feelers, and is webfooted. The pretty ladybird dwells on shrubs, and feeds upon the woodlice that infest the leaves. She is half globular, and black, with red sheathes to her wings, dotted with seven black spots.

To which class of animals do chafers belong? What are the component parts of their bodies? Which chafers are represented in this picture? Why is the largest called a horned-beetle? Where are they to be found? Which do you prefer amongst all these chafers? By what means do they often commit great depredations?

"I know some little animals," said the mother, "that can fly, and whose colours are as beautiful and as varied as those of flowers — and who love best to be amongst flowers." "You must surely mean butterflies!" cried the children. "So I do," said their mother — "all children love butterflies, and I dare say you can tell me the names of many different ones." "Oh! yes mamma! In spring there are first of all the brimstone butterfly and the tortoiseshell butterflies. Then comes the elegant orange-tipped butterfly, the chameleon butterfly, the peacock butterfly and in the evening, the nocturnal butterflies and moths. I wish they were but a little less delicate, and their colours did but last a little longer," added little Lina. "You must learn from them," said the mother, "that beautiful things must be taken care of. Their four wings are covered with coloured scales, that are very easily rubbed off. You all of you know that butterflies lay tiny eggs, out of which creep little caterpillars that eat a great deal, and grow bigger." "Yes," answered Fred, "and the caterpillars we like best, are the handsome, long hairy, Woolly Bears, that eat up one leaf after another. But when they are grown up, they do not eat any more, but change themselves into chrysalids out of which soon comes a butterfly." "I am glad you know all these things, children. Our picture represents three butterflies: — a day, an evening, and a night butterfly. You did not think to name the splendid Admiral. His wings that look like black velvet, have a scarlet edge, and white spots. A bristling caterpillar of his own species lies on the same nettle, from which hangs also the chrysalid ornamented with golden spots. The privet-hawk moth is an evening or a nocturnal butterfly. His colours are a blackish brown, and rosy red. The caterpillar of this insect is sitting above the privet-hawk moth. He is thick, of a green hue striped with red, and has a sort of horn by way of tail. The brown caterpillar has a proboscis. The silk worm comes from China, and is kept by those who make a trade of bringing up these useful insects. The butterfly of the silk-worm is yellowish white, with darker cross stripes. The caterpillar derives its nourishment from mulberry leaves, is of a whitish colour, and its rings seem to nip its body closely. When it has reached its full growth, it spins a web as round as an egg, which can be wound off on a reel, and furnishes us with silk."

What names are given to the three butterflies here depicted? Can you name any others? How are butterflies classified? Whence do they spring? What is the name of the plant that nourishes them? Which butterfly is one of the most useful of insects?

Plate 20.

The children sat round their little table, and begged their mother to bring out the picture book. Mamma accordingly opened it, and set beside it a plate containing some beautiful honey combs, full of honey. "Here's something from the confectioner's," said the mother smiling. "Oh no," cried the children, "you will not make us believe that. The bees gather honey and wax, and build these cells with them." You will see in our picture some bees on their cells. They are of a brownish black, and the hind part of their body is encircled by rings. Their fore-wings lie upon the back-wings. If you offend them, they will sting you. Many a sweet-tooth has been made acquainted with the sting of bees. Wasps sting more sharply still than bees, especially those called hornets. Their four wings are colourless, and their body black, with yellow, indented rings. They make their nests very sociably, in hollow trees. Flies have only two wings, as you may see by that blue-bottle perched in a corner, on the right side of our picture. Its head is black, and the hind part of its body blue. They lay their eggs upon meat, which the larvae consume. The dragon-fly (Libella) which you so often see skimming the water, is much larger and more beautiful. Its eyes are very large, its body which is blue, and fines off to a point, is articulated, and its wings are like a delicately veined network, edged with black spots. It catches insects on the wing and devours them. We also see here the large, green grasshopper, with its long hind legs, the sabre-tailed locust that pinches our finger if we catch it. It has two leather-like wings and two skinny ones. Its feelers and elastic feet are remarkably long. By its side stands the little locust, so many of which hop about in the meadows. In the corner of the picture, a garden-spider has fastened her wonderful and regular web, which however is not yet complete. If a fly gets entangled in its meshes, she darts out and devours it. She has four pairs of feet, and her dark body is marked with yellow spots, that form a cross. A craw-fish, which is a crustaceous animal, to be seen in the middle of our picture, has a still greater number of feet — for they ammount to ten. Its strong fore-legs are provided with claws, with which it can pinch famously. The tail consists of several pieces, and is like a fin behind.

What are the insects here depicted? Which gathers honey and wax?

What are bees like? Which insects sting? Which have only two, and which four wings?

The mother now placed on the table a number of elegant snail-shells, of various shapes and colours. "How pretty!" cried the children. "Where are such charming snail-shells to be found?" "Almost everywhere," answered the mother, "in our own neighbourhood, in gardens, in the forest, on rocks, in moss, in lakes and marshes. But what you see before you, are not the animals themselves, only their shells. You can see what the animals that inhabit them are like, by looking at our picture. They have beneath their body a kind of sole formed of several folds, upon which they crawl, and four feelers on their head, the longest pair of which has eyes. Most snails carry on their backs a chalky case, that has several windings." The vine snail dwells in hedges and forests, and is likewise reared in gardens, because it is eatable. The animal is of a yellow grey, with a wrinkled skin. Its shell is globular, with five windings, and of a yellow brown, with darker stripes across. In our picture we see a garden snail with a striped shell, creeping above another with stripes of colours that shade off into one another, while a third lies on the edge of the stream, so that one sees the aperture of the shell. "A certain boy," added the mother, "once brought home a whole basket full of these snails. Next morning, the basket was empty, and the snails were all sticking to the wall, and each had left a silvery track behind him." The children laughed, for that boy was no other than master Fred. The large pond snail lives in the water, and one might keep such in a glass bowl for fishes, if they were not so voracious. Their shell is large, egg-shaped, and ends in a sharp point. The striped postilion's horn is the largest freshwater shell. Its house is rolled out flat, like a ribbon. It lives in the water. Our picture also represents a snail without a house, namely a slug. The animal is stretched out at full length, is wrinkled, and either black or red, and has a shell with breathing holes. Here is also a mussel, namely the painter's gaper, that lives in morasses. It has two oblong shells, which lay over each other, and are fastened together behind by two prongs and a ligament. You have similar mussel shells in your colour box.

How do snails move? How many feelers have they? Where are their eyes? What do most of them carry on their backs? What is the shape and colour of snail-shells? Which snail is without a house? Which of the snails and mussels here represented, live in water?

Plate 21.

"To-day," began mamma, "we'll take a little journey together, as the weather is so bad, and it rains and snows. I am only joking," added she, "and mean that we will take a journey in this room, and rest content with seeing the views of the places we cannot visit just now. When travelling, we see towns and villages, mountains and vallies, fields and meadows, rivers and lakes. In the towns live merchants, artisans, learned men, and so forth. Towns are larger than villages. They have finer houses, with a greater number of storeys, and rectilinear streets. Most towns have large churches, fine mansions, and other stately buildings, as well as open squares, and monuments. The town in our picture, lies on the slope of a small mountain. On the top stands a castle with some adjoining buildings. In the lower part of the town may be seen a church, with two handsome spires. Below the town flows a river between meadows, and thickets."

In the villages live country people or peasants. They are mostly engaged in tilling the fields, and keeping cattle. Hence we see many barns, and stables for cattle. Villages have but few streets, nor do the houses form such regular streets as those in towns. Most of the houses have but one storey, and the roofs are thatched in many districts. There are scarcely any open squares to be found in villages. Springs flow out of primitive looking pipes into a wooden or stone trough. The houses in many villages, are straggling, and surrounded by orchards, gardens, and fields. If there is a church and a clergyman in a village, it then forms part of a parish. Our picture shows us a village street, through which a carman is driving his horses. To the left, we see a stable for cattle, with a thatched roof — and on the right stands a peasant's house, with a coach entrance, before which is a running fountain.

What does one see when one travels from one town to another? How are towns distinguishable from villages? Who inhabit towns, and who inhabit villages? What do we see in towns, which we do not find in villages? Show me which is the town in our picture? How many spires has the church? Where are they placed? What is to be seen on the slope of the hill, and what on its summit?

What forms the occupation of country people? What buildings do they require for that purpose? How are houses generally placed in villages? How many stories high are they? What are the roofs made of? What is to be seen in this little village? Is the building on the left a stable or dwelling place? Has the church tower a sharp or a rounded roof?

We cross the river either in ships, ferry boats, wherries, or over a bridge. There are stone, iron and wooden bridges, besides bridges of boats. A bridge has one or more arches. The flowing water springs as a mere rivulet from the foot of the mountain and the hills. When the waters of several rivulets have united, they form a brook. Several brooks make a river. The flowing together of several rivers swells into a torrent, which disgorges itself into the sea. Rivers make a country fertile and beautiful. Our picture represents a small river, which is crossed by wherries. The river is spanned by a stone bridge of a single arch. In the middle of the bridge stands a statue. In the background are the ruins of a feudal castle.

The flowing water is turned to account, and serves to float wood down the stream, to bear ships, and to work mills and other machines. There are saw-mills, oil-mills, grinding-mills, gypsum-mills, and corn-mills. A stream or the arm of a river is conducted in a canal either below or above the mill wheels, which are thus continually turned, by the force of the flowing water. The mill wheel turns the machinery inside the mill, and sets in motion a heavy stone (called the mill-stone), which grinds to meal the corn that keeps rushing in. The floor shakes, and there is a great clattering and knocking, and the minute particles of meal fly about all over the building.

By what means can one cross a bridge? How do a brook, a river and a torrent arise? Whither do the torrents hasten? Is it a stone or wooden bridge that leads across this river? How many arches has it? What stands in the middle of the bridge? What trees fringe its banks? Does this river flow through a flat or a mountainous district? What stands on yonder mountain?

To what use are the flowing waters turned? How many sorts of mills are there? How many wheels has the mill here represented? Are they worked by waters falling down from above, or by the waters flowing from below? Does the water that works this mill, fall with great force or feebly? Has the mill one or several storeys? Is it built entirely of stone? How does one reach the mill? Where are two mill-stones to be seen? What is to be seen on the roof of the mill?

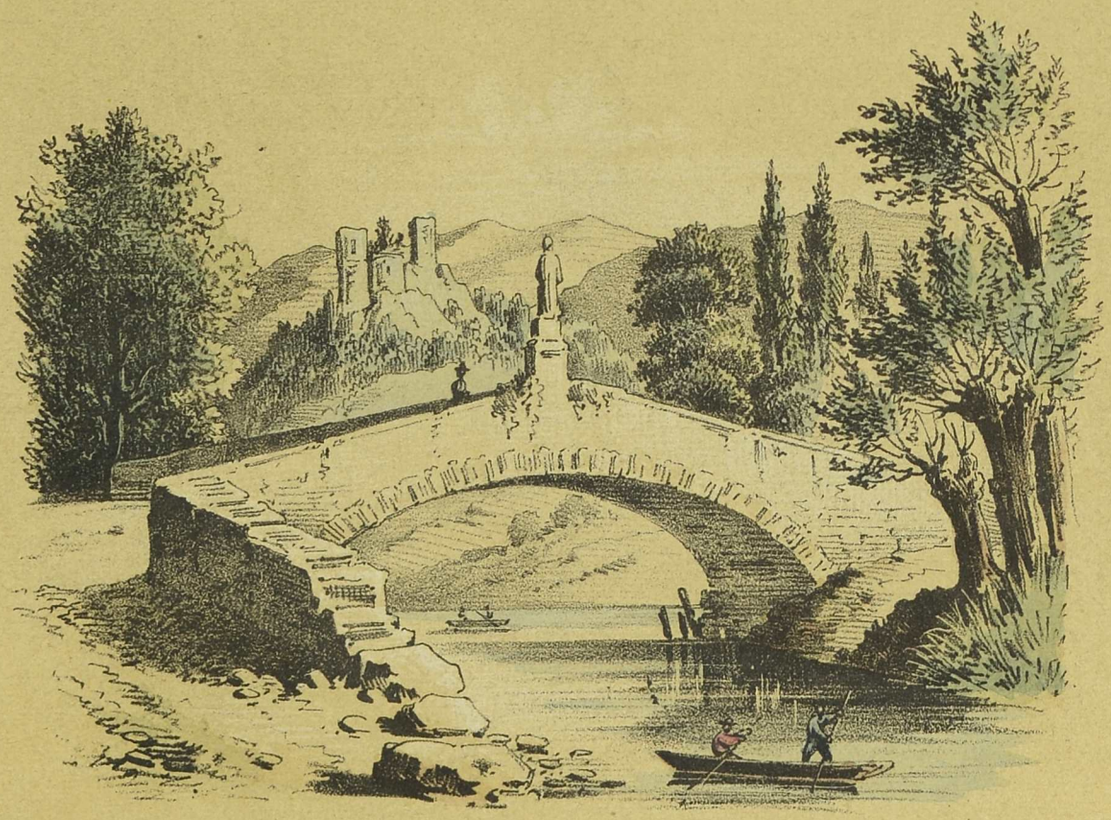

Plate 22.

"We took a journey yesterday," began the mother, "during which we saw towns and villages. To-day we will look at them, not only on the outside, but examine them inside. The sitting rooms, as well as the houses of those who dwell in cities, are much handsomer and more roomy than those of villagers. We find in them not only all that is necessary, but also what is ornamental and agreeable. A square room has four walls, a ceiling, a floor, and one or more doors and windows. In it stand a stove, one or more tables (such as a dining table, a writing table, a work table), chairs, stools, coffers, chests of drawers, a sofa and other furniture. On the walls are hung pictures, a pierglass, a birdcage, and a clock on a bracket. In the bedrooms are press bedsteads, beds, a cradle, a toilet table, a watch stand, a washing-stand, looking glass, curtains and so on. In our plate a dining-room or sitting-room is represented. The cloth is laid, the soup is on the table, and the cook is bringing in bread. We see six plates laid upon the table, a cruet-stand with oil and vinegar, a salt cellar, and spoons, knives and forks. Both windows are furnished with curtains. On the window-sill stands a flower-pot, and a transparency is hung to one of the window panes. Before one of the windows hangs a cage containing a bird, and before the other, a vase containing a plant. Several pictures in gilt frames are hung round the walls, and in the jamb there is a large pier-glass. On the left wall is a bookcase with four shelves, on the top of which are two busts, of either gypsum or marble. To the right we see a glass bowl containing two gold-fishes, placed on a small table."

What are the necessary requirements of a sitting room? Name the usual pieces of furniture. What is wanted on a table laid for a meal? How many walls of this room are visible and how many are out of sight? Mention all the furniture to be seen in this room. How many living beings (including human beings and animals) and how many plants are to be seen in it? How many works of art (pictures and busts) do you see in this room, and where are they to be found?

Now we will talk of the kitchen likewise, which is very familiar to the girls. The girls like to cook, and those who are too little to do so, cook in the meantime in dolly's kitchen. But there are boys too who come into the kitchen much oftener than cook likes them to do, in order to peep into the pots. Besides sitting rooms, a house must contain rooms for other purposes. A cellar is required to preserve beer and wine, and provisions of eatables, besides a kitchen, in which food is cooked. The most important item in a kitchen is the hearth. It is built of stone or made of iron, and covered at the top with a stone or iron surface. Several fires can be lighted on and inside the hearth. The fire burns above a grate. Beneath the grate is a receptacle for the ashes. On the hearth stands an iron cauldron and several saucepans. Above the hearth has been built a chimney, which conducts the smoke out of the house. The kitchen contains a table, on which the cook performs her work, a washing-stool on which the different vessels are rinsed out, and a sink from which the water runs off into the yard by means of a gutter. Beneath the washing-stool is a receptacle for firewood. On another bench stand the water tubs. The necessary dishes, saucepans, plates, pans, and other kitchen utensils are either placed on shelves, or hung upon nails along the walls. The cook has a mincing-knife, a board for weighing and for cutting, a grater, a colander, a sieve, a coffee mill, a pair of scales, a funnel, and several ladles and forks, for skimming, stirring and baking. The cook is here represented frying a dish over the fire, while little sweet-tooth is cramming himself with sweets out of a jar, and the kitten is playing with a couple of bones.

What rooms must there be in a house besides sitting-rooms and bedrooms? For what purposes are a kitchen and cellar required? What is the principal requisite in a kitchen? What is the hearth made of? What is contrived above the hearth? Name all the objects to be seen in this kitchen. What is the use of the mincing knife, the weighing board and cutting board, the grater, the colander, the scales, the coffee mill and the funnel? Which of these articles are made of wood, which of iron, and which of clay? What is the usual business of a cook? What does she require in order to be able to cook? What has she to do after every meal? What is she about just now? What is the little sweet-tooth about, who stands perched on the bench? What is the kitten doing?

Plate 23.

To-day we will see how we must proceed, when we want to leave the place we are in for another, or to go from one town to another. Rocks and plants remain where they are. They cannot change their home. But human beings and animals can go from one place to another, and change their quarters, and move about. Quadrupeds walk, birds fly, many reptiles creep, and fishes swim. Man can both walk and run. Going to distant places, or towns, or foreign countries, is called travelling. Many animals surpass us in swiftness of running. But we know how to tame a number of animals and to turn their strength and swiftness to our own use. The horse, the ass, the camel, and the elephant, each severally conveys his master from place to place. Many journeys are performed on foot or on horseback. He who does not care to walk or to ride, can be carried. Carriages serve for that purpose. Carriages are drawn by men, by animals, or by a locomotive. Children place their doll, or their younger brothers and sisters in a little cart, and draw it. Invalids are conveyed in a bath-chair either to bathe, or to drink the waters from some mineral spring, for the benefit of their health. Vehicles with two wheels, used for conveying goods and other things, are called carts. A wheelbarrow has only one wheel. Convenient vehicles, that have a covered and closed up body and glazed windows, are called chaises, coaches, droskies, and travelling carriages. They are drawn by horses. The post undertakes to convey travellers from one town to another. A postilion drives the horses of the stage coach. He announces his arrival by blowing his horn.

Other carriages are drawn by a locomotive. Such carriages run upon rails. The railway is the quickest mode of travelling. Underground vaulted galleries called tunnels, are cut through mountains, and viaducts and bridges built over glens, valleys and rivers, to faciliate railway travelling.

Travellers cross the water in vessels. The smallest vessels are called wherries or boats. They are generally set in motion by oars, and guided by a rudder. Larger vessels are propelled by the wind. Large sails made of canvass, are hoisted up on one or several enormous poles called masts, and when the wind presses upon the sails, it impels the ship onwards. Such ships are called sailing vessels. But when the air is perfectly calm, of course sailing ships cannot get on. Other vessels are impelled by steam. A steam engine sets in motion either a huge wheel that turns round in the water, or a screw. These ships are called steam boats or steamers. Large vessels have a deck, and many rooms, which are called cabins.

But one can travel from place to place, not only by land or by water, but through the air. When a bladder or a balloon is filled with warm air, it is impelled upwards by the heavy outer air. A gondola is hung to large balloons, in which passengers frequently sit. But air ships cannot be directed at will. Many an aeronaut has perished on this account.

How can one go from one place to another, without walking? Who is being carried in this picture? On which animal does one place oneself, in order to be carried by him? What is a man on horseback called? Which is the smallest vehicle in our picture? Who rides in it, and who draws it? What do you call the conveyance that has only two wheels, and which serves for removing boxes, sacks, and other things? What do you call the vehicles with closed bodies, furnished with glazed windows? Who draws the stage coach, and other carriages? What is the postilion doing in our picture?

Can one move carriages without the help of horses? What do you call the carriages that roll one behind another? What sets them in motion? Does a railway train travel on the highway?

What are the crafts called in which one travels over the water? What impels wherries and ships?

Can one travel through the air from place to place? How is it that a balloon rises in the air? Why are balloons not made use of for travelling?

How many persons are to be seen in our picture? How many children are there? And how many animals are to be seen?

Plate 24.

Papa had often visited the Zoological garden, and now and then a menagerie, with his two children Charles and Lina. "Since you take such pleasure in seeing animals," said he one day, "I will take you to-day to a place where you will see a number of animals assembled. And you will be able to go amongst them without any fear." They now followed a path through a wood and a meadow beyond, which led them to several rustic dwellings. The father stopped before a farmyard door. "This is the farm called the Lime-Trees," said he, "and as it is evening, we shall find all the animals together." The children then entered the yard. On their right, they perceived several thatched buildings, a barn of considerable size, and stabling for cattle. On the left was a kitchen garden and an orchard. In the yard that lay between, stood a dove cot, and a running spring. Near it stood Martha, the milk maid who brought their milk to town, busy watering her cows. There were four of the latter, and one of them had a little calf. Soon after, the sheep returned from the meadow, and crowded round the fountain, for they knew Martha would draw water from the trough for them to drink. At Martha's call came likewise the goat with her playful young kid, that leaped so drolly and so merrily. But their little keeper, the dog, seemed displeased at his antics. He began to bark at the little kid so lustily, that he got pushed away, whereupon he barked louder than ever. "They wont hurt one another," observed Martha. "They are the two youngest in the farmyard, and therefore like a bit of play." Martha now looked out at the gate, and cried: "Cluck! cluck!" Then the cock and all the hens came running in, and Martha threw a handful of barley amongst them. The hens picked them up greedily, while the cock looked on, and only ate after they had taken their fill. The ducks and geese now came waddling in. They were fresh from the pond, and they looked about for food. The doves flew down from their cot and from the roofs, and others came flocking from the fields, and not a grain but what was gobbled up. The children were especially pleased with the little ducklings, which as yet were only covered with yellow down, but were none the less busily snapping at the gnats. But a young lambkin delighted them even more. He was so tame and confiding, that he ran after them, and ate out of their hands. Lina would fain have taken the little creature home. "So would I willingly," said her father, "if I only knew where we could find room for it."

"I like being here amazingly," said Charles, "how many animals have you in the farmyard, reckoning them all up together?" "I'm sure I can't say," replied Martha laughing. "I wish you children would count them up."

By this time the peasant, who was Martha's father, had caught sight of the strangers. He accordingly came down from his sitting room, and taking off his scullcap, with a friendly air, invited his guests to walk upstairs. He set some new made cyder before the father, while Martha brought the children some frothy milk just fresh from the cow. Then the smack of a whip was heard, which announced the arrival of a waggon loaded with fragrant hay. "Thank God!" exclaimed the peasant, "that we have been able to bring in our fodder, all dry and in good condition." He went down, and after greeting the haymakers, laughingly lifted his little boy down from the saddled horse. The little fellow looked as important as if he had brought the hay from the meadow all alone. When the farmer returned to his guests, he brought some nice slices of ham for the father, and some golden yellow honeycombs and some sweet must (or unfermented wine) for the children. "Now pray eat," said he, "and may you relish what I offer. It is all home produce. Over there stands the pig-stye. — And some of the pigs are just rolling in the mud, where they best like to be — and out yonder near the stair-case is the bee-house." "How pretty and how pleasant it is here," said the children, peeping through the window, and each holding a slice of bread and honey in their hand. — "Pray, pray dear papa, let us often come again to the Lime-Trees."

What is to be seen in this farm-yard? How many cows are near the fountain? How many horses are to be seen? Whence do these horses come? What is the use of cows? Why does one keep horses? What do you call the young one of a cow, and that of a mare? How many sheep and how many goats are in the yard? What do you call the two animals that are lying in the mud? Why are pigs kept? What fowls are kept on account of the eggs they lay? What is the name of the male and female and young ones amongst fowls? What is the use of that little house that stands on the top of a beam? How many doves can be seen in the farmyard, and where-abouts are they perched? Which of the animals present have their young ones with them, and how are the latter called? Which insect belongs to what are called domestic animals? Why are bees kept?

Plate 25.

We have lately visited country people in their home, and to-day we will seek them out at their work. They cultivate corn, (which yields flour and serves to make bread,) peas, beans, lentils, cabbages, potatoes, and turnips. Many cultivate fruit and vines besides. They cultivate meadows which yields them fragrant hay. What they do not require for themselves and their cattle, they sell to the inhabitants of towns. The baker would have no flour, if the farmer did not cultivate corn, and consequently we should get no bread. The farmer brings the manure out of the stable, and spreads it over the field which it fertilizes. The field is next ploughed. The plough is drawn either by horses or oxen. The ploughshare, which is of iron, tears up the earth, strews it about, and makes furrows all over the field. When the field is once ploughed, the sower comes, and strews seed. When this has been done, a harrow is drawn over the field, which has the effect of smoothing the furrows, and covering up the seed.

How does the baker obtain flour? What does a farmer cultivate besides? Why is a field manured? Why is it ploughed? Who draws and who guides the plough? Where does the ploughman walk in our picture? What is the peasant doing, who is walking over the ploughed field? How does he carry the seed?

The grasses are the most important and useful of all plants. Corn belongs to the family of grasses. The ordinary grass that covers meadows and pastures is likewise indispensable. It forms the nourishment of sheep, oxen and horses. Throughout the whole year, hay, which is dried grass, serves as fodder for cattle. When the grass is ripe, the mowing is begun at early morn. Mowing is done best when the grass is covered with dew. Women and girls bring both soup and drink for the morning meal. They spread about the hay with a pitch fork. It seldom dries in one day. Hay, when drying, has a pleasant perfume, which comes sweetly wafted to all passers by. When it is thoroughly dried, it is gathered into hay-cocks, and then piled up on the waggon, and conveyed to the barn. There it is stowed away in the hay-loft, and preserved for winter use.

To which botanical family does corn belong? For what purpose does hay serve? What implements are required for the hay-harvest? What use is made of the scythe, the pitchfork and the rake? How many persons are to be seen busied with the hay harvest, in our picture? What are the two foremost men about? With what do they whet their scythes? What are the two women doing? Why is the mown grass spread about the field? What are the two men in the background about?

The principal harvest, the most important and the most joyous one, is the corn harvest. If it prove abundant, and the weather be favorable, the farmer's most anxious wish is fulfilled. The yellow ears stand tall and thick. Now is the time for the harvest, provided the weather is good. The farmer rises early, and goes to the field with his lads and his waggon. As soon as the corn is cut, it is laid in rows, turned, and bound into sheaves. It is a lively, merry bustle that reigns throughout the harvest, for they are garnering up the blessed gifts, which will feed both rich and poor during another whole year. In our picture we see country folks working at a joyous harvest. They are reaping, gathering, and binding the sheaves. A harvest waggon is being driven towards the village, and conveying a couple of female reapers.

What are the country people doing, in our picture? What implement is used for cutting the stalks of the ears of corn? What is done with the ears of corn when cut? How many persons are here employed? What is each person doing? Whither is the waggon conveying the sheaves? Who sits up on the top of the load? What are the two female reapers carrying?

After the harvest, the home business of the farmer begins. He must prepare the corn for being ground. The sheaves are untied, and spread out on the barn floor. The grain is beaten out with flails. Even from afar, one may hear how many thrashers are at work, by the strict time they keep. The very straw that remains after the corn is thrashed out, is valuable. It is tied up in bundles. The corn is cleaned, and placed in sacks. The corn sent to the mill, is ground between two rough millstones, and thus becomes flour.

What has the farmer to do, after the produce of the harvest has been brought home? Where are the sheaves placed? How is the corn thrashed out? How many men are here represented, busy with their flails? What is one of the peasants carrying? What is in the sacks? Whither is the corn conveyed? And what is the grain changed into, in the place to which it is taken?

Plate 26.

After work comes play. When the children have sat all the morning over their books, and done their tasks, they may then fall to playing, and jump about the playground, to their hearts' content. Hearty, diligent children are likewise beloved on the playground, and have many a pretty game to propose. No sooner has the snow melted, than boys begin to play at tennis, and hide-and-seek, or at trundling a hoop or whipping a top. Boys play also at hunt-the-stag or chevy-chase, or both girls and boys play together at twisted kerchief, Black-Peter, Puss in the corner, Fox and Hare, and many other pretty games.

Our picture represents a number of merry children in their playground. There are four boys and four girls. They are playing at Blind-man's-buff. In order to determine who is to be blindfolded, the children stand in a circle, and one of them begins counting:

Ena, dena, dina, dus,
Botteler, vener, viner, vus,
Egg, slum, eggelum, slu,
Twiddelum, twaddelum, twenty-two
Out goes he.

Lina happens to be chosen, and her eyes are accordingly bandaged. She stands in the middle, and her playmates jump around her. Lina pricks up her ears, to find out where one of them is to be caught. Sometimes she hears something, and suddenly clutches at it, but catches nothing. She is twitched at, but is unable to catch the little rogue. At last she becomes impatient, and stalks about with outstretched arms. One boy named Harry squeezes himself up against the wall. He thinks: "She can't see me." Still he stoops down. But the little blindfolded girl happens to touch him with her foot, and rushing at him, seizes hold of him. He must utter a sound three times, disguising his voice as best he can. Only as he cannot help laughing, she recognizes him, and calls out: "It's Harry!" Then he is blindfolded until he can catch somebody else in turn.

What may children do when their tasks have been performed? Where do the children assemble, for that purpose? What games are the children playing at, in our picture? How many children, are to be seen? Why is the little girl blindfolded? What is she to do? What has she to guess? When is another of her playmates to take her place?

The favorite playground, for sturdy boys, is the park, and their favorite play gymnastic exercises. Gymnastics improve the health, and strengthen the body, and make boys brave and dexterous, as well as graceful. In the gymnastic yard they begin by practising walking, hopping, jumping, running and twirling round, all of which require no implements. They perform gymnastics without touching the ground, between the bars (a couple of horizontal, parallel pieces of wood, resting on two perpendicular posts) and on the rack, (a horizontal pole resting on two posts) and swing themselves, and run on the balancing beam, and risk a jump over the rope of the leaping posts, and climb up poles and masts. Merry games are likewise played on the gymnastic ground, such as: rounders, cricket, Blindman's buff, twisted kerchief, hide and seek, bowls, and tennis.

In the middle of our picture, a boy is attempting to climb. Near him, another is poising himself over the bars. A third has just sprung over the rope, fastened to the two posts. He would be able to jump still higher, with a leaping pole. Two boys are striking a ball with racket-bats. The rack and the balancing beam are not in use for the time being. Three other boys, one upon stilts, and the two others with hoops in their hands, have come to look at the gymnastic exercises.

Where do strong boys best like to play? What is the use of gymnastics? By which sort of exercises do boys begin the practice of gymnastics? What do they do with stilts, balls, and slack-ropes? What is called the bars, and what is called a rack? Of what use is the jumping rope, and the mast for climbing? How many boys are to be seen in the gymnastic ground? What are the names of the several machines by help of which they practise gymnastics? What game is being played by the two boys standing opposite each other? What are the three other boys about? Why have some doffed their jackets?

Plate 27.

After the cold winter that has lasted so long, the warm winds have once more returned. The snow is melting, and the ice runs to water. The mild spring-breezes tempt us to go abroad. Presently the first flowers of spring make their appearance, such as: snow-drops, violets, anemones, and daisies. The buds on the trees begin to swell, and the catkins are shining on the willows. The first butterflies, namely the tortoise shell and the brimstone butterflies flutter over the still leafless bushes. Then comes May, the most beautiful month of the year. How lovely now are garden, forest, and field! The migratory birds, such as the cuckoo, the stork and the swallow, now return. The pear-trees and plum-trees in full blossom, look as if they were covered with snow, while the apple-trees are tinged with the delicate pink of a blush rose. Small white petals are falling in showers on all sides. The birds are building their nests; and their joyous carols are resounding every-where. Thrifty labourers are tilling the fields. The shepherd gladly leads his flock once more into the green meadows. Everything seems awaking to newborn activity. Young animals are frolicking, birds are making music, the squirrel is swinging himself on the boughs, the little hare frisks about amidst the clover, and the rose-chafer is buzzing about the roses. Nor do children willingly remain indoors. They like to trundle hoops, spin tops, walk upon stilts, play at ball, and at ninepins. So off they go to the woods or into the fields. There are thousands of pretty flowers for them to pluck, such as primroses, forget-me-nots and buttercups. The girls gather beautiful nosegays, and make wreaths. The boys cut slender switches in the copse, and sappy twigs, out of which they make whistles. Spring songs resound on every side, and everything rejoices in its existence.

Whither does one like to go in spring? What are the names of the first little spring flowers? How do the buds on the trees look? What is glittering on the willow boughs? Which is the sweetest month of the year? How do the pear-trees, plum-trees and apple-trees look, when in full blossom? Which birds now return? Why do the birds collect bits of straw and moss? What insect is now flying and buzzing about the flowers?

What are children playing at in the open air? What flowers are to be seen at this season, in the forest and the meadows? Into what shapes do the girls bind and plait flowers? What do boys carve out of juicy twigs? How many children are to be seen in our plate? How many are standing together? What is each of the three boys doing? What are the girls about? What have those girls found on the skirts of the wood?

As the days grow longer, and the warmth of the sun increases, the verdure of both meadows and trees, grows thicker and darker. Summer brings fresh blossoms, and the fragrant linden is in full flower, and surrounded by swarms of busy bees. But the blossoms do not last long. The first fruits soon appear. — Currants and gooseberries in the garden, and strawberries on the borders of the forest. Cherries now begin to turn red. The first harvest is gathered in the meadows, the scythe is resounding and the fresh grass is mown. The hay-waggon carries the sweet smelling hay to the barn. The sun rises early, and sets late. Its course is long, and its influence very powerful, especially when its rays fall perpendicularly upon us. But such heat is necessary, as it ripens corn, fruit, grapes, and numerous other products of the earth. The stalks of the ears of corn grow yellower, the ears become larger, and their farinacious grains are at length ripe. The reapers come with sickles and scythes. The heat of the summer is very burdensome to the men at work. The dampness of the earth evaporates, and all plants become thirsty. One quite longs for rain. The air is sometimes cooled by a storm. One wishes for the cool of the evening, and we seek for shade in the garden and forest. Old and young are refreshed by bathing in a running stream. The mother, or the elder sister leads the little ones to the clear, cool water. And they splash about in it, and disport like so many little fishes. Our picture represents a small village, surrounded by orchards. A clear little brook runs by, close at hand. Three children have undressed themselves on the grass under a willow tree. One little boy who is afraid of the water, is led in by his sister. Three other children are already in the water, and enjoy it amazingly. On the opposite bank, a little boy is sitting beside his clothes, to cool himself previously to bathing.

When are the days the longest, and the nights the shortest? Which are the first fruits of summer? What harvest is gathered in the meadows? To which produce is the heat of summer necessary? What is the colour of ripe corn? What occasionally cools the air? Where is it pleasant to be when the sun is at the hottest? What are the little children about near the flowing stream, in our picture? How many children are there? How many are waiting to cool themselves before getting into the water? Why is the little boy led into the stream?

Plate 28.

The wind is blowing over the stubble, and the loveliest and most fragrant flowers, have faded. But the earth still keeps putting forth fresh flowers, such as blue succory, the china aster, meadow saffron, marsh mallows and gentian. The white, reddish or blue potato blossoms, betoken a good harvest. But still sweeter fare is ripening on the trees, namely blue and yellow plums, blueish damascene plums, downy apricots and peaches, mellow pears, and sweet nuts that fall out of their green, bitter husks. But the noblest fruit of all is the ripening grape, whose juice furnishes us with exhilarating, refreshing wine. Though the sky is still clear and blue, the days now become shorter, and the evenings longer and cooler. The gentle lisping sound of falling leaves, reminds us that autumn has stolen upon us unawares, and the tops of the trees, are gradually thinning. Migratory birds are likewise well aware of this and prepare for their departure. The stork leaves us at the end of August. The swallows follow next. One songster after another sets off for the south. But spring returns every year, and will bring them all back. Thousands of busy hands now gather maize, potatoes, and turnips. The ripe fruit is shaken down from the branches. Apples and pears come rattling down on to the grass. The finest fruit is plucked, and laid in a basket, and carried into the cellar. How fond children are of being present when fruit is gathered! But the merriest of all is the cutting of grapes, which is called the vintage. Grapes are crushed, and then put into a press and squeezed. The juice of grapes becomes wine.

Which flowers bloom in autumn? Which produce of the fields has to be dug up? Which fruits ripen in autumn? Are the days as long in autumn as in summer? What happens gradually to the leaves of trees? What is gathered in from field and garden? What is the man doing, who is represented in our picture standing on a ladder? Where does he put the apples? Where does the other man put the apples? What are two of the boys about? What may happen to one of them? What is in the bag leaning against the trunk of a tree? Why is there a prop under the tree? What is doing out there in the vineyard? What is done with grapes? What is made with them?

Thick, gray clouds that occasionally cover the sky, and white flakes mixed with rain, and still more the closing in of evening, are the harbingers of winter. All are prepared for winter. Many birds have migrated; the remainder have a warmer dress of feathers, and the quadrupeds a warmer fur, while others bury themselves in the earth. The winter-corn has been sown, and the farmer is now busy in his barn. The forest resounds with the woodcutter's axe, and the reports of the huntsmen's rifles. For neither storms nor snow prevent a huntsman from wandering abroad with his dog. The inhabitants of houses assemble round the lamp, as soon as the early evening has set in. The heated stove diffuses an agreeable warmth, while winter is raging abroad. Trees and bushes are covered with hoar frost, and as white as when they are in blossom. The winter has many pleasures in store for children. After the first heavy fall of snow, when the smacking of whips and tinkling of bells proclaim that sledges are abroad, the children take out theirs. Sturdy boys like sliding down a slope, and seek for hillocks. When they have reached the top, they get into their sledge, and down they rush in frolic glee with break-neck speed. Two of the boys in our picture have reached the bottom of the hill in safety. One of them has placed his little brother before him on the sledge, and they get on vastly well. But another boy struck against a stone, and rolled off into the snow. But he does not mind it, and only laughs, as he draws up his sledge once more to the hill top. Girls prefer a sledge drawn by hand, and a less boisterous ride on level ground. The lake presents a lively scene. Both boys and girls enjoy skating. Others slide one behind another on the shining icy way. The little fellows who are skilled in architecture, build up snow fortifications, and defend them manfully with snow-balls. Others roll quantities of snow together, and make a snow figure. But when evening comes, the children are snugly seated round the picture book, by lamp light.

What are the signs that betoken winter? Why are there now fewer animals abroad? Where is the farmer now busied? Who are still to be seen in the forest? What do children fetch out, when a sufficient quantity of snow has fallen? How many children, and how many sledges are to be seen in our picture? How many are coursing down the hill? How many slide down and how many are drawn by hand? What is the most delightful festival in the whole winter? Which tree now sparkles with the richest and most unexpected fruit?

Plate 29.

The day begins with sunrise. The time when the sun rises is called morning. The region in which it rises in the months of March and September, is called the easterly quarter of the Heavens, or the East. The rising of the sun is preceded by dawn. The light of the stars fades away. The morning star remains visible the longest of all. A fresh wind sweeps over the valley. A thick mist lies in the hollow, and only here and there a spire peeps through. The sky reddens in the direction of the East. The tops of the mountains are all in a glow. Then suddenly from out the golden clouds, the glorious sunbeams stream down over the mountains opposite, and into the valley below. The mist is scattered in all directions, and flies to adorn the surrounding vegetation with pearly drops of dew. But even before the rising sun has gilt their windows, or their open doors, the ploughman, the shepherd, and the fisherman are already astir. The ploughman and the reaper begin their day's work before sunrise. The chief part of their work must be done before the heat comes on. The fisherman lays his nets before daylight, and before the fishes return from the shore to the deepest part of the waters, and conceal themselves from the sight of man. The woodcutter's hatchet, and the blacksmith's hammer resound at an early hour. A diligent scholar attends to his books early in the day, mindful of the proverb that: Morning hour

Brings golden shower.

Our picture represents a fisherman's cottage, on the banks of a river. The first rays of the morning sun are falling on the chain of mountains on the opposite side of the river. The fisherman's family is already assembled in front of the cottage. The father is repairing a net, and setting it to rights. The son is just going down to the river with his net. The mother is nursing her youngest child on her lap. The little daughter is carrying another child a little older than baby, in her arms. The boy is looking at his fathers's work. The grandfather leans out of a window, and is smoking his pipe, and gazing with a pleased look at the family.

How many persons are to be seen in our picture? How many grown people, and how many children? What are the father and mother doing? Whither is the son just about to go? What is to be seen just by the cottage? What does one see on the opposite side of the river? What is beaming over the mountains? What time of day must it be?

The sun has now risen above the mountains. When it is at its highest point, it is then noon. It is now in the South, or the southerly quarter of the heavens. The long shadows of the houses, trees, and human beings, have become shorter, until towards noon our shadow falls almost entirely under us. The higher the sun rises, the more powerful are its rays. It is therefore warmer at noon than either in the morning or the evening. The fruits of the earth are brought to maturity by the heat of the sun. They become soft, tasty, and sweet. At noon, in hot summer days, animals seek the cool shade of trees in the forest. In the open air, it is quieter than in early morning. The birds that welcomed the rising sun with their songs, have grown dumb. The thrush is silent, and the woodpecker ceases tapping. The deer have returned from their pastures into the depths of the thicket. Human beings likewise love the shade, at this time of day, whether inside houses or under trees. After the morning's work, they now require to refresh themselves with eating and drinking. The field labourers lay aside their shovels and mattocks, and make their mid-day's repast. The country people in our picture, are likewise resting during the sultry noontide. The corn is cut, and the sheaves are bound. A waggon is already loaded with the blessed produce of the harvest. Only a small quantity of corn remains standing, which forms but an insufficient shade for a noonday's nap. The work began before daylight. The work people now at rest, are overcome with sleep. But the horses have already come to draw the harvest waggon into the village.

How many persons are in the cornfield? What are they doing? Why are they so tired? Why is there a jug and a bowl standing before them? How does one see that it is noon? Where does the sun stand at noon, and how do shadows fall? Has all the corn of the whole field been cut? Why are there two horses in the field? How comes the boy on the horse not to be tired or sleepy? Who else is awake near the sleeping reapers, besides this boy?

Plate 30.

The sun is at its greatest height at noon, after which it begins to decline. The sun sets in the evening in the West, or westerly quarter of the heavens. The West is opposite the East. The deeper the sun sinks, the longer grow the shadows. The heat of a summer's day decreases, and a refreshing coolness is diffused around. Many flowers only give out their fragrance at that moment. The hour for leisure has now come. The labourers lay their implements aside, and prepare to return home. The evening bell is resounding from the village. It announces that another day has come to an end, and reminds us to pray. The countryman as he goes home, takes off his hat, and says an evening prayer. The evening sun gilds the clouds of the evening sky. Hill and valley are lit up with a red light, and everything is in a ruddy glow, when the sun is just at the moment of sinking. Thousands look upwards, and delight in the lovely sight presented by those glowing tints. The moon shines like a silver skiff in the sky that is growing paler every moment. All around is growing quieter and darker. The warbling of the birds is hushed. They are perched in the protecting thicket of trees. The owl prepares for a flight abroad, and the bat is flitting noiselessly through the shady trees. The wayfarer hastens to the inn. The oxen and sheep seek the stable. Waggons piled up with sweet hay, or nourishing corn enter through the wide barn doors. And thus, after his day's work, even the poorest labourer, who has no heavily laden waggon coming into his barn, hastens to his home. He has loaded the hay just mown, on a wheel barrow, to which his little boy has harnessed himself. The father lets him fancy he alone draws the barrow. His little daughter trudges by his side, with the basket in which she brought the afternoon meal. The goat follows with her kids.

Which is the westerly quarter of the heavens? What do the labourers do, when the evening bell sounds? How does the sky look when the sun is setting? What does one often see in the sky at eventide?

What do the field labourers do when evening comes on? How many persons are to be seen in the picture? Whither are they going? What work have they been doing in the fields? What is each of them doing now? How many animals are frisking after them?

When twelve hours have elapsed since noon — the time at which the sun stands the highest — it is then midnight. The quarter of the heavens in which the sun then stands, although we cannot see it, is the north. The time from midnight to the following noon, again amounts to twelve hours. The time from one midnight to another, is called a day. A day therefore, numbers twice twelve, or twenty four hours. The hours are divided into minutes and seconds. Four weeks and a few days, or from thirty to thirty-one days make a month. Twelve months make a year.

After sunset, it becomes dark and quiet. Night then steals upon the earth, at a late hour in summer, but early in winter. When the days are short, people continue their occupations or amusement by candle-light, or by lamp-light, until they retire to rest. The stars which are not visible in the bright sunshine, now shine forth in all their beauty. Sometimes the moon illumines the night. But though it lights, it does not throw out any warmth. It does not always present the same shape, but undergoes changes. It is sometimes full, and sometimes in the shape of the blade of a sickle. The stars twinkle. Whenever the night is clear, we see above us the pleiades, Charles' Wain, and the milky way, that looks like a streak of mist.

Human beings as well as most animals, are now asleep, and deep silence reigns around. Yet life does not entirely stand still. One can hear the breathing of sleepers, and their pulses go on beating. Abroad, the wind blows across the fields. Fresh sap rises in the plants to impart new life and nourishment to them. There is a rustling amongst the bullrushes; here chirps a cricket, and there a quail is calling. The owl hoots in its uncertain flight. In the village, the watch-man blows his horn, to proclaim the hour, as he marches through the dark streets, and sings his watchman's ditty:

Now list to me, all ye good people —
The hour of ten sounds from the steeple!
May sweetest sleep until to-morrow,
Afford a truce to earthly sorrow.
And when dark night has past away,
Be sure with grateful heart to pray —
Then, set to work with opening day!

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