

AT THE
GREAT EXHIBITION.

BY THE EDITOR OF "PLEASANT PAGES."

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LITTLE HENRY'S HOLIDAY

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GREAT EXHIBITION.

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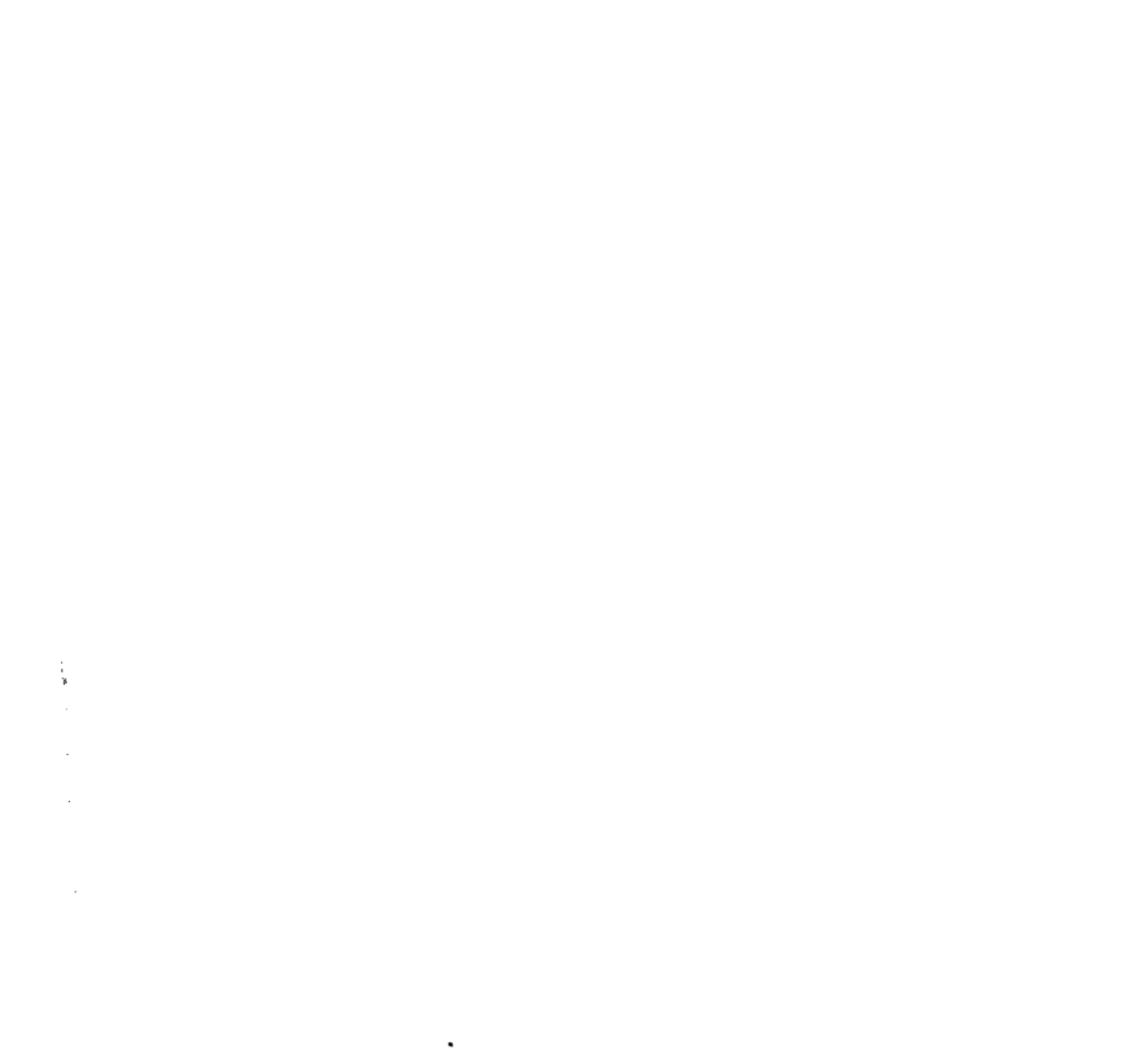
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LITTLE HENRY'S HOLIDAY
AT THE
GREAT EXHIBITION.

Part the First.
GOING THERE.

Introduction.



"HAT, Papa," said little Henry,—“what *is* the Exhibition? Really, Rose and I have been trying to imagine what it is. Every day after you have done reading the *Times*, we have looked over it by ourselves; we have read that there is a great building made of iron and glass, that it is 1861 feet long, and—something broad, I forget,—and that there is a nave and a transept. But we can't imagine it. How *can* we get the *idea* of such a large place into our heads!—unless—”

“Unless we *see* it,” added Rose, “then we might. Don't you think, papa, that we had better go and see it? I should like to know what the people mean by a *transept*.”

“Well,” replied papa, “I can tell you a great deal about

that Exhibition—if you like. You shall go there this very morning. We will send James for a cab, and on our way I'll give you a long history."

Here comes the cab, Rose,—it has an old *white* horse,—see ! That is because he is going to the Crystal Palace, I suppose. Only, crystal is transparent. Ah, I'd rather not have a crystal horse ! Here comes papa.

P. Now take your seats in the cab.

Henry. Please papa, may I hold this string which is hanging down in the front.

Rose. What is that for, Henry ?

Henry. I'll show you. It is called the check-string. The driver has the other end fastened round his finger ; so when we want to stop him, and tell him where to go, I shall give this string a good sharp pull, and then he'll know. I shall pull him up, and he'll pull up the horse.

Papa. But, now listen to my story of the Exhibition. I shall divide my tale into several chapters.

Chapter First.

HOW THE IDEA AROSE.

Henry. What does that mean ?

Rose. Why, I can understand that.

Henry. It means—that the idea—*got up* !

P. Yes, that is the meaning. Let us see how the idea of the Exhibition got up, or grew. An idea sometimes grows like a flower ; it lies hid in some dark corner of the mind, just as the flower lies under the earth until it is strong, and breaks through to the light. Then it grows until it is very large, and in the course of the year, you see a great sunflower. So the idea of the Exhibition came to the light—before the public.

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Henry. And grew in the Newspapers.

P. And then in Hyde Park,—until it brought forth—

Ross. Ah! a great *Crystal Palace*.

P. Or, rather, *the Exhibition* in the Palace: but some ideas grow more quickly—they spring up instantly, like the mushrooms. We shall see soon.

The idea of the Great Exhibition has been growing ever since the year 1756.

H. (whispering). Then it has been growing like an oak, Rose.

In the year 1756, a "Society" in London, called THE SOCIETY OF ARTS thought of something. The men of that Society had once been to school, perhaps, and they remembered that their master had said to the boys "I want to teach you to write and draw much better. So, if each boy will try and make a better drawing than he has ever made before, the drawings shall all be shown to me, and he who has made the best shall have a *prize*!" The boys at school would therefore strive more to make good drawings; and, when they were all shown to the master that he might give the prize, they formed quite an Exhibition—this was the first Exhibition! Do you know what we call the act of striving with one another?

H. Yes, I have heard the word, it is called 'competition.' The boys were having a competition.

Ross. And it was a good thing even for those who did not get prizes, because they learned to make better drawings.

F. Truc. And that was the secret of the sly old master,—he wanted to improve the boys—to do them good. Now, the LONDON SOCIETY OF ARTS thought, that after boys had left school, and had become men, and had learned to make other things besides drawings, they might improve more quickly by competition, and by "Exhibition." Therefore, in the year 1756, they said that they would give prizes to those who could make the best carpets, or those who could make the best por-

celain, or tapestry ; and some people did get prizes. Soon after a Royal Academy was also formed for exhibiting pictures.

In the course of time, the people found that it was a good thing to make Exhibitions. So, in the year 1798 the French made one ; and have continued to make exhibitions every now and then, from that time until this, while there have been similar exhibitions in other countries : in Belgium, and even in Spain. The English people have also had small exhibitions in the different large towns. In 1840, the year before last, a much larger exhibition than any of the others was held at Birmingham.

H. Then I suppose that that made Prince Albert think of having one in London.

P. It was not that exactly. I told you that there is in England a Society called the *Society of Arts*, and HIS ROYAL HIGHNESS THE PRINCE ALBERT is the President. This Society began a series of Exhibitions of Manufactures, and the first was held in the year 1847. Everybody liked that Exhibition. So in the year 1848 the Society had another. This was liked even better than the first ; so, in the year 1849 they hold an Exhibition which was the best of all. The manufactures were principally ornaments in gold and silver, and other metals ; and some of them were graciously sent by the QUEEN herself !

And now THE IDEA, which had been growing for some time, arose. The Prince and other members of the society began to see that if it was a good thing for the manufacturers in England to make a competition with one another, it would be a good thing for the manufacturers of *all the world* to do so !

Rose. But what a number of prizes they would have to give papa ! perhaps they didn't think of that.

P. Yes they did. The Society knew that there must be a great number of manufacturers if they came from all parts of the world, and that a great many of them would deserve prizes. But it was worth while to pay a very great sum of money to do

good to the manufactures of all the world! So, the Society determined to give away prizes worth TWENTY THOUSAND POUNDS. And, when they thought of all the manufacturers who would try to get prizes, and of the wonderful things they would send, they began to see that such things would make a truly GREAT EXHIBITION. *Thus the idea arose—gradually.*

H. Well, I think that they were going to give away a great deal of money. But were the Society really going to give all that money of themselves? Where did they get it from? Please tell me.

P. That question brings me to another chapter. They were going to give £20,000, but they had not £20,000 to give. So, you shall hear, secondly, *How the money was raised.*

Chapter Second.

HOW THE MONEY WAS RAISED.

WE are to give away £20,000," thought the Society, "but we haven't got it"; and although they had the Sovereign Prince at their head they found great difficulties.

Rose. Why couldn't they ask the Queen? If I had been Prince Albert that is what I should have done.

P. Ah, you do not know anything about it. The Queen has not so much money to spare as you think,—the proper parties to ask were the *government*,—that is, the gentlemen who govern the nation. But then, the money which the government has belongs to the people, and the government would have no right to spend it in any way they pleased.

H. Then, how *did* they get the money papa? I do want to know very much.

P. You shall know if you have patience, for it is a rather long story. They asked the government that some gentlemen

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from the Society, and others might be formed into "A Royal Commission." They would then have the *Authority of the Queen* to promise the manufacturers prizes worth £20,000 which they would collect by Public Subscription.

Rose. I know what that is. I have seen "Lists of Subscribers" in the *Times*. The people *give away* their money.

P. But, the Society could not obtain their request. No one would advise the Queen to form a "Royal Commission;"—it was said that the money ought to be collected *first*.

II. Of course.

P. And then there might easily be a Royal Commission to give it away. They were now much puzzled. Every one saw that the answer from the government was a just one. "We must not" they thought, "have a 'Royal Commission' to give away money that is up in the clouds! and, it would not be right to have a Royal Commission merely to collect subscriptions. And, unless we have a Royal Commission no one will give us any subscription. Yet we shall want £20,000 for prizes, and £30,000 or £40,000 for the building, and a great many more thousands for the great expenses in letting the world know all about it. What shall we do?"

II. That is just what I want to know. When are you going to us tell papa?

P. Now, England is a very rich country. It is full of rich merchants, and manufacturers, and builders. I'll tell you of several soon. Two very rich builders, whose names were Munday, heard what *THE PRINCE* and the Society wanted to do,—and, they thought "We'll *help* them!" So, they found a gentleman of the Society, named Fuller, and they said to him "We think that your plan of making an Exhibition from all nations is a very good one; and, if you can carry it out, thousands of people will pay to come and see it, so you'll be *sure* to succeed and get plenty of money. And this is what we will do. *We will lend you* £20,000 and besides that, we will spend £50,000 to make a fine

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building for you, and lend you a great many more thousands for the expenses,—altogether about one hundred thousand pounds!

H. Well done Mister Munday! They were —

P. They were noble men certainly; but listen! Then Mr. Fuller made haste at once to take the good news to the Prince. He hastened to His Highness's country seat at Balmoral, in Scotland, and on the 3rd September 1850, at the very moment when the Prince was going out to hunt the stag, His Highness was informed of this noble offer.

H. Well, that shows how the money was raised.

P. Not quite. It would not have been right for the Society to have let Messrs Munday spend all this money for them, before they knew whether they would be able to pay it back,—besides, they found that they would want nearly *Two* hundred thousand pounds. The 'Royal Commission' was now granted; and the Prince and gentlemen who formed THE ROYAL COMMISSION FOR THE PROMOTION OF THE INDUSTRY OF ALL NATIONS, began to collect subscriptions.

Rose. There Henry! Then *that* is how the money was raised.

P. No indeed it is not. The people would not subscribe properly. 'The appeal to the public was almost a failure.' Fine speeches about this Exhibition were made in London and other parts of the country; but the people had never heard of such a thing before, and some who wanted to show how wise they were laughed at the thought, and the money 'dribbled in slowly.' Thus the prince, nobles, and gentlemen of the Royal Commission who were going to collect the money began to think "we shall not be able to do it," when another gentleman, Mr. Samuel Peto, came to their help. He said I will be *security* for £50,000; the Prince said he would be security for more money; and other wealthy men followed, until security was raised for TWO HUNDRED THOUSAND POUNDS. And thus *the money was raised*—laboriously.

H. Thank you, Papa. What is next?

P. You have heard 1st, How the idea of the Exhibition arose, and 2ndly, How the means arose. You shall hear 3rdly, How the idea of the *Palace* arose.*

Chapter Third.

HOW THE IDEA OF THE PALACE AROSE.

IDES. When any one struggles through difficulties it does him good. He feels himself strong, and greater; and has greater ideas. So the ideas of the "Royal Commission" began to enlarge. There came grand thoughts of touching other things to men by means of the Great Exhibition; and there also came the thought "We will have a splendid house for our friends, when they come over to see us. So, architects were wanted now,—men to draw plans of the building; and the architects came. 246 Plans were made; 188 were made in Britain; 27 came from France, and a few came from Belgium, Holland, and other parts; and with them there came new difficulties for the Royal Commission.

The plans were all examined, and none of them suited. So the Commissioners sent for other architects and engineers, to make a new plan for the purpose. But when the people saw the idea of a great brick and mortar building which was to cost £200,000, they asked "where are you going to put it?" They were told that it was to be placed in Hyde-park, but thousands of people said "no!" And the newspapers made a noise; and

* It may be as well to acknowledge that the materials for parts of this account are taken from the ILLUSTRATED LONDON NEWS, and the POPULAR GUIDE TO THE EXHIBITION. The Editor has, in fact, made free with every source of information that he could obtain.

Exhibition arose,
near Bally, How

angry men made speeches; and many said 'twas a shame their park should be spoiled by a large brick and mortar building. And the Commissioners—

E. I should think they were puzzled.

P. Perhaps they were; but somebody was always sent to help them. MR. PAXTON came this time.

Rose. What was the gentleman's name Henry?

H. MR. PAXTON. Let us hear about him.

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P. MR. Paxton thought about the building. This gentleman is a landscape gardener, and he is very clever in writing books,—and in making houses, it seems. He made a beautiful garden for the Duke of Devonshire, and as the Duke had a new and enormous water-lily, Mr. Paxton made an immense conservatory of iron and glass for it to grow in. And, when he heard that the building of the Exhibition did not please the public, he thought to himself, perhaps, "Why shouldn't a glass house be as good for an Exhibition as for a house of plants? If I were to make them one, like that of the Duke of Devonshire I'm sure they would like it. They could have a house higher than the trees, and the large tree could grow inside it." So, on the 18th January, 1850, when Mr. Paxton was engaged on a Railway Committee, he hastily sketched his idea of the building on a sheet of blotting-paper, which happened to be near him. He then went home, and from his sketch he formed a finished drawing, working all that night, and working on still at all the plans and particulars for ten days, when he set out for London by train to see the Commissioners. He thought that his plan had been made too late to be of any use, but he happened to meet in the railway-carriage, a gentleman named Stephenson, an engineer, who was one of the 'Royal Commissioners.'

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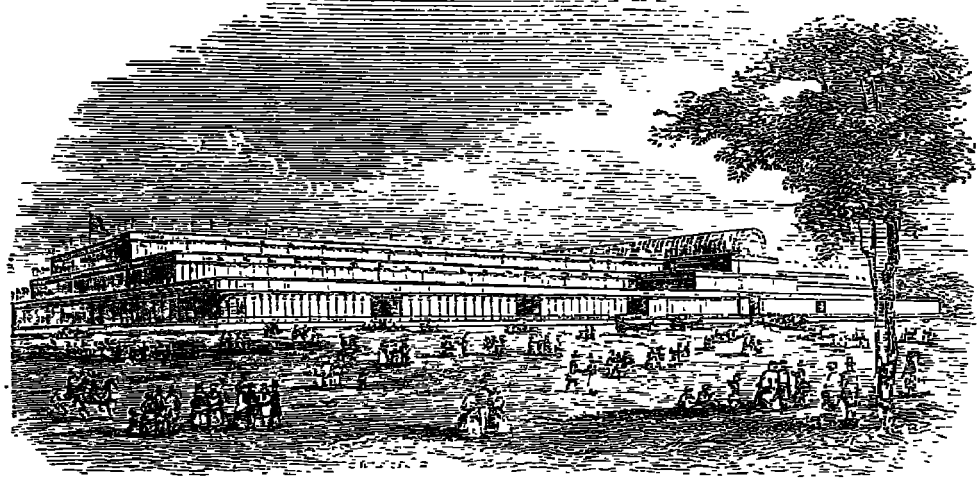
This gentleman looked at the drawings very closely, and at last he said "Wonderful!" but he thought it was a pity they had not been prepared before. However, he said he would show them to the commissioners.

You know, I dare say, whether the Commission used Mr. Paxton's plans or not. At first it was said they were too late, and then, that it was not usual to build with iron and glass. Some of the architects who had made the plans for the Commissioners said it was impossible for such a building to answer,—that it would be blown down by the wind,—that hail-stones would break the glass,—that the glass would get loose, and fall in, and the people of 'all nations' would be bruised or killed. Others said, it would be too hot inside, and the unhappy visitors would be grilled. The public, however, soon heard of it and began to speak for themselves. They saw the plans, and read about them in the 'Illustrated London News.' They read, and talked, and were pleased. The mighty 'million' shouted out their opinions again: "It will be a famous place! a transparent palace like crystal. Let us have a CRYSTAL PALACE!"

The Royal Commissioners said so too. They said, we can put it up in Hyde Park, and what is more we can take it down again,—and that will be a very good thing. Then it was all agreed to. Thus, *the idea of the Crystal Palace arose*—suddenly.

II. Well done Mr. Paxton, this time!

P. That is what I say my boy! But let us go on. We have nothing raised yet but ideas. I shall have hard work this time, for I have to tell you of the raising of the Palace.



THE SOUTH-WEST VIEW OF THE EXTERIOR.

Chapter Fourth.

HOW THE CRYSTAL PALACE AROSE.

NOW, *how* did it arise? I wish I were a poet, Henry, that I might make some fine comparison to show you how it was done.

How? Swiftly and silently, almost like some fairy scene; and yet, with labour, as all the rest had been done. 'Industry' has made many a fairy scene, and her secret is,—work! work! work!

But how? how did the great building so suddenly rise? As the dry bones that were shaken by the wind came together, 'bone to his bone,' so came the columns of this Crystal Palace! They came from afar: an exceeding great army of iron and wooden-bones. By waggon loads they came,—girders and trusses, columns and ribs, of iron and wood. Then, they fitted one to another, forming a framework fairy-like and fine for the transparent glass. No unsightly heaps of brick! no smoking heaps of lime! no click of noisy trowel! no great unsightly scaffolding! All the parts were ready prepared: and as they came from distant places, they quickly joined together, like brethren, who know each other. Thus ranging in square companies and in long rows, they helped and supported one another until they were tall and strong. Then were they able to bear up their curved-shape friends, the giant ribs, who gratefully formed a roof over their heads, and covered them in from the rain.

H. Well done Mr. ———! But who did it?

P. Well done MESSRS. FOX AND HENDERSON you may say now.

H. Then tell us please, papa, who were Messrs. Fox and Henderson. I want to hear some more 'particulars.' Will you describe to us, a little bit?

P. Very well, I am not at all tired: but before telling you

how the building was made, you shall hear what there was to make.

Messrs. Fox and Henderson are two of the great builders (or contractors) who as I told you abound in our wealthy country you shall now see what gigantic undertakings two Englishmen can carry on. At the time when Messrs. Fox and Henderson began the great palace, they had other extensive works in hand, in all parts of the British Empire. These I will mention directly. Let us first speak of their work in Hyde Park.

DESCRIPTION OF THE PALACE.

Look at the picture. This Crystal Palace is 1851 feet long.

H. I cannot understand exactly *how much* that is.

P. You can if you try. Do you know the street where your aunt lives, and where each house contains eight rooms?

Rose. I know it papa, there are 60 houses on each side of the road.

P. Then just imagine that, instead of 60 there were 110 houses—then you get an idea of the length of the Crystal Palace. It is as long as 110 eight-roomed houses placed in a row!

H. Then how broad is it?

P. About as broad as a street of 28 such houses,—that is 450 feet; and in the arched part, called “the transept,” which crosses the building it is 68 feet high. There! put it away in your memory *Rose*. “*The Crystal Palace is 1851 feet long, 564 feet round, and 68 feet high.*”

H. But how high is it in the large part papa?

P. In the ‘long part’ which is called ‘the nave’ its height is 64 feet. The whole building covers almost *eighteen acres* of ground, a space about six times as large as that of St. Paul’s. You know what a square foot is?

H. Yes. A square piece of board, which measured a foot

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on each side would be the size of a square foot. I will cut out a piece of the proper size when we are at home.

P. And if you wished to cut out enough pieces to cover the whole space of the Exhibition, you would have to make NINE HUNDRED AND EIGHTY NINE THOUSAND, EIGHT HUNDRED AND EIGHTY FOUR of them, for that is the number of square feet in the Exhibition. The floors of the galleries measure 217,100 square feet, and the ground floor measures 777,284 square feet. Let us add them together:

| | |
|--------------------|----------------------|
| Galleries | 217,100 square feet. |
| Ground Floor | 777,284 square feet. |

Total 994,384 square feet.

Would you like to know what *space* is continued in the building?

Rosa. Yes, please, papa.

P. Then suppose that you made a solid block thus; and that each of the six sides was a perfect square foot, such a block is called a *cubic foot*.

Rose. And, how many cubic feet could we put in the space of the Exhibition? a thousand?

P. More.

H. Not a *hundred* thousand?

P. Yes, Three hundred and thirty times as much. The space of the Exhibition is no less than three hundred and thirty hundred thousand cubic feet, or 33,000,000, as we say. The surface of the *glass* measures 896,000 square feet. The quantity of the *wood* is 600,000 cubic feet, and the quantity of the *glass* is 896,000 lbs. The weight of all the iron is 9,072,000 lbs. and the cost of the building about £160,000. These, then are the "totals." You must write them down on a piece of paper.

Fig. 1.



Cubic Foot.

H. I will, papa.

THE CRYSTAL PALACE, which Messrs. Fox and Henderson built is six times as large as St. Paul's. Its length is 1851 feet, (the number of the year in which it is built), it is 456 feet broad, 64 feet high, in the nave, and 68 feet high in the transept. The total surface of the flooring measures 994,384 square feet; and the total space of the building is 333,000,000 cubic feet. The total surface of the glass measures 896,000 square feet. The total quantity of the wood is 600,000 cubic feet. The total weight of the glass is 896,000lbs., (or 400 tons). The total weight of the wrought-iron and cast-iron is 9,072,000lbs. (or 4,050 tons), and the total cost of the building is not much more than £150,000.

Now the completion of all this work was undertaken by *two men*. They began it at the end of July, 1850, and it was ready for receiving the goods to be exhibited by about the end of January, 1851. In how many months did they do it?

H. I have been counting,—in only six months, papa.

P. This you will say then is a great undertaking for two men: but as I told you, they had at the same time extensive works in all parts of the kingdom. They were making a whole railway in Ireland: an immense wrought-iron bridge over the river Shannon: another over the Medway, at Rochester: a truly immense station for passengers at the end of the Great Western Railway: a large station at Liverpool for another Railway: a Railway-station at Bletchley: another at Oxford of iron and glass, like the palace itself: and several other large works which I cannot at present remember. Think of that dear Henry. Think what two men *can* perform, and when you have plenty of work to do, never sit down and say "I can't!"

H. Well I won't again. But now, will you let us hear how it was all done?

P. Yes; let us leave the totals, and attend to the *parts*. We will imagine that we are sitting on the ground, in Hyde Park, and then we shall see the parts coming.

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First came the men with theodolites. Surveyors they were called, for they took a "survey" of the ground. Then came the *hoarding*.

Rose. What is that?

H. I will tell you, the grent boards which they stuck up, all round the place.

P. Here is a picture of the hoarding.

Fig. 2.

It pleases me very much; for those who built this work of art wisely copied the Works of Nature, where nothing is *wasted*. The boards of the hoarding were all used afterwards for the floor of the building itself. You may see by the picture that it was not necessary to nail them together. The two upright posts were fixed in the ground and the boards were slipped in between them. The posts were then tied together at the top, so that the boards were held tight, and could not fall out.

Rose. But, I suppose that there was some waste. What was the use of all those grent posts afterwards?

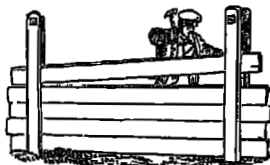
P. They formed *joists*,—the thick pieces of wood which are laid on the earth to nail the floor upon.

H. To be sure. Don't you see, Rose, that they couldn't nail the boards to the ground? it would be too soft.

Rose. Ah!

P. When the hoarding had been fixed, and the ground was enclosed, the surveyors once more came with their theodolites, and measured the places for the iron-columns; and then came the columns themselves.

The columns were followed by all manner of parts—by "girders," "trusses," "braces," "Paxton gutters," "sash-bars," "ventilating bars," and a great many more things. I have drawn some of these *parts* for you on the opposite page.



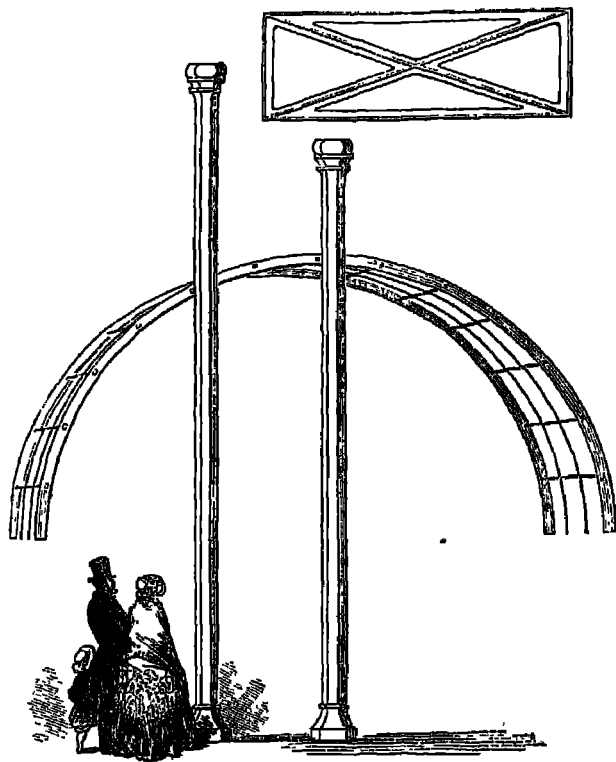


Fig. 3.

Let us examine them :

The beautiful COLUMNS are interesting objects. There are three rows,—the columns from the floor to the gallery, which are 18 feet $5\frac{1}{2}$ inches high,—the second row rise from the gallery, they are 16 feet $7\frac{1}{2}$ inches long,—and the third row, which are as long as the second, rise above them up to the roof. Thus, the columns are placed on top of each other, only *having small columns between them*, to which the girders are fastened. Let us find out the good qualities of these columns. Suppose that all

three columns had been joined in one, thus

16ft. $7\frac{1}{2}$ in.

16ft. $7\frac{1}{2}$ in.

18ft. $5\frac{1}{2}$ in.

H. The great column would have been too long. It would have measured 51ft. 8in.

51ft. 8in.

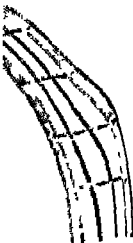
P. Yes; besides the length of the smaller columns between; and, if they had been made thus long—

Rose. I can see: they would have been more likely to bend.

P. True; then another good quality is, that they are hollow.

H. Then they cannot be very firm. If you have a *hollow* friend, you never say he is a firm one.

P. The same law does not apply to iron-columns. Hollow-ness gives firmness and strength. You know that straws are hollow; so also are quills. Professor Cowper was talking in a lecture about the beauties of these columns, and wanted to show their strength,—so he cut two quills of equal length, and placed them upright. On these small quills he managed to place 100lbs. weight, and then another 100lbs., but they did not break until 221lbs. was placed upon them. The quills possessed this strength, just because they were hollow. This hollowness is a beautiful quality. It not only gives strength, but gives them another use—like the *hoarding*, they are made to serve two purposes.



Rose. What else are they fit for, I wonder ?

P. If you look at the picture below, which shows the form of the roof, you will see that, when it rains the water might settle in all those ridges, therefore the water must be conveyed from the top of the building to the bottom. May it come down through the roof on the heads of the people. ?

Rosa. To be sure not. Ah! there would be a good plan,—it might pour down *through the columns.*

P. And so it is does,—the columns are water-spouts. They not only hold up the roof, but carry down the water.

H. So we may say three good things of the columns :

1st. Their short *length* gives them strength ;

2nd. Their *hollowness* gives strength ; and

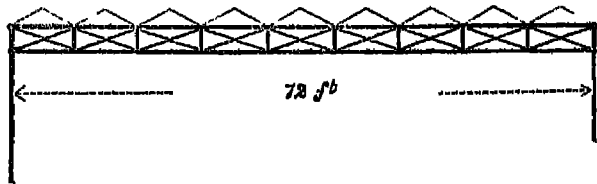
3rd. Their *hollowness* make them useful as water-spouts.

P. While you may add

4th. Their *hollowness* also gives lightness.

The columns are kept apart by the cross-pieces called *girders*, which are drawn on the same page with the columns—but, let us ascend at once to the immense girders which extend across from the columns on one side of the nave to the columns on the other side, a distance of 72 feet. These immense girders are called *TRUSSES*, and as you may observe, contain nine girders.

Fig. 4.



Truss (for the roof of the Nave.)

H. Yes, and on each girder a little roof is raised—they are like little hills.

Rose. Or Arab's tents, that is the way you draw tents Henry! You make lines up and down.

P. They are called *ridges*, and the valleys between them are called *furrows*; thus they form what the architects called a 'ridge and furrow' roof.

Rose. And I suppose that in the furrows there are gutters, or something, that the water may run away to the columns.

H. But you see Rose that the water would run 'long-ways,' it could not reach the poles on each side.

P. Ah! How can it reach the columns?

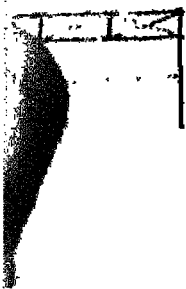
Rose. Well that would be very easy; there might be a gutter on the top of each large truss. The gutters in the ridges would lead to the gutters in the trusses. (See Fig. 6, page 25.)

H. Yes the gutters on the trusses are placed crossways,—of course. Then, they lead to the tops of the columns, and the water flows down them.

P. That is right; at the base of each column, is a pipe through which the water is conveyed, as Mr. Dickens says "into the jurisdiction of their honours the Commissioners of Sewers." I will show you two more interesting points concerning the roof and the gutters, and then we will conclude our description. You know that, when any vapour rises and reaches a cold surface, as there is no heat to keep the particles of the vapour apart, they unite again, or *condense*, as we say.

Rose. Yes, and form *drops*. I noticed that yesterday; mamma poured some hot-water into the slop-basin and put the plate of toast on the top; then the steam arose up to the flat plate, and when we lifted it up a number of little drops fell off.

P. And so it might be in the Crystal Palace; the vapour which we call 'breath' arises from the crowds of people below—and if the glass roof were flat, thus ———, or like the bottom of the plate, then?



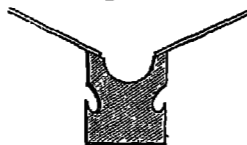
H. Then the vapour from the people's breath would form drops, and make a shower-bath on the people's faces. It would return to those it came from.

P. But by placing the panes in an oblique (*or slanting*) direction so _____ and so _____ the drops formed by the vapour do not fall thus, but trickle along the glass, slowly.

H. And, when they reach the end of the glass, don't they fall off?

P. No: there is a gutter to receive them, a very ingenious affair, which was invented by Mr. Paxton, and is called the

Fig. 5.



Paxton Gutter.

"Paxton gutter." This you will see is really three gutters. There is a larger one with a smaller one on each side.

H. And I can see what they are for,—the drops from the vapour in the inside of the glass trickle down the panes, and the side of the wood, into the small gutters; and the rain

outside the glass pours into the large gutter.

P. Just so; and again, the gutter is a good firm solid rafter, and is therefore useful as part of the frame-work for the glass. Here is a piece of the outside of the roof,—you may see the ridge and furrow,—the Paxton-gutters,—and the "crossway" (*or transverse*) gutters on the tops of the trusses. (*vide next page.*)

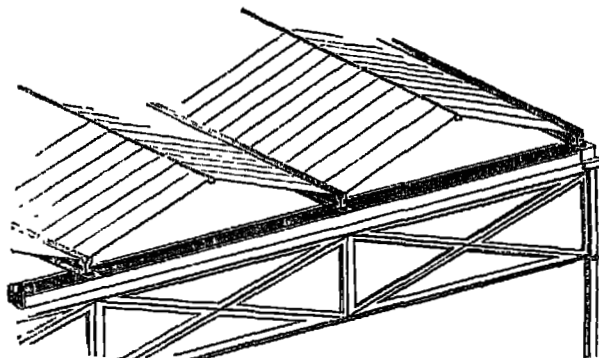
H. Well, then, they are very good gutters. They do three things:

- 1st They support the glass;
- 2nd They receive the rain outside the glass;
- 3rd They receive the breath inside the glass.

Ross. They are almost as good as their relations the columns. One is a *column* and a *spout*,—the other is a *rafter* and a *gutter*.

P. And now if we jump down from the roof to the floor, we shall find that it also serves three purposes. When we reach the Exhibition, we shall find that the boards which were once a

Fig. 6.



Transverse Gutter, &c.

boarding, are now used as a floor, a dust-trap, and a ventilator. But we have had too long an account. Let us add up 'the quantities,' and proceed.

H. As you say them, papa, I will write them on the same piece of paper with the totals, if you will please speak slowly.

P. Very well, then, write down

Of the columns there are 3,300. There are 3,300 *girders* made of cast-iron, and 358 of the long *trusses* made of wrought-iron. The *Paxton-gutters* would measure altogether no less than 20 miles—the panes of glass are joined to thin slips of wood which are called 'sash bars'—the total length of these is not less than Two HUNDRED MILES!

There! what do you say to that?

H. Now papa, please to tell us how it was all put together, if you are not tired.

P. Oh, I am not tired. When the hoarding was fixed, and the foundations were prepared, the columns began to arrive.

It was some time before the different parts came, for they had all to be cast at places near Birmingham, which are a long way off. A month and twenty days had past away; the 20th of September had arrived, and only 77 columns had been fixed out of 3,300. But, during all this time *every thing had been made ready*, and hundreds after hundreds of columns had been cast. Everybody had learned his duties, and was prepared to proceed, and then came the columns in abundance. Ah, it was a truly busy scene! if you had only been outside that hoarding you would have liked to watch the waggons! Every day you would have cried out "Here they come!" and, as they unloaded you would have seen columns, girders, trusses, and other pieces in abundance.

From the immense and mighty furnaces of the casting works were brought, in one week, 316 girders; and also every week, at least 200 columns. Each casting, as soon as it was delivered, was very carefully weighed and examined. It was made to bear very heavy weights, to see if it were of the proper strength, it was next painted, and was then carried off to its proper place to be fixed. All this was done with the greatest dexterity. "Each heavy article could be lifted from the waggon, weighed, placed in the 'proving machine,' lifted out again, and taken to its place in less than four minutes."

The scene became more busy every week. As more columns were brought in, more men were hired to work, and in the course of a month, (by the end of October) hundreds of columns were rising, and nearly 1500 men were at work.

H. But, papa, if the columns were three or four times as tall as the men, how *could* the men lift them?

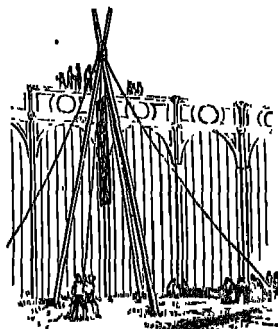
P. Very easily, by means of 'shear-legs.'

Rose. What are 'shear-legs'? not their own legs I suppose, are they stilts?

P. No, nor wooden legs, although they are made of wood. They are two wooden poles, which are placed together so: What shape do they form, with the line of the ground?

Rose. A triangle, papa.

Fig. 2.



frame-work for the glass. During all this time the glass-blowers had not been idle. They had plenty to do; they had to make large and thick panes of glass almost a yard and a-half long and ten inches broad. They soon found that as they had to make so many thousand panes, they had really *too much* to do. ENGLAND could not supply workmen enough to make such an immense quantity in so short a time; it was necessary, therefore, to bring workmen from foreign countries to help. Each pane was made in a manner different from the old system, which you will understand better when you have an "Object Lesson" on glass.

Fig. 7.



P. Here is a picture of a column being hoisted by means of the shear-legs. You may notice that there is a long rope on each side to keep them steady. At the apex of the triangle (you have learned what that means, in Pleasant Pages,) there are pulleys with ropes passing over them,—thus you see how the men pulled them up.

With 1500 men at work, not only were great numbers of the columns and girders soon raised, but the smaller parts of the

A few weeks, and the scene in Hyde Park was more exciting still. The increasing numbers of men had worked on through November to the beginning of December, when the bustle was at its height. The columns, girders, and heavy castings were still being brought; with an enormous number of smaller castings which were erected with amazing rapidity. Other pieces of framework, and sash-bars, for the glass were next prepared—then came the glass, and with it came more men still, to fix it.

H. Yes, Glaziers, I suppose.

P. The most trying undertaking of all was next begun, namely, the hoisting of the great curved ribs for the roof of the transept, (see frontispiece) these ribs we shall be able to see when we reach the Palace. I cannot give you an idea of the great 'crabs,' and tall "shear-legs" which were used. This most dangerous work was completed in one week; sixteen great ribs were erected, and fortunately without any accident. Then the glaziers were mounted high up to their work, and soon they were dotted over the roof, looking in the distance something like the flies on the ceiling. When these glaziers worked on the 'ridge and furrow' roof, they worked in new and ingenious machines with wheels which travelled in the Paxton gutters. The men soon learned to work quickly, and 80 of them, in one week, put in 18,000 panes of glass. One man, in one day, inserted 108 panes which covered 367 feet of the roof.

Thus all kinds of labour were being executed at the same time, and all varieties of people were seen. There were not only the glaziers attending to the glass, but carmen unloading the waggons, and workmen raising the roof,—workmen raising the columns, painters painting them, carpenters attending to the works of wood, carmen unpacking the glass—crowds of porters performing odd jobs, while the scene was made gay and still by the numerous red coats of the sappers and miners which sparkled here and there amidst the crowd. "Useful men these" you would have said—"they have done all the surveying and

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planning." Besides these were the higher orders of workmen, His Royal Highness the Prince, Mr. Wyatt, Mr. Fuller, the architect Mr. Paxton, the contractors, the decorator Owen Jones, numbers of draughtsmen and clerks, with a great sprinkling of visitors, whose principal labour was, in trying to understand how all was done so quickly.

But even with so large a supply of men there were not enough hands to complete the great work; and a new power had been added—a great *steam-engine* with the power of six horses might have been seen—setting in motion several machines, and causing them all to help.

Let us talk of these machines: the steam was turned on, and this was the signal for them to *work*. They were obliged to obey—evidently they knew this, and had been accustomed to steam, for immediately they began punching, and drilling, and cutting bars of iron into then proper lengths. Another machine had been preparing the 'Paxton gutters,' another cut the wood into sashes for the glass, preparing them by *mile lengths*; another actually *painted* them; while another,—a still more knowing machine—received logs of wood, and sent them out again in the shape of long spouts for drainage, with even the holes for the nails bored through them. Ah! those machines, how well they obeyed the steam, and how the steam kept them at work! No machine took the slightest interest in the work of his neighbour, or even offered to assist him. The spout-machine kept entirely to his spouts, and not a single gutter or sash-bar did he make. Indeed he had no time to try; he was so intent on his work that he scarcely seemed conscious of having a neighbour at all.

Rose. Perhaps he had'nt any "consciousness."

P. He was none the worse for that. Certainly, every machine kept to his own business, and so did each workman, and that is one reason why the building was finished in time.

The conscious workmen, indeed, seemed as active as the

machines; all worked on steadily, and the great giant---the dumb, unconscious palace,—rose silently over their heads. "Wonderful!" they thought as they saw what they were doing—all wondered at the work of their own hands! still guided by greater minds than their own, their hands worked on, while the building seemed to look down from its height, and wonder how large it was going to be.

H. Perhaps, he wondered what he was being made for!

Rose. And he would have wondered what those impertinent steam-engines had to do with it, and why their wheels went round and round without seeming to mind him at all.

P. True. And as through all December the machines and the crowds of men worked on (for now there were nearly TWENTY-FIVE HUNDRED MEN) the great giant of iron and glass must have stared more still. Yes, indeed! for his masters were working all through the night, and had lit him up by *torchlight*! He must have felt it to be awful and grand when the bright lights danced through the dim shades, and the men and machines moved on. What did the *machines* care for the night? why should they go to sleep? They "never tired nor stopped to rest." No! each machine still *worked* and "pursued the even tenor of his way."

H. Poor Crystal Palace! I dare say he felt that he *must* be built, and must grow up as large as they chose to make him; he could'nt help himself.

P. Yes, and as time rolled on, strange things rolled in. While the Palace had been thus preparing, beautiful goods to exhibit had been prepared by thousands of men in all parts of the world. Gentlemen from England had been sent all over Europe; and messages had been delivered to 'all nations' saying that this Palace was built for them to exhibit in. Like the school boys whom we talked of, they were invited to a 'competition' for prizes. Soon they began to try who could make the finest and best of goods; and, when they had done their best,

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they sent their works over the land and the seas to Hyde Park. If you had had the proper cars, you might have gone to the top of the Palace one windy night, and have heard that they were coming. Great wheels were buffeting the ocean waves, and bearing ships from the east—great sails were driven along by the wind from the countries of the west, north, and south; and the whistling wind, which had crossed the ocean for thousands of miles, and had reached the Palace before them, whispered in all its corners "they come!" Great packages were soon made ready; and by railway from the cities of Europe, by canal and rail from the counties of England, they were sent off, directed to the Great Exhibition. After that, they came,---and with them came a scene of bustle and business, which I could not reasonably attempt to describe. There were workmen from Austria and France; men from the Zollverein and Bavaria; from all parts of Germany, from Russia, from Switzerland and Italy, from Spain, Belgium, and Holland. From the far-west came Americans; and from the east the men of Egypt, all attending to their goods; and, amidst the confusion of tongues, a work mightier than Babel's still went on, and by its appointed day, the 1st of May, the Crystal Palace was finished.

On the 30th April, the night before the Palace was born, I stood outside and asked him "how came you here?" soon I imagined that the answer came back in these words: "We, the Crystal Palace, are so bewildered at ourselves, that we scarcely know how we came here. We know where we came from. We came from the bottom of the sea, and from the tops of the mountains, from dark caves, and from mines in the bowels of the earth. Then we were called by different names, such as sand, soda, galena, ironstone, and pine. But some of us were melted in hot furnaces, and were *cast*, and are now called 'iron,' and 'glass;' and some have been hammered, cut, sawn, and drilled. But it has been done so quickly that all we can tell you is, we are now called "THE CRYSTAL PALACE." Thus, the *Crystal Palace arose*,—rapidly.

Chapter Fifth.

HOW THE IDEA WAS REALIZED.

N I suppose you remember the 1st of May, Henry?

H. Yes, very well, papa.

P. On the 1st of May, 1851, the people rose up early; at five o'clock on the first of May the people were getting up; at four o'clock on the first of May, there were people getting up; at three o'clock in the morning there were people getting up; a few people rose at two, and many were rising all night long, for some never slept at all. When the morning came, there were clouds over head, but beneath there was light-hearted joy. Tens of thousands of men and women hurried down the streets. Cabs and carriages filled the road, and all moved onward to the west. From north, and south, and east, and west; by steamers and rail, by omnibus and cab, by carriage or gig, came the myriads of people, and stood round the GREAT EXHIBITION.

Rose. Yes, we heard about that papa; the Exhibition was ready to be opened.

P. But I think you do not know of all that gave the people joy. As I was waiting with the crowd, I saw an old man with an eager face, and a very glad sparkling eye. His head was bald and his beard was grey; "What is it?" I said "that makes you glad? Is it that you see the Crystal Palace sparkling in the light of the sun?" "not only that," he said; "Is it that you expect to see the Queen, and intend to say 'God bless her';" "not only that," he said; "Is it that you see men of all climates, and of all colours meeting together with friendly looks?" not only that." "It is all these together that make me glad. Dont you notice, he whispered, that all these men have one feeling toward that building? Dont you hear the Frenchmen say to their enemies 'the perfidious English' "Brothers! we helped to

make it!" Listen how they say "we *all* have an interest there!"

II. I should like to have seen that old man; he had some kind thoughts.

P. Yes, you shall hear more about him soon. On that day there was a brotherly feeling beaming from the faces of all, and I'll tell you why. This Exhibition was showing them the marvellous good works of each others hands, which they had never seen before, but now it was beginning to teach them more.—This Exhibition had *brought them together*, and was showing them marvellous good-will in each others hearts, *which they had never seen before*. For the first time since the world was made, men of all nations were *working* together in one great act of peace.

Now hear what the old man related to me. "Not forty years ago," he said, "I saw the fathers of these men meet on the battle-field. I saw their forefathers meet, hundred of years ago. The Franks and the Goths, the Celts and the Moors, met only to show their *hate* to each other. Do you know why?" he said.

"No," I replied.

"Then I'll tell you—it was because they did not know each other." "Ah!" he cried, I have seen *all history*! I've seen it all myself. I remember the first great gathering of Christian nations, seven hundred years ago.

Rose. What an *old* man papa! How could he have lived for seven hundred years?

P. You will hear. He has lived six *thousand* years. But listen to his story.

"That mighty gathering of the nations! Like the people around us now, they were brought together by an *idea*. How that idea arose and grew! The 'Industry of All Nations,' was aroused, and was making swords and spears. They met and heard the idon from the sacred lips of their priests. 'Go

dip your swords in blood! Go wage fierce war! Go kill, for the sake of Christ, the Prince of Peace! Hundreds of thousands are to follow hundreds of thousands; and meet around Jerusalem, the former city of God, to destroy their fellow men.' Europe answered with the cry, 'It's the will of God! It's the will of God!'^{*} Then, as they promised to go, and to *fight round the Holy City*, the blessing of the Almighty was asked by the Archbishop of Rome, on the first and fearful gathering of the nations. But the high days of chivalry are passed away, and those of the sword and spear are passing away too. Come come with me," said the old man suddenly; "Come to the Crystal Palace! ye shall see a very different gathering of the nations of the earth. Come!" he cried, as he moved along faster, (for he had been moving on all the while), I never stop! and, with his hour-glass in his hand, he bore me on his wings over the people in the midst the Great Exhibition.

H. (Whispering.) Rose, the old man had wings! Who was he?

P. I know not how it all happened, but when we reached the palace, the people inside had seen the sight. The splendid carriages, and the pomp and show had gone away, and I found inside, the Queen and the Prince of the greatest nation of the earth. There were other princes, nobles, and mighty lords, the old warrior of the world, with his sword put up for ever—and the great men of all degrees who had come from thousands of miles. As I gazed through the bright and beautiful building, and saw the long lines of faces, the many strangers in character and in dress, it seemed that men from all countries of the earth had met—not with fierce rage, or flaming sounds—not diseased and dying with hunger and fatigue—not expiring under a burning sun outside the gates of the city—but near

^{*} Deus id vult, Deus id vult.

where the cool crystal fountain played, and murmured a sweet soothing sound; near the quiet shade of a noble tree; under the high arch of the transparent transept. There, surrounded by the brilliant trophies of the arts of peace, more beautiful and pleasing than the trappings of war, there the second gathering of the nations began.

The sound of a thousand voices had just ceased to breathe their melody through the air, to the hymn of 'God save the Queen,' when the President of the Society of Arts, His ROYAL HIGHNESS THE PRINCE ALBERT, whose first difficulties you may well remember, arose and read a long address to Her Majesty. It would take too long for me to tell you all of it, but I will read to you the last and most striking parts:—

Having thus briefly laid before Your Majesty the results of our labours, it now only remains for us to convey to Your Majesty our dutiful and loyal acknowledgements of the support and encouragement which we have derived throughout this extensive and laborious task, from the gracious favour and countenance of Your Majesty. It is our heartfelt prayer that *this undertaking, which has for its end the promotion of all branches of human industry, and the strengthening of the bonds of peace and friendship among all nations of the earth*, may, by the blessing of Divine Providence, conduce to the welfare of Your Majesty's people, and be long remembered among the brightest circumstances of Your Majesty's peaceful and happy reign.

Her Majesty then arose, and replied. Here are some of Her Majesty's cheering words.

I cordially concur with you in the prayer, that by God's blessing this undertaking may conduce to the welfare of my people and to the common interests of the human race, by encouraging the arts of peace and industry, strengthening the bonds of union among the nations of the earth, and promoting a friendly and honourable rivalry in the useful exercise of those faculties which have been conferred by a beneficent Providence for the good and the happiness of mankind.

There, dear Henry! Does not your heart feel glad? The cry which rose in Christendom more than 700 years ago might well

have been uttered again for the cause of Peace—'It is the will of God'—'It is the will of God.'

Henry. Peace is God's will, always.

P. True, and so said the Archbishop of Canterbury, for the highest part of the service had yet to come. None forgot that GOD was there; and after the reply of Her Majesty, there stood up—not the Archbishop of Rome, but the Archbishop of England. He arose to ask the divine blessing on this noble work. He asked that it might be blessed to teach all nations more of love, brotherhood, and peace. Hear some of his words.

* * * *

Prayer.

And now, O Lord, we beseech Thee to bless thy work which Thou hast enabled us to begin, and to regard with Thy favour our **purpose of knitting together in the bonds of peace and concord the different nations of the earth; for with Thee, O Lord, is the preparation of the heart in man.** Of Thee it cometh that violence is not heard in our land, wasting nor destruction within its borders. It is of Thee, O Lord, that nations do not lift up the sword against each other, nor learn war any more: it is of Thee, that **peace** is within our walls, and plenteousness within our palaces. Therefore, O Lord, not unto us, not unto us, but unto Thy name be all the praise.

* * * *

Both riches and honour come of Thee, and thou reignest **over all.** In thine hand it is to make great and to give strength unto all. Now, therefore, O God, we thank Thee; we praise Thee, and entreat Thee **so to overrule this assembly of many nations, that it may tend to the advancement of Thy glory, to the diffusion of Thy holy word, to the increase of general prosperity, by promoting peace and good will among the different races of mankind.***

* This is only a part of the prayer which is too beautiful to be forgotten. It is so simple that a child may understand it, and it is therefore printed entire, that the children may read it often, and long remember it.

Almighty and everlasting God, who dost govern all things both in Heaven and in earth, without whom nothing is strong, nothing is holy, accept, we beseech Thee, the sacrifice of praise and thanksgiving, and receive these our prayers, which we offer up unto Thee this day, on behalf of the kingdom and people of this land. We acknowledge O Lord, that thou hast multiplied on us blessings which thou mightest most justly have withheld. We

Then once more came the sound of the Organ. The thousand voices again were heard, and the song of 'Hallelujah' rang through the building, while the Queen and nobles walked through the aisles of the palace, from one end to the other, until they again reached the transept from whence they started. The Queen then declared.

THE EXHIBITION OPENED.

P. Just at that moment, I missed my friend TIME who had brought me thither on his wings, and rubbing my eyes, I found

acknowledge that it is not because of works of righteousness which we have done, but of Thy great mercy that we are permitted to come before Thee with the voice of thanksgiving, and that instead of humbling us for our offenses, Thou hast given us cause to thank Thee for Thine abundant goodness. And now O Lord, we beseech Thee to bless thy work which Thou hast enabled us to begin, and to regard with Thy favour our purpose of knitting together in the bonds of peace and concord the different nations of the earth; for with Thee, O Lord, is the preparation of the heart in man. Of Thee it cometh that violence is not heard in our land, wasting nor destruction within its borders. It is of Thee, O Lord, that nations do not lift up the sword against each other, nor learn war any more, it is of Thee that peace is within our walls, and plenteousness within our palaces, it is of Thee that knowledge is increased throughout the world, for the spirit of man is from Thee, and the inspiration of the Almighty giveth him understanding. Therefore, O Lord not unto us, not unto us, but unto Thy name be all the praise. While we survey the works of art and industry which surround us, let not our hearts be lifted up that we forget the Lord our God, as if our own power and the might of our hands had gotten us this wealth. Teach us ever to remember that all this store which we have prepared cometh of Thine hand and is all Thine own. Both riches and honour come of Thee, and thou reignest over all. In Thine hand it is to make great and to give strength unto all. Now, therefore, O God, we thank Thee, we praise Thee, and entreat Thee so to overrule this assembly of many nations, that it may tend to the advancement of Thy glory, to the diffusion of Thy holy word, to the increase of general prosperity, by promoting peace and good-will among the different races of mankind. Let the many mercies which we receive from Thee dispose our hearts to serve Thee more faithfully, who art the author and giver of them all. And, finally, O Lord, teach us so to use those earthly blessings which Thou givest us richly to enjoy, that they may not withdraw our affections from those heavenly things which Thou hast prepared for those that love and serve Thee, through the merits and mediation of thy Son Jesus Christ our Lord, to whom, with Thee and the Holy Ghost, be all honour and glory.

myself in the place where I had first met him in the Park; but how I returned I cannot tell.

II. I think that you had been dreaming, papa.

P. Very likely—however, I remembered all that my spirit had seen, and I also looked back on the past. I thought how the idea of the Exhibition arose, and how the idea of the palace arose, and now I had seen it made real. It was, as we say ‘realized’—‘Why’ I asked ‘was it magnificent?’ Not because of the glitter and gold, but because God was there! the God of heaven, where angels sing of peace on earth and of good will towards men, deigned to smile on that day. He is the source of high magnificence.

So, when we look back on the *Exhibition of the Industry of all Nations*, we may truly think, *how the idea was realized,—magnificently!*

Just then, I thought I heard a flapping of wings, and I imagined that my friend ‘Timo’ was flying over-head. I could not see him, but I heard him singing contentedly to himself: “I have seen a grand day to day.” Yes, I cried to him—you have seen one of the grandest days since the beginning of the world, it tells us that there are even better days to come yet.

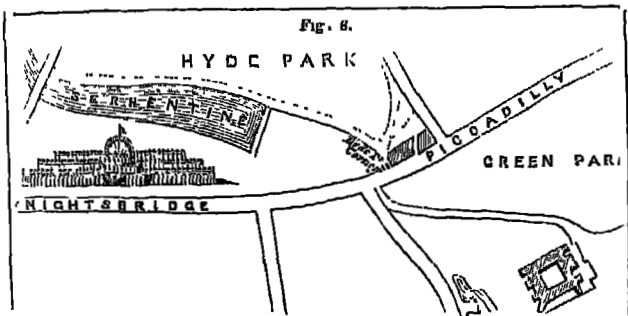
* * *

H. Papa. Here is a park! and I can see a pond. I think that we must be near the Exhibition now. Shall I pull the string, and ask the cabman?

P. No, you need not do this—this place is called *Piccadilly*.

Rosa. And, what Papa, is that building in the distance across the park?

P. That is *Buckingham Palace*, where HER MAJESTY THE QUEEN lives. This park is called the ‘Green Park,’ we shall soon reach Hyde Park. Here is a little drawing for you by which you may see where we are, and what is the exact position of the building.—*See next page.*



H. Yes, we have to pass Hyde Park Corner; and go up the road to Knightsbridge. Have you finished your story, Papa?

P. Not quite. Listen—

Chapter Sixth.

HOW IT BROUGHT FORTH FRUIT.

SOME plants bring forth finer fruit than others. Just as a sun-flower is like a *golden* flower—there are fruits called 'golden fruits.'

Rose. Yes. I have often read about golden fruits.

P. And such are some of the fruits of the Exhibition. It has begun by bringing forth golden fruit in a remarkable degree. Round medals of gold, called sovereigns, have rolled in every day, in amazing numbers. They have been gathered from the great crowds of people who have come to see it.

Here is a correct account of the large sums of money which have been taken since the Exhibition was opened.—(See next page.)

| Thursday May 1 | Season Tickets | only admitted. |
|---------------------|----------------|----------------|
| Friday " 2 | 1l. | £560 0 0 |
| Saturday " 3 | 1l. | 482 0 0 |
| Monday " 5 | 5s. | 1,362 0 0 |
| Tuesday " 6 | 5s. | 1,458 0 0 |
| Wednesday " 7 | 5s. | 1,790 0 0 |
| Thursday " 8 | 5s. | 2,018 0 0 |
| Friday " 9 | 5s. | 1,824 10 0 |
| Saturday " 10 | 5s. | 1,843 15 0 |
| Monday " 12 | 5s. | 1,597 10 0 |
| Tuesday " 13 | 5s. | 2,220 10 0 |
| Wednesday " 14 | 5s. | 2,064 15 0 |
| Thursday " 15 | 5s. | 2,426 0 0 |
| Friday " 16 | 5s. | 2,556 10 0 |
| Saturday " 17 | 5s. | 2,472 5 0 |
| Monday " 19 | 5s. | 2,345 0 0 |
| Tuesday " 20 | 5s. | 3,360 15 0 |
| Wednesday " 21 | 5s. | 3,512 5 0 |
| Thursday " 22 | 5s. | 3,797 11 0 |
| Friday " 23 | 5s. | 4,095 10 0 |
| Saturday " 24 | 5s. | 5,078 0 0 |
| Monday " 26 | 1s. | 920 2 0 |
| Tuesday " 27 | 1s. | 1,347 17 0 |
| Wednesday " 28 | 1s. | 1,850 4 0 |
| Thursday " 29 | 1s. | 2,375 18 0 |
| Friday " 30 | 2s. 6d. } | 4,611 0 0 |
| Saturday " 31 | 5s. | |
| Monday June 2 | 1s. | 2,129 1 0 |
| Tuesday " 3 | 1s. | 2,415 2 0 |
| Wednesday " 4 | 1s. | 2,500 16 0 |
| Thursday " 5 | 1s. | 2,566 17 0 |
| Friday " 6 | 2s. 6d. | 2,558 11 0 |
| Saturday " 7 | 5s. | 1,506 10 0 |

For 'Season Tickets,' to June 7th 65,976 18 0

£137,097 13 0

Besides all this money, the subscriptions which you may remember, were collected by the Royal Commission, amounted to £64,344. The Commissioners also received £3,200 from Messrs Spicer, and Clowes, for the privilege of printing and selling the Catalogues; also, for the privilege of supplying the refreshments, £5,500 was paid. Suppose we add these accounts to the larger one.

| | | |
|----------|----|---|
| £137,597 | 13 | 0 |
| 64,344 | 0 | 0 |
| 3,200 | 0 | 0 |
| 5,500 | 0 | 0 |
| <hr/> | | |
| £210,741 | 13 | 0 |

H. What, papa, are the season tickets, for which so much money was paid?

P. A 'season ticket' is a ticket which will admit the owner to see the Exhibition on any day during the season in which it is open. They cost £3 3s. each, I may as well tell you, also, that only those people who possessed 'Season Tickets,' were admitted on the 1st of May. All who went there on the 2nd and 3rd May, paid £1; and all who went during the next three weeks, paid 6s. each for admission. On what day of the month would the three weeks after the 3rd May end?

H. Twenty-one days after, that would be the 24th May.

P. True; and, since the 24th May, the rule has been that all who go to the Exhibition on a Monday, Tuesday, Wednesday, or Thursday, shall pay 1s. each; those who go on a Friday, are to pay 2s. 6d. and those who go on a Saturday, must pay 5s. each.

Now, by this list of the monies paid, you can easily tell how many people have visited the Exhibition. How will you do so?

H. We will multiply the money received on the shilling days by twenty, because every pound admitted twenty people; for the number on the half-crown days, we will multiply the pounds by eight, because each pound paid for eight people; and the money received on the 6s. days, we will multiply by four, and so on. Then we will add up all the numbers.

P. You may do so to-morrow; and the exercise shall form your arithmetic lesson.

But this golden fruit, is not the best fruit of the Exhibition. Do you remember, what old *TIME* said of the first gathering of the nations—of the Crusades?

Rose. I, do, papa.

P. Now, when men write the History of Europe, and speak of the Crusades, they show that out of evil came good, that nations gained new ideas, they learned much of each other, and much *from* each other. Thus, they became more 'civilized.' —'Civilization!' that is a long word.

H. Yes, it is, rather.

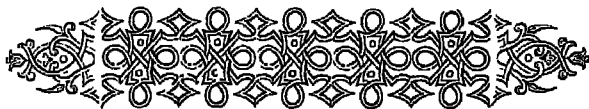
P. But suppose that you find out its meaning. And you will understand what, in future days men will say, when they write the History of Civilization. If from the gathering of men for *war*, there came forth new ideas, how many new and bright thoughts must be gained from this gathering for *Peace*. They are its best fruits, and are now being gathered to be scattered amongst 'all nations.' Ah! these fruits will last longer than the golden 'fruit.' They will reach the very corners of the earth, and will make refreshing gladness for weary spirits. So, the bright gold coins, and still brighter thoughts from the Great Exhibition, will show *how it brought forth fruit*—abundantly.

H. Papa, I think we are near the Palace. Look at the number of empty cabs; here they come! two—four—seven—ten; I think I could count a hundred in five minutes, and they are all coming *from* the Exhibition!

Rose. And the *omnibuses* which are coming from there. Look! they are all empty. And how slowly we are moving now! the horse cannot go on because of another cab in front.

H. Yes, I heard a policeman tell the driver to *keep in the line*.

P. Then we had better walk the rest of the way. You may pull the 'check string' now Henry, and we will get out.



Part the Second. WALKING THROUGH.

Chapter Seventh. THE TRANSEPT.



O CHANGE GIVEN. Read that, Rose!" said Henry. "I suppose that that is because it would take too much time, and we should have to wait. Keep close to me, I have taken hold of Papa's coat. Now we are inside!

Rose. Oh!

P. What do you say to it Henry?

Henry. Oh! (*Vide Frontispiece.*)

P. Well what do you think of it?

Henry. I've not begun to think, Papa. I am *looking*. What a large place it is! Is the roof really as high up as that?

P. I do not know what height you mean by 'that.' It is about as high as it seems to be!

Rose. But, papa, there do not seem to be many people. I cannot see a crowd.

P. There are I believe more than thirty thousand people

here, which number you know is three hundred hundred; but there is plenty of room for them,' because the building is so large. Come and see what a large place it is.

H. Don't you remember the description, Rose? "33,000,000 cubic feet?"

Rose. Ah, but then we only heard the number, it is so very different now that we *see* the place—wait! I feel rather 'nervous.'

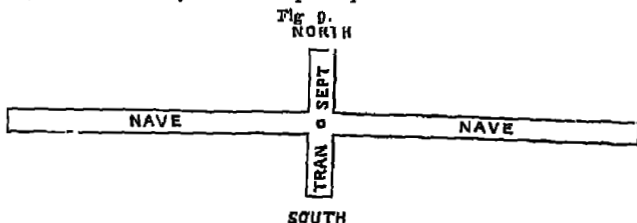
P. But you have not seen it yet. Let us walk a little further—to yonder glass fountain—then you will see the *nave*, which will give you some idea of the length of the building.

Now, Rose!—from this fountain, you can see one of the long aisles—how beautiful it is!

Rose. And how *very* long!

P. But that is only half the length of the building. That is the eastern side of the nave—turn round and look in the opposite direction. 'This aisle which is of equal length, is the western nave. You thus see what is meant by 1861 feet.

Before we begin our walk, you may look at this little drawing which will shew you the two principal aisles.



The side, at which we entered from the Knightsbridge Road, is the south side, This opposite end of the transept is of course—

II. The north side. So the TRANSEPT extends from South to North.

P. And the NAVE, Henry, extends you may see from east to west. The western half of the nave, contains the objects sent from different parts of *Britain*, and from her *colonies*. The eastern half of the *nave*, contains the objects sent from different parts of the *WORLD*—from *Foreign Countries*.

H. And who does the transept belong to Papa?

P. Its two sides are divided between the British Exhibitors and the Foreigners. On this, the western side are goods, principally from India, a colony of Great Britain. On the eastern side are goods from Tunis, Persia, and other Foreign parts.

H. Yes. There is the name PERSIA, hanging on that long piece of red cloth; and INDIA, is printed on the opposite side.

P. When the Royal Commissioners wanted to arrange the divisions of the building, they decided that the middle of this transept, should represent the middle of the world; and that the western side should represent England and her colonies, while the eastern side should represent the remainder of the world.

II. I understand the arrangement very well Papa. Do you know?

Rose. Which do you mean?

P. Why Rose, you have been looking at the fountain all the time. I don't think you have heard a word.

Rose. Is it not pretty? See how the water dances!

H. Beautiful! And look at the statue of the Queen, on horseback. The other statue is Prince Albert's, I suppose.

P. These statues are those made by Mr. Wyatt. 'The Illustrated London News,' says that they are not such good statues as Mr. Wyatt *can* make, and he should have kept them at home.

H. Well. I don't think so. I think that he was a *good* man to make statues of the Queen and the Prince. It shows that he thought more about them than of any one else.

Rose. Oh, but is it not all beautiful papa? I feel *so* glad! Look, Henry, at the fine broad old tree. How fresh the green leaves look! They make nice quiet shadows. And here are some foreign trees, nearer.

And *there*!—there is a very pretty fountain, making a round sheet of water, just the shape of the glass-case on our mantel-piece, and Rose! peep through those iron-gates?—there is some body selling cakes!

P. *Refreshments*, we call them Henry, that is 'the Refreshment department.' Let us begin our walk.

Rose. Oh wait one minute, papa, please! I—I see something. What is that great shawl, hanging up in the gallery?

P. That, Rose, is not a *shawl*. It is a large carpet. It was designed by a gentleman named Papworth; and it is 30 feet long and 20 feet broad. When the designer had made the pattern for the whole carpet, he divided it into about 150 squares. These square pieces of pattern, were then sent to about 150

different ladies; and each lady worked the pattern of her square in Berlin wool. As soon as the pieces were returned, they were all united, and formed the large carpet you see hanging up there.

R. Henry, I wonder how much the ladies were paid for their trouble!

P. Not anything.

H. Oh, I suppose then, they are to be paid when it is sold.

P. No they did not work for money, but for love. The carpet was made, as a present for the Queen. They made it because they *loved* the Queen. They felt it an honour to be able to please Her Majesty. Ladies will always work more for love than for money.

Rose. And so will little girls, papa. I do. But there are plenty more carpets hanging up. Look all the way down there, Henry! See, there is something covered with gold ornaments, how the sun-light sparkles on it; my eyes are so dazzled—there, I cannot see!

P. You are like the gentleman who passed me just now. I heard him declare that he could not see anything

H. Then, he was blind.

P. No; he meant that as soon as he began to look at one object, his attention was drawn to another; and that before he could look well at that, his eye saw something else more beautiful; so he had not seen anything—properly.

H. Well, I can see plenty of things. Look at the ships and boats, under the word INDIA. See what a number of

statues there are! There is a curious statue—the man has a sword! what is he going to do to that little boy? Look at the beautiful silk curtains (or shawls) in India! And, what *can* that thing be—over there!

P. You may well ask strange questions, Henry. Before we walk down the nave, you may just look at the parts, mentioned in my description. The large arches over your head, are the great transept ribs which I spoke of. You can see now the three iron columns, above one another, and the cross-pieces or 'girders.'

Rose. And you said papa, that you would tell us something about the floor.

P. Yes. Look at it. You observe the planks are not close together. There are large spaces between them, and through these spaces the dust falls.

H. Ah! So that no one can 'kick up a dust'—in this palace!

P. No—it is all kicked down. And these same spaces also serve to admit fresh air into the building: thus as I told you, the planks have been useful in four ways—as hoarding, flooring, dust-traps, and ventilators. Mr. Paxton, I believe, remarked that the fine machines he had prepared for sweeping the floors are not necessary, as the floors are kept clean by the long dresses of the ladies. Look at that lady in a blue silk gown, walking *across* the nave.

H. Well, you see what a beautiful place it is, to have such fine ladies for its crossing sweepers.

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Rose. And now you understand, Henry, why no one may 'kick up a dust' in the Palace of *Peace*. The ladies won't let them do it.

P. Come, Rose, I see you are not nervous now, we will walk down the long aisle, and take a general view.

Chapter Eighth.

THE 'LIONS' OF THE WESTERN NAVE.

WE shall notice only the most striking objects at first, the lions of the Exhibition as they are called.

II. That is to show that they are the *finest* I suppose.

P. We will first travel eastward. Here are

I. THE PORTRAITS OF HER MAJESTY AND THE PRINCE.

Rose. Ah! here is the *Queen*!

P. No, it is only Her Majesty's portrait—but it is a very pretty painting. The companion picture of THE PRINCE ALBERT is on the other side. Both portraits are painted on china. These portraits are exhibited by Her Majesty—but the next object is attracting more attention.

Rose. Do you mean, papa, this cage looking like our parrot's brass cage? I do not see anything in it.

P. Indeed, there is something inside, which, if it could be sold for the value set upon it, would pay for the whole Crystal Palace; and for twelve more Crystal Palaces besides. Here is

the inside' for you to look at. Three diamonds! The large middle one is called—the 'Koh-i-noor.'

II. THE KOH-I-NOOR DIAMOND.

Rose. Papa; you are joking. How can you squeeze so much value into such a little thing? How can it hold the worth of 896,000 lbs. of bright glass in that little space?

H. Besides the worth of the *Iron*, how much is a Crystal Palace worth?

P. About a hundred and fifty thousand pounds. Now multiply that by thirteen.

H. Answer. Nineteen hundred and fifty thousand pounds.

P. And the KOH-I-NOOR, is said to be worth TWENTY HUNDRED THOUSAND POUNDS, or £2,000,000, as we say. But such a value is not a *real* one; it is the value set on it by men—an *artificial* value we call it.

H. It is a very remarkable thing, papa; what makes it so valuable?

P. Five qualities which it possesses.

| | |
|------------------------|----------------------|
| 1st. Its brightness. | 4th. Its scarceness. |
| 2nd. Its hardness | 5th. Its size. |
| 3rd. Its transparency. | |

The *lustre* of a diamond is its chief beauty, the second quality the *hardness* renders it useful, for it is harder than any other substance. The hardness assists to preserve its beauty,—if it were soft it would more easily become tarnished. Its beauty is increased by its third quality *transparency*, and its *clearness* from

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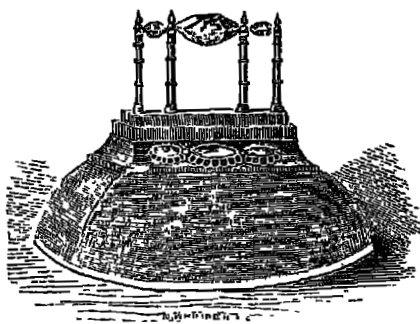
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colour. Its beauty and use, however, would not give it this great value. Suppose that diamonds were as plentiful as glass?

II. No. It is the fourth quality, *scarcity*, which gives it value.

P. True, and the fifth one increases it. A diamond's value grows with its size.

You have, I dare say, seen an ounce weight; a penny often weighs an ounce. If an ounce were divided into 150 parts, we should call each part a carat. And it is by these little weights that diamonds are measured. A diamond weighing 3 carats, is worth £72—weighing a 100 carats, it is worth £80,000.

Hard as the diamond is, it may be acted upon by fire. Diamonds have been burnt—burnt to ashes—or rather, to a black powder—called charcoal. Think of that beautiful diamond, being changed by fire into charcoal! It is composed of the same substance, called '*carbon*.'

Rose. But papa, how can it change so?—the particles of charcoal are *black*!

P. And so are the particles of many a transparent thing. The diamond is really only black particles of carbon, arranged in such a manner that the light can pass through them—and arranged *so close-together*, that the diamond is very hard. By burning it, the arrangement of its particles is altered, and thus it is transparent no longer.

II. Where did the Queen find it papa?

P. It was *given* to Her Majesty. I almost forget its history, but it would be too long for me to relate now. I, believe it

belonged to some Persian Monarch—and was taken from him by one of the GREAT MOGULS who ruled India. It was then stolen, or taken by force, from the great town of Delhi, by other Hindoos; and in the last war, between the British and the Sikhs, it was taken from *Ranjee Singh*, and presented to Her Majesty. You know, I suppose, that Koh-i-noor means 'Mountain of Light.' There are other diamonds in the Exhibition, which we will talk of one day.

H. Here papa, is a beautiful circular shaped thing made of whitish metal.

P. Yes, that is exhibited by the Prince of Wales. It is

III. PRINCE OF WALES'S SHIELD.

This shield was the gift of the King of Prussia, who was the Prince's godfather, when he was baptized. Look at the centre! Here is a cross, and a beautiful head of our Saviour in the middle.

Rose. And, who papa, are these four men? there is one at each end of the cross.

P. They represent the four Evangelists, Matthew, Mark, Luke, and John, who are supposed to be writing the gospels, or accounts of what they have seen and heard of our Saviour. We have not time to examine the shield now. You may observe the engravings of the twelve apostles, and the pictures to teach Faith, Hope and Charity; it is a beautiful shield. Let us pass on.

IV. SPANISH WINE JAR.

P. Here is a great Jar!

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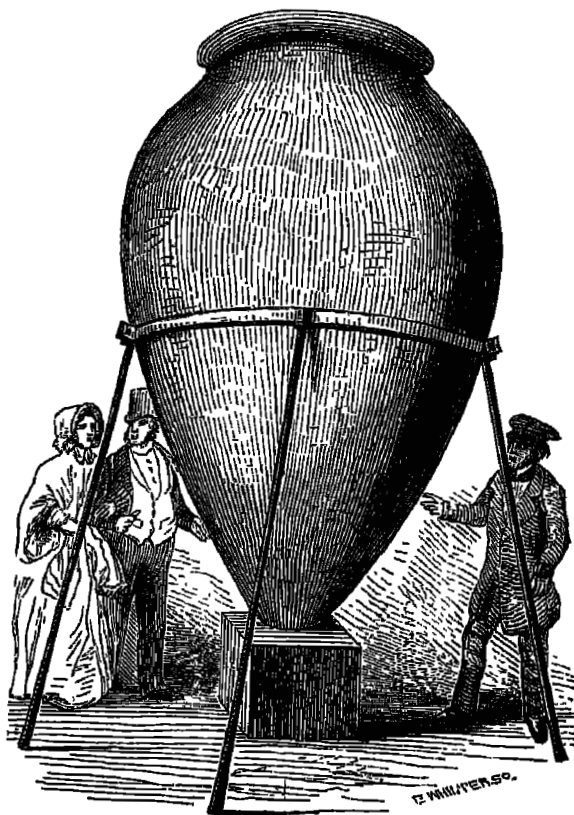
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SPANISH WINE VASE.

H. But you do not call this ugly thing one of the 'Lions,' papa?

P. Yes I do—because it *teaches* me something. It makes me think. This great jar is a wine-cooler, and is sent from Spain. That country being at the very south of Europe, and opposite to Africa, has a very *warm* climate. When the wine has been made it must be kept cool, therefore it is poured into jars like these, which are put down in the earth.

Rose. But what were you thinking about it, papa?

P. I was thinking that it might teach us a sad truth:—Riches may lead to poverty.

The Spaniards, with the gold they once procured from America, were the richest nation in Europe. They were so rich that many found they need not work to live—they became 'gentlemen' and 'grandees.' But too many, when they thus gained gold, lost the habit of industry.

H. Which is worth more.

P. Certainly. The people have never been very industrious since; and this jar reminded me of the fact. The wine-manufacture is perhaps the *principal* one in Spain. Living under a beautiful climate, if the people worked hard, and cultivated the soil, it would yield them great riches, but no, that would cost great labour! and the grapes grow there without trouble. Again, the processes of pressing the grapes, and fermenting their juice, are so simple, that the wine-manufacture is very easy. Another source of riches in Spain, is *tobacco*, which is also easily cultivated, and manufactured; but, the manufactures which require great industry, and attention, are not flourishing.



Their *merino* sheep yield a fine and peculiar wool but the greater part is exported as 'raw material.' The metals of Spain ought to yield much wealth. Long before America was discovered, the Romans used to speak of this country, and of the household articles made of silver. The Phœnicians when they visited Spain, are said to have left their bronze anchors here, and to have supplied their places with silver, loading their ships with it,—but now, very few mines in the country are worked. The great quicksilver mine is the most important.

Rose. What are the manufactures of Spain?

P. Not such as please me. In *Toledo*, the town from which, I believe, this jar was sent, the hardest and sharpest of sword-blades are made. The *Government* of the country carry on this manufacture, and that of tobacco, and gunpowder.

Think, Henry—wine, tobacco, gunpowder and swords! Men may one day learn to discard them all! The wine manufacture is no better than the other three, for wine may lead to drunkenness; and "drunkenness kills more than the sword."

Oh, when we talk of the *fruits* of this Exhibition, well may we be glad! Many a Spaniard may learn in this building, from the works of other nations, what *industry* is worth,—so, should there be another Exhibition in 1951, perhaps, Spain may be represented by far more noble things than this great wine-cooler!

Beautiful Spain! Thou ancient land of sunny clime, and fruitful soil! may thy people gather new thoughts from here, and may they learn how to shine forth once more, with higher, truer glories than those of the Moor, and the 'olden time'! Let us pass on again.

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Rose. Will you just come over here for one minute papa? Here is a *glass case* full of diamonds—all twinkling! They do twinkle so!

P. Ah those will show you more of the character of Spain. These are

V. THE QUEEN OF SPAIN'S JEWELS.

They are sent from France by a great jeweller there, who made them for the Queen of Spain three or four years ago. He went, I believe, to that country, and borrowed them, that they might be exhibited here. These jewels tell you that Spain, with all her poverty, loves the pomp of her former riches. All true Spaniards would I am sure rather have empty pockets, than know that the Queen of ancient Spain was not 'properly' decked with jewels.

Rose. Will you wait one minute papa please? Here is something, which I want you to see. We did not notice it.

II. Do you mean that ugly piece of ———. Ah, *what* is it?
P. That is—

VI. THE MASS OF ROCK CRYSTAL.

It is principally famous for its size, I believe. The other day I saw a 'Chinaman' wondering at this object. He had a catalogue in his hand, but as it was not printed in Chinese he could not use it. I therefore explained to him what Rock Crystal is.

Rose. Then tell us too, papa, please!

P. Very well. It is a *Hydrate of Silica*.

Rose. Oh, papa I could never learn such a long name as that—especially, in the Exhibition!

P. Then I may just say that rock-crystal—Look at it! What do you think it is like?

H. It is like a great transparent flint.

P. That is it—exactly. It consists of the hard substance which forms flint, and is called *Silica*; and of a transparent colourless substance called *water*. These are united so as to form the half-transparent rock-crystal which is therefore called ‘Hydrate of Silica.’ When I was talking to the Chinaman I taught him some Geography and History from this block.

H. Then please let us hear that also, papa.

P. I told him to look on his map of Europe for a range of mountains called the Alps; and to see how the people who live at the north of Europe must cross these Alps, to reach the South. I next told him to read in his history book of a man called Bonaparte. This great general once came to the Alps, and finding that those high mountains must be crossed, he caused a great road to be made through them, which we call the *Simplon*.

Rose. But what has that to do with the rock-crystal papa?

P. The *Simplon* is the place from which this large mass was procured. It belongs I believe, to the Duke of Devonshire. Read the paper on the pedestal, and see.

Rose. Look papa, where Henry is!

P. Yes. He is noticing

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THE KING STATUE.

VII. THE ZINC STATUE OF THE QUEEN.

P. I cannot say, Rose, that this is a very pleasing statue. What do you think of it?

Rose. It is so high up that I cannot see it very well. I think that the Queen looks like a —— I don't like to say what I think!

P. The figure may not be pleasing, Rose, but the statue is a very important work.

One of the mining companies in Paris (called the *Vielle Montagne*, Mining Company) formed this statue on purpose for the Exhibition. The whole statue is 21 feet high; and, although it is so large, it was begun and completed within the short space of three months.

It is cast in Zinc, a metal which, as you learned in your object lessons in Pleasant Pages, is well suited for statues.

H. Yes, I remember its qualities, papa. Zinc is *light* and *hard*, and *less fusible* than lead. It is also more brittle, and breaks with a sort of *grain*.

P. We shall, as we proceed find other statues in the nave, formed of Zinc.

H. That is a very large organ, papa. May we walk up to it?

P. Yes. This is

VIII. THE CELEBRATED FRENCH ORGAN.

Thus we have *two* fine works from France. The case you, may observe, is built in the 'Gothic' style. It is 30 feet high, and has many improvements which you cannot understand.

Some of the pipes are very long. One, the *c c c*, measures 16 feet.

Rose. I wish papa, that the gentleman who is sitting there would play—may I ask him?

P. No, You will hear the organ before we leave, I dare say, as this gentleman is here all day long.—Let us proceed.

Henry. Come here Rose, and look at this giant. I think it is *Goliath*.

Rose. Or perhaps, it is Alfred the Great.

P. It is an enormous statue, but it is not great enough for Alfred the Great. It is a representation of

IV. GODFREY DE BOUILLON.

Look at him Rose! He has a bold determined countenance. What a heavy looking war-horse he strides! What a strong arm he must have had to have reined in so powerful an animal! With what energy he is holding up the standard, and calling to his companions in arms, 'Ho, to the crusades!'

H. Was he a *crusader* papa?

P. Yes, he was one of the leaders of the second crusade. Here is a leader of the ancient gathering for war, come forward in the midst of the gathering for *peace*.

H. That is not right. Ho! GODFREY DE BOUILLON! Go home again! You are out of your place.

P. No. He is better here. His days of glory are not yet gone by, and never will be.

Henry. Why papa?





P. Because he not only represents war but *chivalry*. He declares, as he holds up his standard, "I will stand firm and will fight, for all that is good and right." That is '*chivalry*.'

Rose. Well, and he *deserves* 'glory' when he is so good as that, and is anxious that every one should have what is right.

P. So he does! But, although the glories of his chivalry will never pass away, they are being dimmed.

Henry. Why papa?

P. Look at him!—Say to him, "Why you are a mighty man? Where is your might?" And he will tell you that it is in his *right arm*. He will say that he is mighty because he has the strength of his horse, and the courage of a lion.

Rose. But he has a very determined *spirit* papa; that is a fine thing!

H. And a kind spirit too.

P. And, there you have the foundation of his glory! He will always have glory because he had these two things; but, now see why it is being dimmed. There are coming forth in the present day—and they are beginning to multiply—great **HEROES OF PEACE!**

Rose. Have they a determined spirit papa?

P. Yes, very; and if you ask one of these men of peace "where is your might?" he will not shew you his right arm; he'll tell you my might is not that of the brute! I believe in the greater power of the human *mind*, and in the still greater power of **LOVE**. Love, and reason! these are my strength; I have more faith in these than I have in my right arm!

H. Thank you papa. Hear now what I will say to Godfrey! Sir Godfrey! we will always call you a great man, for you were great in your time, but,—what shall I say papa?

P. Say that better days are now dawning; and in these modern days we will say 'mighty man,' not to him who ruleth a horse, or taketh a city, but to him *who ruleth his own spirit!* * Pass on to the next. This is a statue of

X. CAIN.

Cain with his innocent wife and children. Oh! it is a truly beautiful piece! How often have I looked with sad feelings on this poor man. *He* could not rule his own spirit; and he was *the first murderer*. Murdered his innocent brother, and brought deep misery down on his offspring. Look at him!

Rose. Ah, how he hides his face! I feel very sorry for him.

H. Papa! please come here! only look at this tall angel in armour! I never knew before, that angels wore armour.

P. They wear no armour but the armour of righteousness. These figures are the high archangel, St. Michael, and his enemy.

XI. ST. MICHAEL AND THE DRAGON.

In his hand the angel holds the sword of truth. This two-edged sword destroys evil, and no bad spirit can bear the wounds it makes. The old dragon, the father of sin, has fallen down before it.

* He that ruleth his spirit is better than he that taketh a city.

PROV. XVI. 32.



ST. MICHAEL AND THE DRAGON.



Rose. So he has Henry! look at his sharp finger-nails. He has lost his hold of the rock.

P. And how peaceful and firm the angel looks! with what majesty does he hold up his arm! he seems to say go! Let sin and sorrow fall, and leave this world for ever!

We have passed two beautiful little sculptures of a BOY AND A SERPENT, and his deliverer THE DOG, but these we will examine another day.

Here is a statue of MAZEPPA, another of the ancient hero ACHILLES, wounded in his heel.

Rose. Look at the crowd of people around that curtain!

P. Yes, they are examining a beautiful STAINED GLASS WINDOW, but we will leave it, and pass on to something which will interest you more.

H. Do you mean, papa, this great bronze horse, rearing up on his hind legs. Why look Rose! no wonder he starts! a lion or some strange animal has rushed upon him!

Rose. And, *who* is that sitting on the horse, holding up a spear? it looks like a woman.

P. Come round to the front of the statue, and you will see

XII. THE AMAZON.

H. Look Rose at that great fierce beast! how savagely he has seized upon the noble horse!

Rose. Ah, I can't look at that; I am looking at the woman. Now, *does* not she look steadily at the lion? see! she is not at all afraid.

Henry. But look at the horse's *eye*, and his nostril!

Rose. No, I would rather not ; oh no, no ! I cannot look at anything but this woman. How firmly she sits upon the horse. She is not afraid of falling, and she seems to be *thinking* of the lion as she looks at him.

P. Let me tell you something about that statue. Professor Kiss, who formed it, is I am sure, a good man ; and this fine statue of his, seems made to prove all we said of Godfrey de Bouillon ; and to teach the same lesson as that of St. Michael

Did I not tell you that *moral force* is greater than *physical force* ?

Rose. I don't understand those words, papa.

P. I mean that the power of the mind is greater than any power of body. What do you think will make that lion fear ?

Rose. The javelin that she is holding up to him.

P. No—not that. What can a javelin do against the strength of a *lion* ? It is that those eyes of the Amazon can speak, and the rude brute can read their language. They shew him a calm, fearless expression, saying "Lion ! my spirit is greater than thine. Be gone ! and do not show thy savageness to me."

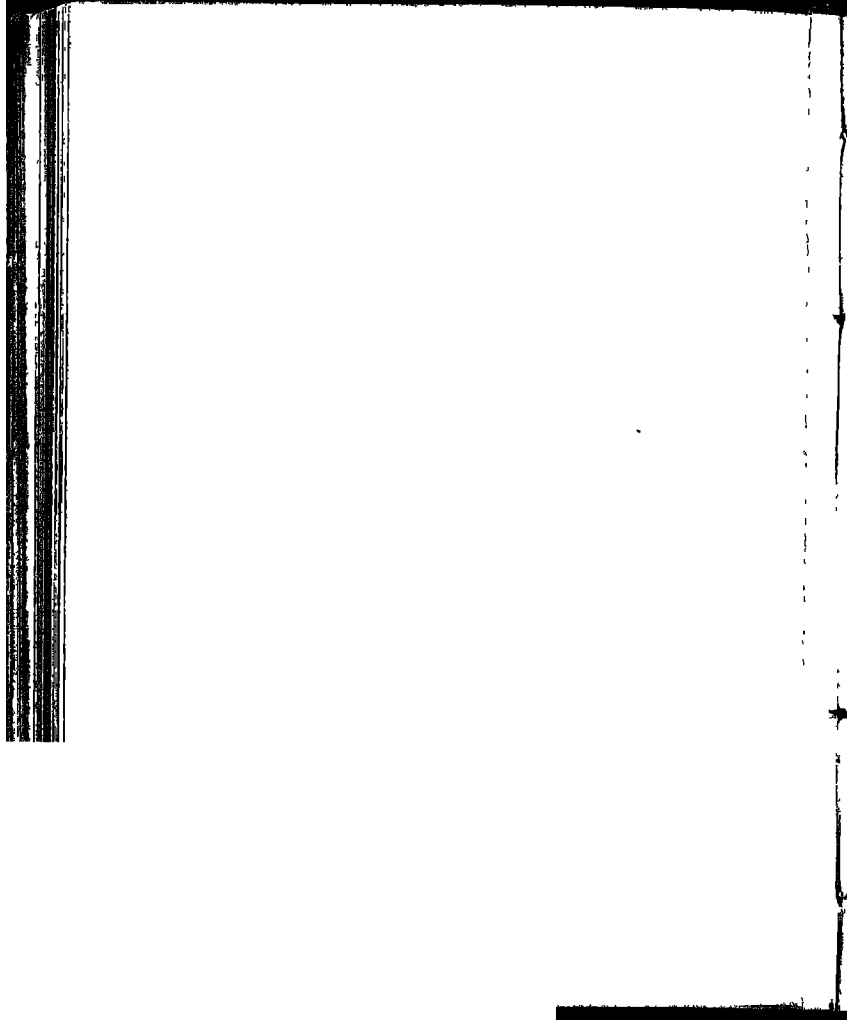
Rose. And do you think that he will mind ?

P. Yes. That very look of the Amazon will make him forget his own strength of body—her nobleness has so awed him that he can only feel his own baseness.

Henry. He has a rather skulking look Rose.

P. And yet a look of the fiercest savageness. Look at all three once more ! There is in the fierce wild-beast the lowest and basest kind of expression ;—in the tame animal, the com-





panion of man, there is a nobler countenance;—but in the woman, the highest created being, there is high dignity, which shews that she was made 'in God's image.'

Let us go on again—

H. What papa is meant by an *Amazon*?

P. The Amazons are a fabulous race of female warriors. It is said that in ancient times there was a great battle, in which nearly all the men of a certain city, who went out to fight, were slain. The women of the city therefore resolved to defend it, and taking up arms, were more successful than their husbands, for they defeated their enemies. They then determined to live without men in future and accordingly they put to death all who remained, and elected two queens.

Rose. And did they fight any more?

P. Unfortunately, history says they did. The women became so fond of fighting, that while one queen governed at home, the other was always out on the battle field. It is said that they founded the cities of Ephesus, and Smyrna, in Asia Minor. They themselves lived on the borders of the Caspian Sea. There is great uncertainty in all that is recorded of them. Some do not believe that such a race of women ever existed. It is said that they were also found in Africa; and in the present day, I believe, one of the black kings of Africa, the king of Dahomey, has an army of female warriors.

H. But did the Amazons ride on horseback, papa?

P. Yes, it is said that they were the first who fought on horses; but, the African Amazons rode on horseback!

Rose. Here is an enormous lion papa!—

P. This statue is

XIII. THE BAVARIAN LION.

An account of which I read to you from the newspapers. It is a striking object, not only as an imitation of nature, but because of its size. It is a wonderful specimen of metal casting. What a mass of metal it is! and yet, how perfect is each small part! It stands now just as it was taken from the mould; no file or other tool has touched it since it was cast. The city of MUNICH in Bavaria, from which it was sent, is very famous for casting bells and statues—

H. Look, Rose, at the two horses!

P. We will not examine them to day—there are several other interesting objects—statues of Adam and Eve—a model of the Falls of Niagara—a block of Zinc, weighing 164,000lbs, troy. Here is something more interesting than any---this is a statue of

XIV. THE GREEK SLAVE.

It tells a dreadful tale, for you to remember. We often hear of the slave-trade, but few of us feel enough horror and shame at so wicked a business. How would you like your mamma to be taken away, and to be chained, and thus held up for sale?

Rose. Oh, that would be a horrible thing, papa!

P. Not more horrible than the case of this young Greek. The cruel Turks, in former times, conquered Greece; and the female prisoners, it is said, were taken to the bazaar in Constantinople for sale. See with what scorn, and yet with what shame and sorrow she looks on the men who wish to purchase her!

You may look very long at this statue and think of it very often; and learn from it to feel ashamed, and ever lift up your voice against such wicked traffic as the slave-trade.

We will not return through the nave, but we will go back to the transept by the north gallery.

Chapter Ninety.

THE NORTH GALLERY.

PAPA. We must not stop to day, to examine the articles in this gallery. We will merely walk through it. Here, in the Austrian department are some curious specimens of pictures.

Rose. How are they made papa? The trees are raised above the paper, and seem like real trees.

P. That is the question I asked myself, when I first saw them. But in examining them very closely, I found that they consisted of *hair*.

II. What a crowd there is round these glass cases, papa!

P. Yes—we are passing through BELGIUM.

In these cases are three wax figures of the Pope, Archbishop Fenelon, and another. Belgium is a country which has long been famous for its lace. Look at the beautiful vestments of the Pope! I should think that you have never before seen anything so delicately or so beautifully worked.

Rose. But papa, will you read this paper—it says that one person worked on this piece of lace for *five* years.

Henry. Come here *Rose*! just round the corner, there is a large wax figure of a lady—covered with lace.

P. Yes we will go and look at it. The lace on this figure surpasses that on the pope, I think.

Rose. The Lady looks as though she were covered with dew drops.

P. If you come forward a little nearer to the transept, you will see something particularly suited to your taste, *Rose*.

Rose. I see what you mean, papa. Here *Henry*, is a case full of *wax dolls*. Oh papa, I should like to stop here for an hour, I never saw such a number of dolls together before—they are just like a public meeting.

H. And look at that dear little black doll, *Rose*. The word 'AFRICA,' is written under it.

P. Yes. You may observe that there is one doll from each large division of the globe—one from Europe; another from Africa; and another from America; each doll well represents the character of the race it belongs to. Here is also a small case of *rag dolls*.

Rose. They are very beautiful too, papa, they look like wax, exactly. Oh, papa, we can never examine all the beautiful things in this building!

P. Do not say 'never,' *Rose*. You would certainly have to visit the Exhibition a great many times—more than a hundred, perhaps. You may now come with me to examine some cases full of wax flowers.

Here they are! but I cannot let you look at them very long,

you would stand round them all the day, and say "beautiful," "beautiful," until you could not say it any longer.

Rose. So they are beautiful, papa; lovely! *delicious!*

P. Do not use such a word as that *Rose*---'delicious' is not used to express any qualities which please the *eye*.

H. No. We say---'delicious taste.'

P. So if you want to express the feelings you have in looking at the Exhibition, you had better keep to the words 'wonderful' 'beautiful,' 'most beautiful!'—'magnificent,' 'splendid,' 'most magnificent,' 'most extraordinary'—'astonishing'—and so on.

II. Well, I should like to make some *new* words; I think that, the things must be tired of hearing those old words said to them so often.

P. True; perhaps they have been uttered some millions of times, they are dropping from the lips of tens of thousands of people all day long.

Rose. Well, papa.—I must say 'beautiful' again, here is a *beautiful* camelia, I will say 'a *magnificent* one,' because it is so large.

P. The truth is, *Rose*, it is not a camelia at all. It is a new *water lily* of gigantic size, and is truly one of the 'lions' of the Exhibition. You will, I think, say so when you hear its history. It is called

XV. THE VICTORIA REGIA.

You may examine it. Notice its immense leaves, how broad, smooth, and flat they are! The *Victoria-Regia* has become

celebrated not only because of its size, but because it may almost be said to be the *parent* of the Exhibition.

H. How can that be, papa, will you please to tell us ?

P. Yes, I have in my pocket a copy of *HOUSEHOLD WORDS*, in which there is an account of this lily. Let us go a little further to yonder red seats, in the corner of the gallery, we can then look down into the transept.

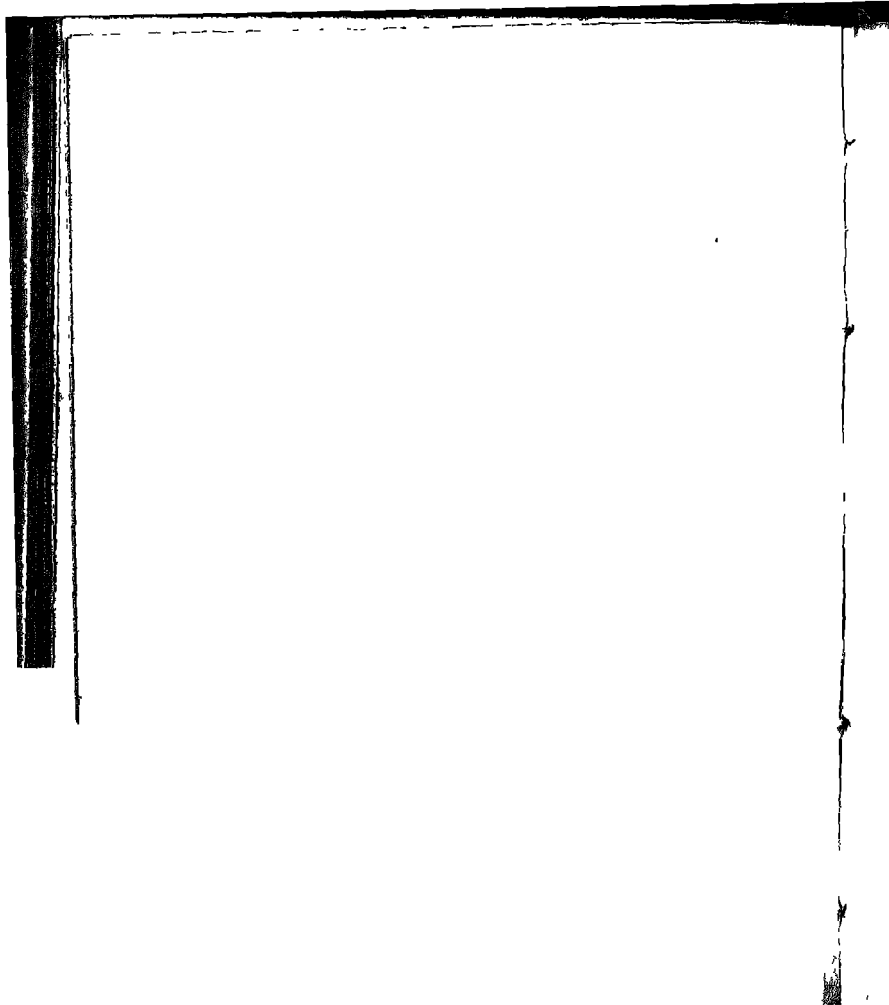
Rose. So we can, Henry; and we have come all the way back again to our friend the glass fountain.

P. Now, while you sit here and rest, you shall hear a few words concerning the Victoria-Regia :—

“ On New Year's Day in the year 1837, a traveller was proceeding, in a native boat, up the river Berbice in Demerara, when, on arriving at a point where the river expanded, his attention was attracted by an extraordinary object. He caused his crew to paddle quickly towards it. The nearer he approached, the higher his curiosity was raised. Though an accomplished botanist, and especially familiar with the ‘*Flora*’ of South America, he had never seen anything like it before. It was a Titanic water-plant, in size and shape unlike any other known plant.

“ ‘ I felt as a botanist,’ says Sir Robert Schomburgh ‘ and felt myself rewarded ! All calamities were forgotten. A gigantic leaf, from five to six feet in diameter, salver-shaped, with a broad rim, of a light-green above, and a vivid crimson below, rested upon the water ! Quite in character with the wonderful leaf was the luxuriant flower, consisting of an immense number of petals, passing in alternate tints from pure white to rose and pink’ [and, in some instances, measuring





fifteen inches across]. 'The smooth water was covered with blossoms; and, as I rowed from one to the other, I always observed something new to admire.'

"But, Sir Robert Schomburgh, not content with mere flowers, dug up whole plants; and sent first them, and, afterwards seeds, to England, where the magnificent lily was named the "Victoria Regia." After some unsuccessful attempts, the task of forcing it to blossom in an artificial climate, was confided to Mr. Paxton. When the Victoria Regia was to be flowered, Mr. Paxton determined to imitate Nature and make the flower fancy itself back again in the broad waters and under the burning heats of British Guiana. He deceived the roots by imbedding them in a hillock of burned loam and peat; he deluded the great lubberly leaves by letting them float in a tank, to which he communicated, by means of a little wheel, the gentle ripple of their own tranquil river; and he coaxed the flower into bloom by manufacturing a Berbician climate in a tiny South America, under a glass case,

"With that glass case our history properly commences."

Mr. Dickens then goes on to say that, under this glass case, the lily grew rapidly. So successful was the plan of its cultivation, that in little more than a month it out-grew its home, and Mr. Paxton was obliged to set to work, and make a very large green-house for it. As this building was for a most persevering and assiduous plant, which grew at the rate of six hundred and forty seven square inches per day, Mr. Paxton found it necessary that the new conservatory should be sixty feet long, and forty broad.

This pretty building, called the VICTORIA REGIA HOUSE, saw built of iron and glass, and it was from this, that Mr. Paxton derived the idea of the Crystal Palace.

H. Which we may call 'The ALBERT HOUSE,'

Rose. So that the Victoria Regia might, almost, be called the Parent of the Palace. If there had been no Victoria Regia there would have been no "Victoria Regia-house;" and if there had been no Victoria Regia-house, there would not perhaps have been a Crystal Palace.

H. No, because even if Mr. Paxton had thought of it, he would not have liked to *make* such a large building of iron and glass; if he had never made one before, he would have been afraid that it might not answer.

Rose. And, so would every one else have been. But, papa, do look at the fountain again! see, there is the sun shining upon the water as it rises and falls. Really, there are some little mugs near it, and some of the people are *drinking* the water—I feel very thirsty.

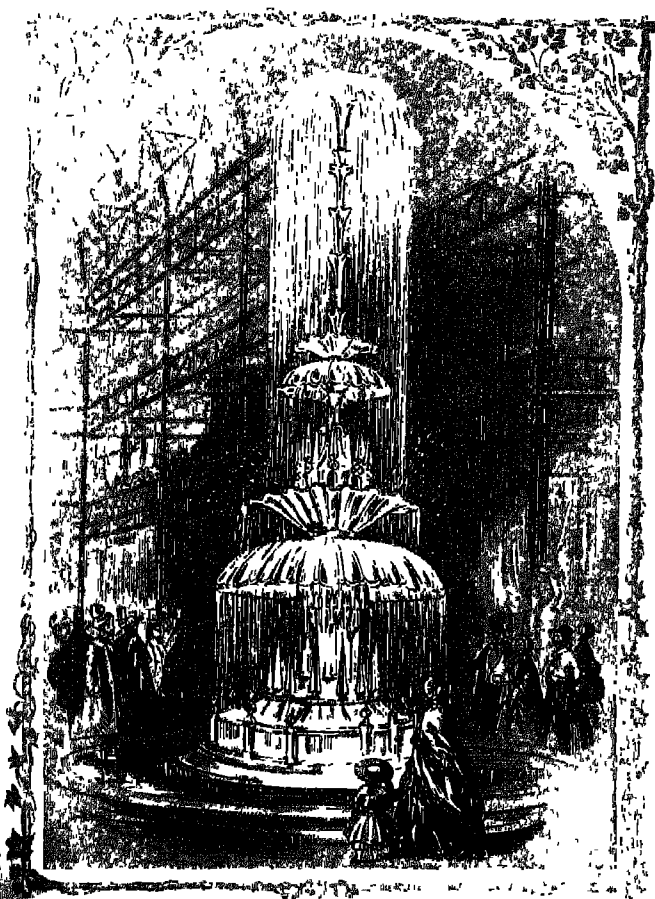
P. Then, you shall soon go to the refreshment room. I will only, therefore, add one or two words on

XVI. THE CRYSTAL FOUNTAIN.

P. I need not tell you that the fountain is very beautiful.

H. No we can see it.

P. And it is an object rather to be seen, than to be described, if you wish to gain an idea of its beauties. It has been called 'Crystal' because of its transparency. I do not think that by



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any words we could give an exact idea of its elegant shape. It contains altogether about 40 ton of flint-glass, and is 27 feet high. Let us go down stairs and examine it more closely.

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Now that we are nearer, can you see the water as it rises upward through the tubes ?

H. I cannot, papa.


P. That is because the tube inside the glass, through which the water flows upward, is *silvered*. The glass pillar is also so cut outside, and arranged, that this tube cannot be seen. The whole fountain has been made by *Messrs. Osler* of Birmingham, who have now become very famous as glass manufacturers. Let us now go to the north of the transept—beyond the iron gates—

Rose. Where the *refreshments* are.

* * * * *

Chapter Cxth.

THE WESTERN NAVE.

AVING now rested, and refreshed ourselves, let us look at the 'Lions' in the western nave.

II. I call that high framework, with so many beautiful silks on it, a 'lion.'

P. So it is. It is called

XVII. THE SILK TROPHY.

Do you know where Spitalfields is ?

H. Yes, it is near Bishopgate Street.

P. It is the principal place in London for the silk manufacture. The other silk towns in England are, Macclesfield, Derby, Coventry, and Manchester. This trophy is arranged in three 'tiers'—and in the lower tier you may observe large mirrors.

Rose. Yes, and I have been observing *myself* in one.

H. But, I observe the *colours* the most, papa. What a beautiful red that is, and what a rich green! The crimson,—the blue,—the brown figured silk—the bright golden coloured silk, all these are very beautiful. Who sent it to the Exhibition, papa?

P. It was sent from Spitalfields by *Messrs. Keith and Co.* It must have cost them very much money, for all this silk was sent from their house alone.

Rose. Look, Papa, at these fancy silks with the pretty patterns upon them.

P. Yes, these may teach you what men can do when they try. The French people have more imagination than the English—and they therefore imagine (or design) patterns for silks, &c., which are much more elegant than ours. So, we find that the English people have been more famous for *pluin*, than for fancy silks; and, instead of trying to find English artists to make silk-patterns, they have used patterns from France.

II. I should think, papa, that if the English would only *study* how to make patterns, they might design some as good as the French ones!

P. Yes, and the Exhibition has taught them this. The men of Spitalfields, when they heard of the Exhibition, were at first afraid to enter into 'competition' with the French. However, these silks which Messrs. Keith exhibit, prove that the English manufacturers would in time (if they *studied* as you say) become quite as good designers as the French.

H. And perhaps they might have been so before, if they had tried. But, if the English and French compete with one another, that will be *rivalry*. Then they will become enemies!

P. No, that need not be. By such rivalry men may teach each other, and become better *friends*. When men become very busy with such rivalry as this, they will not have time for the dreadful rivalry of war.

H. And the *unprofitable* rivalry too!—because the more the people gain by peaceful rivalry, the more they will see what they *lose* by war.

P. Let us go to the next 'lion.' I might as well tell you, by the way, that the manufactures in Spitalfields were begun by French people, 165 years ago. France, you know, is a Roman Catholic country, but there is a town in France called NANTES which was inhabited by Protestants. The Roman Catholic priests were so angry with those people for being Protestants, that they would have killed them, if they had dared. But thus they could not do, as a law (or *edict* as it was called) had been made to protect them. In the course of time, however, there came to the throne a king called LOUIS XIV. This king declared that he liked 'uniformity' all through his kingdom; and

that all his people *should* be of the same religion; and that all the Protestants must become Catholics. So, he was easily persuaded by the priests to destroy the edict which protected the Protestants, or to *revoke* it as we say. You may read in the History of France of "THE REVOCATION OF THE EDICT OF NANTES."

Rose. What happened next, papa?

P. Next happened most horrible deeds. When it was found that the people of Nantes *would not* become Catholics, their town was attacked by the people, and the agents of the government. It is supposed that about 25,000 people were either shot, drowned, or died in prison. Thousands of citizens, however, escaped,—being some of the most skilful and industrious manufacturers of France—some fled to Switzerland, others to Germany, and Holland; and others to England, where they settled, and established the manufactures which we now find in Spitalfields.

Rose. Was this the beginning of the silk manufacture in England?

P. Almost. The manufacture was of very little importance before then—you see what it is now.

H. Are you going to stop at this place, papa?

P. Yes, what do you say to this object?

H. That it is a great ugly pile of all manner of things.

P. It may not appear so beautiful as some other objects, but is very interesting. It contains numerous useful materials. Have you never heard of Canada's ancient forests? of the fine patriarchal trees, which have existed for thousands of years?

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They are said to have lived before the Deluge. This pile represents the

XVIII. CANADIAN, AND VAN DIEMAN'S LAND TIMBER.

Around it, you see specimens of many useful and ornamental woods, which render the colonies of Canada and Van Dieman's Land so very valuable to England. Here is a fine piece of wood—it is a slab of Canadian *black walnut*. It is as hard, and can be brought to as fine a polish as the French or Italian Walnut; and it has, I think, a more beautiful grain. The tree from which this was cut, yielded, I believe, 27,000 feet of timber.

Rose. But how many different sorts of wood there are! I should like to count them.

P. I would rather that you should *understand* them. This pile of woods might afford you many a day's study—you shall hear more of them when we begin our 'Object Lessons.'—Let us go round and look at something which is leaning against the back of it.

H. This looks like a jaw.

P. It is the jaw-bone of a *whale*. Look at the number of teeth it has. Its molars (grinding teeth) have a curiously flattened surface.

Rose. Yes—they look just like pieces of a tree, which have been sawn off straight. I have been counting the teeth—there are twenty-three on each side; but I thought papa, that whales had no teeth, I have read in a Natural History book, that whales have *whalebone* in their mouths, instead of teeth.

P. Those are the whalebone whales, found in icy Greenland; but the whale from which this jaw was taken, lives in the South Seas. The south sea whales have teeth—and they yield a very valuable substance, called SPERMACETI.

H. And, if you read this paper which is hanging to the jaw, Rose, you will see that it says, "THE JAW OF A SPERM-WHALE."

Rose. Yes, I will read the rest. "*This whale yielded 10 tons of oil, or 2,520 gallons, valued at £850:—it was captured by the PRINCE REGENT whaler, on — : but where is papa? There he is! He has gone away, and Henry too,—You are peeping into a little box, papa!*"

P. I can see a great number of 'boxes' inside this one. It is a model of the celebrated OPERA HOUSE, called 'Her Majesty's Theatre,' it is here that Jenny Lind used to sing—and here, that the wonderful singers from Italy, and France, still astonish the English people.

H. Here is a very fine looking-glass papa!

P. Yes, we cannot stop to examine many more objects to day. There is, just beyond the looking-glass, the statue of one of England's most celebrated Queens. She lived in the age of chivalry and war. While her husband, Edward the Third, was in France, she met David the king of Scotland at Neville's-cross, near Durham, and defeated him. He had come to England, thinking that, as the king was away, he could easily conquer a woman,—but he was mistaken. He was taken prisoner, at nearly the same time when the king of France was brought in captivity to England.

I like this Queen, however, not only for her dauntless spirit, but for her love of *mercy*. You have, I dare say, read of the six citizens of Calais, who, when the city was surrendered to Edward after a siege, were to be hung.

Rose. Yea, papa, and she saved their lives. She asked her husband, Edward III., to spare them. What was the Queen's name?

P. Her name was Queen Philippa. Her monument in Westminster Abbey had decayed, and this is a restoration of it. It is executed in English alabaster.

II. Then, as it is a nice monument, we will put it amongst the 'lions.'

XIX. MONUMENT OF PHILIPPA, QUEEN OF EDWARD III.

P. Here are many more nice objects: several GOTHIC ORNAMENTS, a beautiful FOUNTAIN, and so forth. But—

II. Here is some pretty work, papa. I think that it is CARVING work.

P. Yes, this is worth remembering. It is a specimen of

XX. MACHINE CARVING.

P. This may well be called a 'trophy,' as, I see, it is named in the Catalogue.

II. What does that mean, papa?

P. A *trophy* is generally understood as a sign of victory. Many of the objects are I find called 'trophies,'—they speak certainly of peaceful victories. A French writer (Jules Janin)

speaks of certain 'warriors of industry' whom he heard talking over their victories, when on his passage to England—I will read to you—

As the conversation proceeded I inwardly admired the zeal and ardour of these workmen artists. There were seated about that table *dyers*, who explained to us, with the enthusiasm of a warrior at Marengo or Austerlitz, their recent conquests over indigo, their battles, their triumphs, their defeats, in their conflict with the purple of the East or the blue of Prussia.

There were cotton and flax spinners, fanatics in their craft, who detailed to us, with all the forms of an epic, the transformations of cotton and wool; this man excelled in giving form to the tissue of the other; that man, with the steel of his neighbour, produced inimitable neatness and delicacy; and all together, on the eve of the great struggle about to commence, were seized with trembling and emotion.

In this passage of the French writer, Henry, is one of the ideas which you and all boys will do well to learn. Here is an idea which is being spoken, not only by writers of France, but by men of Germany, of Austria, of Belgium, and even of Russia.

H. What is the idea papa?

P. I will tell it to you; and will teach it to you, over and over again, from the objects in this Exhibition. You heard of the victory which belongs to 'mighty men'—the victory over one's own *spirit*. Now, even the victories of which those dyers talked, the victories in useful arts, are better than those of war. The steam-engine is a victory. It is a victory of man's mind and

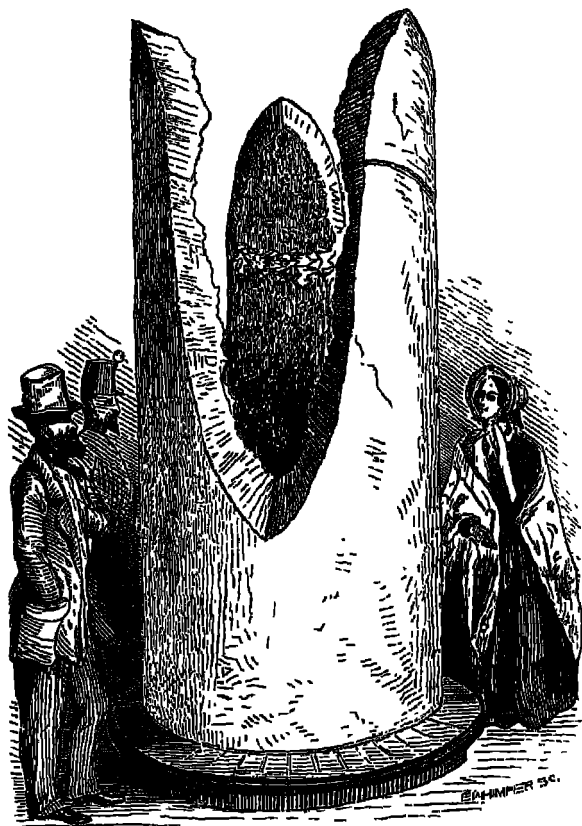
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skill over the elements, making them his servants. What victories there were to be gained before that 'silk trophy' could be produced! Even in a few inches of cotton, there are tales of conquests requiring more skill than Napoleon's greatest battle. Such skilful victories cost no tears—they are for the good of man!

Rose. And why, papa, do they call this carving a *trophy*?

P. Not only because of its beauty. You would if you knew the man who made the carving, have said, "What efforts you must have made to carve such beautiful birds, flowers, and leaves! How carefully you must have cut such delicate tracery,—how did you cut so deeply underneath each object?"

H. I should like to know how he did it.

P. But these carvings show greater skill than if they had been the work of man's hand. The man who made them did not carve them, directly, of himself, but he *made certain machines do his work for him*. Think what care must have been required, to make machines do work like this! What a true trophy it is—carving by machine!

Rose. Here papa, is another curious object,—it looks like rock-crystal.

P. You may put your tongue to it, and taste it.

H. I will, papa. Ah, the taste is very sharp! It tastes like *Alum*.

P. It is Alum. Let us talk of

XX. THE MASS OF CRYSTALLIZED ALUM.

Rose. Are you going to tell us how it is made, papa?

P. Yes, if you like—if you can understand. It is composed of 'Sulphate of Alumina,' united with 'Sulphate of Potash.'

H. I think that that will be very hard to understand, papa, will it not?

P. Not *very*—it is possible to understand almost anything, if you pay attention. We will take a little bit at a time, and you will see—1st. *Sulphate of Alumina*. Alumina consists of a white shining metal called Aluminum, united with the gas Oxygen, forming a rust or oxide.

Rose. So Alumina is Oxide of Aluminum—'rust' we may call it.

H. And we read in 'Pleasant Pages,' that Alumina is common clay or Argil.

P. Well, Sulphate of Alumina is Alumina or common clay mixed with Sulphuric Acid. There is a certain clay which is obtained near Whitby, in Yorkshire, called Alum-clay, or Alum Slate, which contains Sulphate of Alumina mixed with various impurities. If you go there you will find a great stratum of this clay.

H. A stratum, I know, means a *slice* of earth. How large is this slice of Alum-clay?

P. It is a very good sized slice—for it is about 28 miles long, and extends 18 miles north of Whitby. It is a very thick slice also; it goes down very deep in the earth, and rises up to a great height—there are cliffs of alum-clay 100 feet high, and more—even as high as 750 feet, and all this stratum contains 'Sulphate of Alumina' for the English people to make their alum with:

H. How do they get out the 'Sulphate of Alumina?' Do they pick out little bits with their fingers?

P. No. That would be impossible—its very minute particles could not be distinguished from the other substances in the 'Alum-clay.' No *heat* is necessary to separate them. When alum-clay is put on a fire, the heat causes all its particles to separate, and arrange themselves differently.

Rose. Ah, I have often heard of the particles being separated by heat; and I suppose that, when the Alum-clay is heated, all the particles of 'Sulphate of Alumina,' and all other particles which are alike, arrange themselves together—in classes as we might say.

P. Yes. Now, if you understand that clearly, you may at once see how this mass of alum was made.

To form a piece of alum of such a weight, the men of Whitby require about 130 times as much 'Alum-clay.' So they set to work—they make a large flat bed of brush-wood and small coal, for a fire, and pile pieces of the Alum-clay upon it. The fire is lit, and the whole mass burns slowly—sometimes the men wish to make a great quantity of alum—so they make an enormous burning mass of fire and clay—Two Hundred *feet* square! And this great mass they pile up higher and higher, until it is 100 feet high.

Rose. Why, that is higher than, yonder transept, papa!

P. True. Try and think what a vast heap it must be! It continues to burn for months.

By this fierce process, the particles of '*Sulphate of Alumina*'

are separated from the mass. They are next dissolved in water; and whilst thus dissolved, Sulphate of Potash is thrown into the water, and it is all stirred up together. Thus, the alum is made. 'Sulphate of Alumina,' Sulphate of Potash, and water, mixed together. Only, it is then in a *liquid state*,—how do you think it became solid again?

H. Just as salt does. If you throw a lump of salt into a glass of water, and dissolve it, you can get all the salt out of the glass again. The water will evaporate, and leave the salt at the bottom. Is that the way, papa?

P. Yes, the water in which the alum is dissolved evaporates and the alum, in drying, forms the *crystals* you now see. Both WHITBY and GLASGOW are famous for their alum.

Rose. I wonder what is the *use* of alum.

P. It is used as a medicine, and in various arts. In dyeing it is also useful to *fix*, or *bite in*, the colours used.

Rose. So, that they may not wash out.

P. And, therefore, the dyers call it a *mordant*—a word derived from the Latin, *mordere* to bite. This use in dyeing is its principal use.

H. Before we leave the alum, papa, will you come and look at these crystals? Here are some beautiful *red* ones. The red is very bright.

Rose. And here is one quite *yellow*. Here are some of a bright green colour, and there is a beautiful blue one a little way off.

P. Yes, most of these are formed by combining an acid

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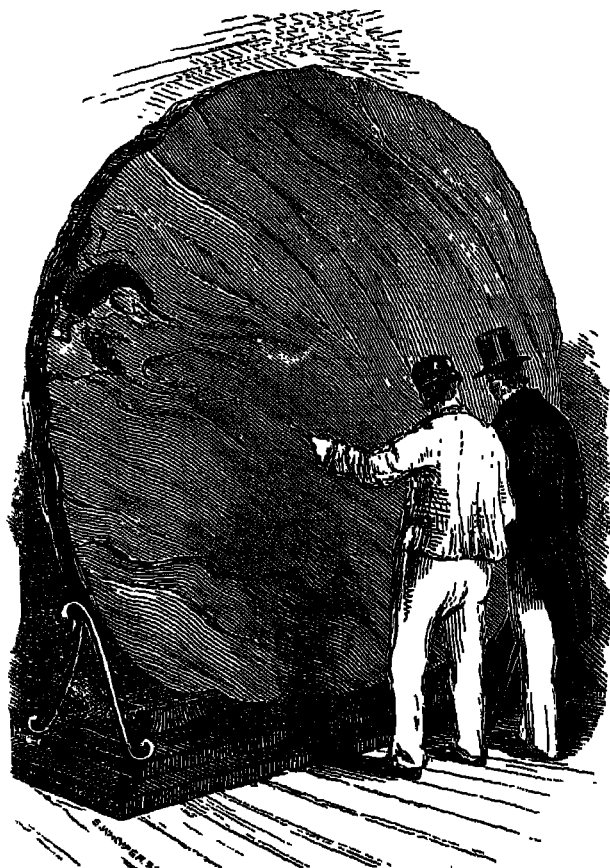
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with Potash, or some metal. You shall know more about them soon. Let us look at this large slab of mahogany.

XXII. SLAB OF HONDURAS MAHOGANY.

This is brought from HONDURAS, a place situated in the land between North and South America—*Central America* it is called. This slab does not interest many of the visitors,—but one day I noticed several men passing down the aisle, when one who wore a flannel jacket, stopped, and cried out to his companion. ‘Here! *this* is the thing for us!’ and they all clustered around it as busy as bees, while one took a rule out of his pocket and measured it. Even when the others had passed on, he stopped to talk about it to a gentleman who was with him.

H. How large is it, papa?

P. I have forgotten its dimensions, and I have not a rule with me; we will measure it the next time we come. The largest log of mahogany I ever heard of, measured 57 inches across, and 64 inches from top to bottom. When we measure the one before us, we will see whether it is as large, or larger.

Rose. What fine looking trees the mahogany trees must be! for their great trunks to be as broad as this slab, all the way up; it would take me some time to walk round such a tree.

P. There are higher trees than the mahogany tree, but few have a nobler appearance. It grows for two centuries, and is then an imposing sight, not only from its gigantic trunk, but from its massive branches, and its rich green shining leaves. Its thick branches and leaves extend over such a surface, that the proudest old English oak is insignificant compared with it.

Ross. Ah, I suppose that Honduras is a hot country, for you once told us that animals and vegetables of warm climates are larger than those of cold countries.

P. Yes; and because of the heat of the climate, the task of carrying away the heavy logs of mahogany is generally performed by *night*. An account of a search for mahogany trees would make an interesting tale for you; but a finer scene might be drawn of the trucking of mahogany, by night. You would hear of the men cutting roads through the woods for the purpose; of the hard-working oxen dragging their heavy load over the fresh cut brambles; of the drivers leading them, and showing the way with torches made of pine-wood, until the morning light; then, if they have reached the river side, the water finishes their labours for them, for the mahogany logs are tied together in rafts and *floated* along.

Let us examine some other object.

H. But will you tell me, papa, where mahogany was first used in England?

P. It was very scarce in this country, about the beginning of this century; and was scarcely seen, except in the houses of the rich, but it was first *used* in England, about 130 years ago—in the year 1724. There is a tale of a clergyman of London, whose brother was a captain; this captain, when at the West Indies, sent home to his brother some mahogany wood.

The clergyman happened at the time to be building himself a house; and accordingly he asked one of the carpenters to use up this new wood. The carpenter, however, found that it blunted

the edges of his tools, and that none of them were hard enough for the purpose. So, the wood was laid aside as *too hard*, until the clergyman's lady required a candle-box, and then a piece of mahogany was tried once more. The making of that candle-box cost much trouble, but it was the beginning of the mahogany trade—the box was seen and admired. The clergyman caused an article of furniture to be made of the wood, and polished. This was still more admired,—then the rage for mahogany began, and has continued ever since.

Rose. Yes. And men are very careful with it—they use it in little thin slices, called *veneers*.

P. I see an object, not far off, which will interest you.

H. Do you mean that tall iron thing?

P. Yes, here it is, you may get underneath it. This is

XXIII. THE IRON DOME FROM COLE-BROOK DALE.

Colebrook Dale is in Shropshire. It is a beautiful valley, with the river Severn flowing through it; and is, perhaps, the principal place in England for large iron-castings.

Rose. Is all this ornamental iron-work *cast*, papa?

P. Yes, just as fenders and stoves are cast; only it is such a very large casting. Have you noticed this large figure in the middle? This man with his arrows and bow? How bold, and beautiful is the position of his body!

Rose. And, look up, papa! I was wondering where his arrow was. You see that there is a great eagle at the top of the dome, and the man has shot it. Here, too, is a nice easy-chair;

how nicely it rocks backwards and forwards! I suppose it is put here that people may enjoy themselves under the dome. You would like to sit on this, Henry!

P. No doubt, but we will leave the Eagle-slayer, and the dome, and look at the next object. Here is a very striking

XXIV. SIGNAL FOR THE TOP OF A LIGHTHOUSE.

You have seen a *prism*?

H. Yes, papa, we have one at home.

P. And this signal is composed of a number of prisms, which are beautifully arranged so as to *refract*, and reflect the light.

H. But they do not surprise me, papa, so much as this TELESCOPE does. What a very large telescope it is! Is it put there that we may get a view of the further end of the building?

P. No. This is for the purpose of studying astronomy. It has all the latest improvements, and has the most perfect machinery for 'adjusting' it. We will have an Object Lesson on it soon.

H. Here is something worth looking at, Rose. Just *stroke* this!

P. These are the famous

XXV. COLLECTION OF SKINS AND FURS.

Rose. How nice and soft they are! This one is beautiful—but look, papa! Now that I have stroked this skin, it is not so *black* as it was.

P. It does not appear so, Rose—but you have been pressing

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the hair down with your hand. Now, draw your hand over it in an upward direction,—from the bottom to the top.

Rose. Ah, now it is very black again—there is a straight mark all the way up the fur, where my hand has been.

P. When you reach home, suppose that you sit down and think *why* that is so,—why the hair, when standing upright, should appear blacker than when it is pressed down.

H. There are a great many different sorts, papa. Here is the skin of a *red* fox—the skin of a black fox—and is this a white fox, papa? I never heard of one before.

P. Yes. This fox is found in the Arctic Regions. In the summer its fur is of a grey, leaden colour, but as the intensely cold weather approaches, it becomes white.

Rose. Here is an animal, papa, which looks like a white weasel—is it a ferret?

P. No, this is another instance of the skin of an animal becoming white in the frozen regions. This little animal lives in the chilly land of *Siberia*. In the winter it becomes perfectly white on all parts except the tip of its tail, which is quite black. It is called the *Stoat*, and sometimes —

H. The *Ermine*, papa. I have seen Ermine-fur before—kings and queens wear it—it is very expensive. And I can tell you why those animals of the cold countries have white skins.

P. Yes, you learned from the History of the White-Bear, in 'Pleasant Pages'—but there is no time to talk over that question now, nor to make a lesson on furs. We will proceed.

Rose. But I was noticing, papa, how many thick furs are

brought from the cold countries. The animals have them to keep them warm. I suppose these are the skins of the Black, Grey, White, and Red Fox—the Black Bear,—the Brown Bear,—the White Bear,—the Beaver—the —

What skins are these, papa?

P. Seal-skins,—proceed, 'the Fur Seal, the Grey Seal, the Common Seal,' —

Rose. And here are some of smaller animals—the Weasel.

P. The Marten.

Rose. The Stoat, (or Ermine). The Sable, (from which mamma's boa is made). The Brown Squirrel; the Grey Squirrel; the Marmot; the Badger.

P. And here is the skin of a Lynx.

H. But look, papa, at the gallery! There are other great skins hanging from the gallery besides the Bears!

Rose. Yes, there are the skins of Tigers, Leopards, Jaguars, Cheetahs, Lions; and they all have the word NICHOLAY upon them.

P. That is because they are sent by the furrier, Nicholay, of Regent Street. This is a most interesting collection: but, we must pass on.

H. Here are several things in glass-cases, papa—they seem to be models.

P. We will look at the large ones first—which are not in glass-cases. You have I daresay, often heard of the

XXVI. BRITANNIA TUBULAR BRIDGE.

If when we reach home you will look at your map, you will

see at the West of Wales, an island called 'The Isle of Anglesea,' separated from the main-land by a narrow strait. Across this strait has been built the famous iron-bridge, in the shape of a tube, through which the railway passes.

Here is a model of another bridge.

Rose. This is a suspension-bridge, papa, is it not? It seems to be hanging by chains.

P. Yes. It is made of wrought-iron, and is being placed over the river Dnieper, in Russia. This is the largest bridge of the kind that has ever yet been constructed. The Emperor of Russia is, I believe, very much pleased with it.

Rose. What model is this, papa, in the glass-case?

P. This is a model of part of England. It includes Leicestershire, Yorkshire, Nottinghamshire, Derbyshire, Cheshire, and Lancashire. Here is another model which is still more beautiful. It is

A MODEL OF THE UNDERCLIFF, ISLE OF WIGHT.

H. And here is *another* model! A rather ugly one, I think.

P. I wish you had been to the place it represents. I have seen it, and have seen what a useful work it is. Do you see this long line of stone in the middle of the water?

Rose. Yes, papa.

P. This has been formed in the midst of the sea, as a barrier against the waves. It serves to break them as they dash against it; and is, therefore, called a *Breakwater*.

It is situated near Plymouth.

Rose. Yes, I can read the description, papa.

XXVIII. LIMESTONE MODEL OF THE PLYMOUTH BREAKWATER.

With silver lighthouse, and beacon ; made for the Exhibition under the direction of the Lords of the A--d, ad ; m--i, mi ; r--a--l, ral ; t--y, ty ; *Admiralty*. What do they ——

There! I declare that papa has gone away again ; he never *will* stop for me to read the 'descriptions.'

H. Come here, Rose, I will make room for you. We are looking at such a large model, with hundreds of houses, streets, churches, people, docks, water, ships, and —— every thing! Come and see!

Rose. It looks like some very great town. What place is it, papa?

P. This is the famous town of Liverpool,

XXIX. MODEL OF THE TOWN OF LIVERPOOL.

Which bids fair to be as large as London, one day. On account of its good situation on the river Mersey, its trade and population is always increasing. What will be its size a hundred years hence, no one can say.

H. In which county is it, papa?

P. In Lancashire ; and the Lancashire people are a very active race. They are said to be the 'go-a-head' men of England.

Ross. Go-a-head! That is what the boy in the steamer said to the engines, when he wanted them to go on.

H. Perhaps, the Lancashire people have a great many steam-engines in their part, so that they have learned to be active from them.

P. Yes, that *is* the case. Not only in Liverpool, but in the great cotton towns, Manchester, Bolton, Rochdale, &c., the people are very active. They have vast factories filled with steam-engines and machinery; and, perhaps, from saying 'go-a-head' so often to their machinery, they have been excited to go faster themselves.

H. Ah, I shouldn't wonder. I should be more active if I kept company with a steam-engine. I could not stand still very long.

Ross. Henry, let us go on. See what a distance we have to walk yet. Look all the way down there, what immense distance! I can see the — I see *myself*. Oh,—it is a looking-glass!

II. Yes, look up!

XXX. THE LARGEST SHEET OF PLATE GLASS IN THE WORLD.

P. See, what an immense glass it is, Henry. What care must have been given, to form a plate of glass of this size so perfectly level and smooth. It was made by the Thames Plate Glass Company, at their works at Blackwall.

H. Then, we can't go through that, papa. I suppose we have reached the end?

P. Yes. This is the *end of the Western Nave*. Sit down.

* * * *

H. How pleasant it is to rest! My eyes are very tired with looking, I do not want to see much more.

P. You cannot expect to see very much on your first visit. Every one feels that the building itself is as much as he can well see in one day. There are many more interesting things, which, as yet, I have only heard of. I have heard that there is a bundle of nails, three thousand in number—yet, they are so small, that they only weigh *three grains*! One thousand are made of gold, another thousand of silver, and another thousand of iron. There is a piece of oil-cloth from Manchester, worth, I believe, 600 guineas; and there is a beautiful little steam-engine, which, it is said, may be wrapped up in paper, and put inside a walnut-shell:—the plate on which it stands is not larger than a sixpence. There is a German bed, with clock-work, which can be 'wound up,'—it can be set to any hour; and, when the time arrives, the lazy sleeper is thrown out of bed! There is the portrait of the Queen in needle-work, which is so fine that it looks like a pencil-drawing; and a German lady has sent a table-napkin which has been torn.

H. Well. I could tear one of our table-napkins, and send it.

P. True; but the fact that this napkin has been torn, is not the only interesting thing about it. It has also been *mended*:

and it is darned with such neatness and skill that you cannot discover where.

L. I could soon tell where she took up the stitches—I think.

P. Well, we shall see. There will be time enough another day to look at these things. Suppose that, while we rest here, I tell you of some of the GOODS FROM ENGLAND?

W. Yes; do, papa, please! and we will go and see them afterwards.

P. Very well; I will.

Chapter Eleventh.

THE GOODS FROM ENGLAND.

YOU must know that not all the articles exhibited by each country are specimens of man's skill. The piece of rock crystal which we looked at is not.

There are four classes of objects to be found in the Exhibition. You must have noticed that the different objects are not all made of the same material—they are not all *brass*.

W. Certainly not; the alum is not, neither is the Koh-i-noor.

P. Neither is the statue of Godfrey de Bouillon, nor the Prince of Wales' shield. The varied objects are made of all kinds of material—brass, iron, gold, plaster of Paris, precious

stones, wood, gutta percha, ivory, &c.—these form the first class of objects in the Exhibition, consisting simply of THE WORKS OF NATURE. They are the *different substances which the other objects are made of*; and are exhibited in the exact state in which they are found in nature—in a raw state, as we say. Therefore they are called RAW MATERIALS. See if you can make a list of raw materials.

The next class are the WORKS OF MAN; the different kinds of tools, and all the wonderful *machines which men use in making other articles*. These form a class called MACHINERY. Mention some machinery that you know of.

The third set of objects are the *effect* of the first and second class. They show what has been done by the second class to the first class. They are *the substances formed by the machinery from the raw materials*, and are called MANUFACTURES. Tell me any manufactures that you know.

The fourth class are another kind of manufacture. They are ornamental manufactures, which require much imagination and taste, such as carving, sculpture, pictures, models, statues, mosaic work, &c., &c. The men who make such objects we call *artists*, and all such works we call WORKS OF ART. You may mention some of the works of art which we have just seen,

There are, therefore, four classes of objects in the goods sent from England.

H. I will say them papa—RAW MATERIALS, MACHINERY, MANUFACTURES, and FINE ARTS.

P. I can only undertake now to *mention* the principal objects sent of each class.

1. Amongst the RAW MATERIALS of England, the principal *minerals* are IRON, COPPER, LEAD, TIN, COAL, SLATE, and SALT.

These are England's most valuable minerals. You will see them all beautifully arranged in the mineral gallery.

The Iron from Wales, Staffordshire, and Shropshire. The Copper from Cornwall. Lead ores from the Peak in Derbyshire, the Mendip Hills in Somersetshire, and Cornwall. *Tin* principally from Cornwall. *Coal* from Northumberland and Lancashire. *Slate* from Westmoreland and Wales. *Salt* from Cheshire and Worcestershire.

The principal *vegetable and animal* raw materials are COTTON, which, though not produced in England, is the great source of England's wealth; CORN and POTATOES for food; BARLEY and HOPS for beer; and FLAX for the linen manufacture; SAFFRON for its yellow dye; TIMBER for ship-building, &c., from the Elm, Ash, Beech, and particularly the old English Oak. The animals yield WAX and TALLOW for candles; FEATHERS for beds, &c.; HORSE-HAIR for furniture; WOOL for the cloth-manufacturer; LEATHER for shoes, harness, &c.

2. The MACHINERY of our country I will not attempt to describe. The machinery department is 800 feet in length, and contains every description of machines for spinning and weaving, printing, &c. These are constantly kept in motion by large steam-engines which have a separate department.

Amongst the newest machines is a printing-machine, invented by Mr. Applegath, which is used for printing the *Times* newspaper, and the *Illustrated London News*. You know what a cylinder is. In printing-machines it has been the custom for the types to be placed with their faces upward, and (after the paper has been laid upon them) for the cylinder to roll over them just as the garden-roller rolls over the stones. In this new printing-machine, however, the cylinder is placed upright just like a drum when it stands on its end, and the type is placed all round it. When we visit the machinery department you will be able to see the advantages of this arrangement, and one of the printers there will explain it to you.

There is another famous machine in which sheets of paper are cut, folded, gummed, and formed into envelopes. It belongs to Messrs. DE LA RUE, the great fancy card makers, and has attracted very much attention.

There is a machine for making hollow bricks—needle-making machines—weighing-machines—model steam-engines, &c., &c., &c. In another room are all the new machines and implements used in agriculture—such as threshing machines, *dibbling* machines; *hoeing* machines; *harrows*; ploughs of all kinds; *winnowing* machines; *cutting* and *clod-crushing* machines; *pumps*; *digging* machines; carts—and many other wonderful things, which will astonish and alarm many of the country people. Besides these there are smaller ‘machines,’ which we call tools or instruments—such as *watchmakers’*

tools and instruments ; *surgical* instruments ; *philosophical* instruments, and tools for every description of trades.

3. The MANUFACTURES of England you will expect to be very numerous—why ?

II. Because there is such a multitude of machines. If the English did not make some good manufactures with them, they might as well be burnt.

L. Or *melted*, you should say ; for they are made of iron—then the war people would get hold of them, and would beat the ploughshares into swords.

P. And the pruning-hooks into spears.

II. And the steam-engines into cannon.

P. There is little fear of such a perversion now-a-days. Men have learned once for all the proper use of iron and steel. They know now what God sent it for. Let us next see what they do with their beautiful machines.

The principal manufactures of England are, the MANUFACTURES OF CLOTHING from COTTON, WOOL, SILK, LINEN, LEATHER, CUTTA PERCHA, HAIR, STRAW-PLATT, &c.—including calicoes, muslins, lace, and net,—brondcloth, flannels, baizes, worsted, worsted stockings, shawls, bombazines, merinoes, mousseline-de-laines, tapestry and carpets,—velvets, satins, silk waistcoatings, crape, ribbons, fringe, gimp, sewing silks, silk buttons, umbrellas, hats, silk gloves and silk stockings, silk handkerchiefs and neckerchiefs ;—in linen, there are shirtings and sheetings, table-cloths, diapers, sail cloth, &c. ;—in leather, you will see shoes, saddlery, bookbinding, driving bands for machinery, and

all kinds of straps. From gutta percha they have made *everything*! From hair and bristles they have made horse-hair cloth, clothes and hair brushes, wigs, watch-guards, ear-rings, and other ornaments. From straw we have hats, bonnets, mats, palliasses, chaff and provender for horses.

Henry. And suckers for "sherry cobbler." What other manufactures are there?

P. Many more. There are manufactures without number, and if you should ever understand half of them I shall be very glad.

From the *porcelain*, *pottery*, and *hardware* manufactures, and from the metals and glass, we get a fine group:—the manufactures of HOUSEHOLD UTENSILS; such as lamps, candlesticks, decanters, jugs, tumblers, and other cut glass.

Again we have another important group—BUILDING AND ARCHITECTURAL MANUFACTURES, such as bricks, tiles, chimney-pots, cornices, brackets, and exterior ornaments, iron railings and gates, singular fancy *knockers*, locks, stoves, paper-hangings, stove-copings and mantel-pieces, panneling, window frames, sashes, window glass, and other appurtenances of houses and palaces.

There are also objects which form the class *inhuman manufactures*; such as cannon, revolving pistols and rifles, swords, daggers, spears, bayonets, and others which, thank God! are doomed to pass away, and be crushed under the influence of those never tiring, never stopping, indomitable inhabitants of the machine department.

Besides these there are elegant specimens of the FURNITURE

MANUFACTURE—from the plain and useful, to the exquisitely beautiful, so good that it seems a pity that it should ever be worn out. We have the same character of goods in the CARRIAGE MANUFACTURE—carriages so beautiful that their usefulness is lost in the abundance of ornament. In contrast with these there are truly *good* railway carriages, which are both ornamental and serviceable at the same time.

II. Papa, I have been waiting. You have forgotten a very important manufacture.

P. What is it?

II. The PAPER MANUFACTURES.

P. To be sure. From paper we get books, cards, and a sheet of paper, made by Mr. Joynton, of St. Mary Cray, 46 inches wide and 2,500 yards long, which is four times the length of the Exhibition.

II. I hope that is brown paper, because it can be used for wrapping up the Exhibition when it has to be removed.

P. Unfortunately the paper is white. From paper we also get *tea-trays*.

Rose. You said '*tea-trays*,' papa!

P. Yes. From the pulp used in making paper, a substance called *papier-maché* is formed, and this is made into a great variety of articles.

Rose. Are there any other manufactures, papa?

P. Yes; far too many for us to talk about now—manufactures of bone, ivory, horn, turnery, and so forth. We will learn much more about each, in our Object Lessons.

H. I will just count up these manufactures, papa.

1. CLOTHING MANUFACTURES.
2. HOUSEHOLD UTENSIL MANUFACTURES.
3. BUILDING AND ARCHITECTURAL MANUFACTURES.
4. 'INHUMAN MANUFACTURES.'
5. FURNITURE MANUFACTURES.
6. CARRIAGE MANUFACTURES.
7. PAPER-GOODS MANUFACTURES.

Now, papa, we are ready for the FINE ARTS.

P. The 'Fine Arts' of the Exhibition, Henry, are as difficult to describe as the machinery. We shall soon visit the Sculpture Room, the Mediæval Court, and the Fine Arts Court, when I will try and make you understand the beauties of some of the objects there. We have not yet said anything of the goods from Scotland, or Ireland; but they will not need a distinct description.

You may remember Scotland by her raw material, oatmeal; and her manufactures in Scotch cambric, sewed muslins, &c. You may remember Ireland by her raw material, *flax*, *potatoes*, and *pigs*, and her manufactures, *linen*, *poplins*, &c.

Friend. How art thee, friend?

Rose (*whispering to Henry*). Who is that Quaker gentleman, Henry? That is the twenty-first gentleman papa has spoken to, since he has been in the Exhibition.

Friend. I saw thee just as I came in at the western door; I am bound for CANADA.

P. So are we. We want to gain some information concerning the *colonies* of Britain.

Chapter Twelfth.

THE GOODS FROM THE COLONIES.

CANADA.

FRIEND. Thou knowest, little Henry, that the colony of Canada is at the northern part of America.

H. Yes. We have been looking at this *timber trophy* before.

Friend. Thou wilt see here a beautiful specimen of *maple-wood*—a light yellow wood. Here it is! I will read thee something concerning the maple, from a paper which I have in my pocket.

“The soft maple is but rarely cut down, as it supplies sugar abundantly. In spring, before the snow has left the ground, and there is still a morning frost, the farmer bores a hole two or three inches deep in the tree and sticks a little cane spout in it. In a few hours he has in his wooden trough below, from two to three gallons of syrup; and every morning, for a fortnight, as the sap rises with the sun, the tree pours forth its sweetness until twenty or thirty gallons are collected. In a spring without frost, the supply of sugar fails, and its collection is a work

of hardship. The sugar maple grows from forty to fifty feet high, and about six feet in circumference."

We have also the *walnut tree*, with a very hard, close-grained wood, and here, the *beech tree*, which is used for common furniture. The bark of this tree is used to make canoes, such as thou see'st on the top of the trophy, and in the Canada department. We have *white and red oak*, *bass wood*, *rock-elm*, which grows thirty to sixty feet from the dry rock, and *iron wood*, which, I have read, is so obstinate and unmanageable, that it is of no earthly use whatever.

P. Let us go into the Canada department. Look, Rose, at these beautiful sledges! These are used in Canada, in the winter time, for travelling on the ice. They are dragged by horses. Accidents sometimes happen when travelling thus; the ice breaks, and the horse and sledge fall in together.

Rose. And the poor traveller is drowned?

P. The traveller saves his own life and that of his horse by *strangling* him. The horse has a kind of slip-knot fastened round his neck; this the traveller pulls very tight, until the horse cannot breathe, and floats on the water's surface; he then jumps on the animal's back—or to the surface of the ice, and drags the horse out of the water.

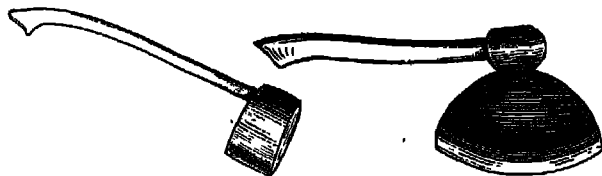
Rose. But what is the use of strangling the horse, papa? I should think that would *kill* him, instead of saving his life.

P. No. The strangling causes the horse to lie perfectly still; otherwise he would plunge and kick, and could not be drawn out. When he is on the ice again, the rope is loosened,

and in about half an hour the horse breathes freely again, and proceeds on the journey. I have heard that travellers have had such accidents four or five times in one journey.

Rosc. See, papa, Harry is walking with the Quaker gentleman. They are looking at some axes.

Friend. Didst thou ever observe the shape of these axes? Look at this one! Thou mayest see that the blade has a *convex*



shape; it is made so, *that it may not stick in the wood*, when used for felling trees. Here are more than a dozen different shaped axes; each has a particular use. The emigrants may learn from these Exhibition axes that they can procure better and cheaper axes in Canada, than in England. I have known them bring over axes, and find them to be quite useless; they are obliged to buy new ones.

II. Will you tell us about the timber-rafts of Canada?

Friend. I wish I had time to describe them to thee. On the Ottawa, or Grand River, there are from eight to ten thousand men employed in attacking the forest trees with axes such as these; the great trunks are lopped, squared, and carried to the water's edge by horses, where they are thrown into the river,

and tied together in immense *rafts*—rafts which are sometimes as large as a field of *three* acres.

P. We will walk unto the next department. Here we are in

AUSTRALIA.

A very different part of the world, but still one of England's colonies.

Friend. Here are specimens of *ores* sent from Burra-Burra, by the AUSTRALIAN MINING COMPANY.

P. Yes. This company is becoming very prosperous—look at this beautiful specimen of carbonate of copper.

Rose. What a bright green it is, papa.

P. True. It is from this carbonate of copper that the precious stone of the Russians—the *malaohite*, is procured; you will hear more of this soon.

Rose. And here is a piece of *magnetho iron ore*. You once taught us, papa, about 'magnetic' iron.

Friend. And a friend of mine—a mineralogist—once informed me that wherever you find magnetic iron, there is very likely to be gold near it.

Rose. Well, I was just looking at a piece of gold ore which is placed close by—

H. Come here, Rose, to the other side of the room. Here is a glass-case full of parrots.

Friend. Ah, thou seest here a very nice collection; I have seen them in Australia by hundreds. This little one, the Roselle, is almost as common in that country as the sparrow

is in England. A farmer in Australia, whom I knew, once gave one of his men a flail, and set him thrashing, and to another man he gave a thick stick, telling him to knock down all the Roselles that flew in for the corn. In the course of the day he had killed a *barron-full* of them.

H. How pretty this one is; look at the gold colour at the top of its wings, and they shine in one part like silver!

Friend. Yes, this is supposed to be the bird referred to in Scripture. In the Psalms you read, "Ye shall be as the wings of a dove, with silver wings, and her feathers like gold" (Psalm lxxviii. 13). Thou canst see how golden they look at the edges. Let us look at the next object.

Rose. What are these dear little shells? See what a number there are! and how much they are like pearl! for they reflect the light—now they are purple, now they look green, and now they are white.

Friend. Yes, I can tell thee about those shells. The native women make them into necklaces. The shells are not like these when found, but are prepared by the women in this way; they make a fire of sticks, on which they burn a quantity of fresh green grass. The shells are held over the fire, and the vegetable-acid from the fresh grass, which rises with the smoke, destroys the outer coating of each shell. The Indians use almost the same process in making their *leather*, for mocassins, &c. They set light to a heap of green brushwood, and hold the skin of the animal over the fire, the smoke from which serves to dry and preserve the skin, although it does not exactly *tan* it.

P. We will not stop longer in Australia. Let us cross the nave, and look at the Indian department.

INDIA.

The most striking feature in this department is the room furnished in the style of an Indian Palace. Here is a most gorgeous display of the luxury of the East. We have, also, several most interesting models to show the different *castes* of Indians. There is a model of an Indian farm in which the collector is collecting the rates due; a model of a native court of justice; and another of a British court of justice. In another model are seen two or three poor Indians doing 'penance'—according to their barbarous religious customs, they have iron hooks run through their flesh, and with these they are drawn up to a great height, and swung round in the air.

Here are also two ivory chairs, with shawls, carpets, and matting. In another part are models of the mills, &c., used in the manufactures from the cotton plant; also several clumsy mills used in grinding sugar, distilling spirits, &c.; a beautiful model of a Hindoo temple may also be seen; while the first Indian compartment is filled with weapons of war, suits of armour, &c., very tastefully arranged; the shields and saddles for war horses, with red and gold embroidery, make a good show. A brass gun, with a tiger's mouth, made by the natives, is a very striking object.

One of the most remarkable objects in the Indian department is the self-feeding *Peacock lamp*, made of brass. From the

breasts of several peacocks oil is supplied to the lamp burners, whenever it is required. This lamp, although it reminds us of the idolatry of the Hindoos, speaks at the same time of their humble and confiding spirit, for although it was held sacred, it was readily lent by them to the English, to be shown at the Exhibition.

The most *valuable*, however, of the Indian contributions, is the rare and costly collection of jewels. The crowds of sparkling diamonds arranged in one glass case, speak in a striking manner of the wondrous riches of the East.

After papa had finished his remarks on the Indian department, their "friend" was compelled to leave. Henry and Rose then accompanied their papa through other departments of the Colonies, which they noticed in a very hurried manner. In CEYLON they saw specimens of cinnamon and coffee, carvings in tortoiseshell and ivory, with fine specimens of rubies.

In JERSEY and GUERNSEY, the Islands of the English Channel, they saw specimens of arrow-root, which the inhabitants of those islands have lately begun to cultivate. They also saw a clock sent from Jersey, which will go 600 days without winding up.

In MALTA they saw beautiful specimens of carving; Rose could not get away from the exquisite imitations of birds and flowers,—even papa was a long time before he could persuade himself to look at anything else.

Other wonderful things were seen by Rose and Henry. Specimens from NOVA SCOTIA, the BERMUDAS, BARBADOES, the

BAHAMAS, DEMERARA, and other colonies of Great Britain. They then wandered through many strange places until they found themselves again at the eastern end of the nave.

"Look, papa!" said Rose, "look at the number of people sitting on the seats in the gallery; I should like to go up there!"

"Well!" said papa, "you shall—we will go and sit on one of the seats, and take one look at the nave before we leave—I think that you will be surprised."

On reaching the gallery, Rose and Henry were indeed surprised,—the view of the crowded aisle was a most extraordinary one.

"Oh, papa!" cried Henry, as the sight first caught his eye—"what an immense crowd of people. I did not suppose that there was such a number! How they all move and shift about! I cannot look at them very long—they dazzle my eyes."

"Nor can any one else," said papa; "they shift about, as *Punch* says, 'like a crowd of Jack-o'-lanterns.' See what an immense length is the building. Now you have an idea of 1,851 feet!"

"And what a number of things I can see, papa!" cried Rose. "Look at the red curtains, and the crimson flags. Look at the white marble statues, the bronze images, the golden vases, and the sparkling fountains! How light and fairy-like the building is! how pretty the stripes of blue on the columns, and what brilliant colours there are on the tapestries! Then, look at the crowds of black hats, and the bright yellow bonnets moving about. Two men with *red* hats are coming

down the aisle in the midst of the black ones—there is a Turk with his white turban—a Frenchman wearing a cap—and there is another patch of red, made by four soldiers. Now they move on in a thick stream near the Transept, and pass the crystal fountain! See how some are loitering and looking—some are sitting—others standing—and others lounging about doing”——

“Stop, Rose,” said Henry—“listen! There is some one playing the French organ! He is playing ‘GOD SAVE THE QUEEN.’”

P. Ah, how beautiful that sound is! and how pleasant the thought, that “God save the Queen” is being played by a *Frenchman*!

“Yes,” said Henry, “and he begins by saying ‘God bless our gracious Queen.’”

P. And all those people from many nations, whom you see mingled together in one crowd—may they be able to sing with him! Let them sing the new words of the National Anthem, which were made to be sung in better days:—

“And not this land alone,
But be thy melodies known
From shore to shore!
Lord, make the nations see
That men should brothers be,
And form one family,
The wide world o’er.”

Rose. Ah, I wish that they would all sing that!

P. Perhaps they will one day. But it is now getting rather late; we must return home.



Part the Third.

GOING HOME.

Chapter Thirteenth.

THE GOODS FROM EUROPE.

THERE is a cab!" said Rose to Henry. "Now we shall be able to go home. Papa has gone to meet the driver, and is holding up his fingers to him."

"*Engaged*, sir!" replied the cabman, with an independent air; and as papa, and Henry, and Rose walked up to a long row of cabs, "*Engaged!*" "*Engaged!*" "*Engaged!*" was the answer from each driver. Indeed, it was easy to tell that the cabs were engaged; for the horses had bags tied to their noses in an engaging manner, from which they were peaceably feeding,—being '*engaged*' in another sense.

"You see how it is, Henry," said his papa; "the visitors who came in these cabs have agreed to pay the cabmen so

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much for the *day*. That is the plan we should have acted upon!"

H. Here is a policeman, papa; will you ask *him* what we shall do?

P. Can you tell us how we shall get a cab? We have been waiting here three-quarters of an hour!

Policeman. Yes, sir; and I have seen people a-waiting here for three *hours*, and more. You may wait four hours, perhaps, unless you are very sharp; and this, sir, is the case every day. This is the way the people have to get home from the Exhibition—40,000 or 50,000 people a-day, sir! It's no joke for such a load to be carried home. We want a new railway on purpose.

Rose. Here comes an omnibus with "EXHIBITION" on it, papa!

Omnibus Conductor (calling to papa). Room outside, sir!

"That," said papa, "will not do. We must walk, Henry, towards Hyde Park Corner, and meet one of the cabs or omnibuses which are coming."

"I'm so tired," said Rose; "but I can see an omnibus now!"

No sooner, however, had the omnibus stopped than a crowd of people of all kinds surrounded it, and shocked Rose by the rude manner in which they pushed each other, and struggled to enter.

"Come," said papa, "we must walk towards home until we find a cab;"—but they did not meet with one until they had reached Hyde Park Corner.

For a long time after they had taken their seats, little Henry

and Rose were very quiet, with their heads leaning against the corner of the cab ; but as soon as they were rested Rose begged her papa to tell them another tale on their way home.

Papa just at that moment was looking rather sleepy, but he quickly woke up again.

"Well, Rose," he said, "I had almost forgotten something ; but I had intended to describe some of the goods which have been sent from the different nations. Would you like to hear such an account?"

H. I should be very glad, papa ; because next time we go we shall know where to look for each article.

P. I thought before we left home this morning that you would like, as I speak of the countries, to *see* them on the map ; so I have brought you my pocket-map of the world, which we will pin up in the cab.

I intend to speak first of the goods sent from Europe ; but before doing so, I purpose telling you something of the *people* of Europe. The European race may be divided into three principal families. At present, I will only mention two. You may have noticed, even in England, how different are the complexions of many people ; some have round, fair faces, with red cheeks, and light hair, and blue eyes.

H. Yes ; I have seen many, papa.

P. While others have more sallow faces, of a longer shape ; their foreheads are not always so broad, but they are longer and higher than those of the other race ; their hair is more often black than brown, and the eyes are sometimes very dark.

Rose. I have seen them. But what has that to do with the goods at the Exhibition?

P. A great deal. I cannot go into the particulars of the idea, which I wish to teach you; but these two kinds of people may be said to represent two of the principal families of the European race. Those with broad foreheads, fair complexions, blue eyes, light hair, &c., may be said to represent the *Germanic* family; while those with the dark complexion, with longer face, and with dark hair and eyes, may well represent the *Celtic* family. Try and remember the names of these two families.

H. I will say them, papa: "*Germanic family—Celtic family.*"

P. Now, it has been found that just as these two races differ in physical appearance (or appearance of body), so also there is a marked difference in their *mental* distinctions.

Rose. Which means a difference in their minds.

H. Ah, Rose, I see something!—and then there will be a difference in their *manufactures*. Their different kinds of minds will think different thoughts, then of course they will make different *things*, and send different things to the Exhibition! That is what papa wants to show us, I think.

P. We shall see. The *Germanic* family are well known for their *industrial virtues*, if you know what is meant by that:—they are a persevering and thinking people. Their minds seem to be ever engaged on the things around them; to be attending to those things which they are *quite sure* are 'real'—the matters which they can handle, feel, see, and hear. Such solid

matters seem to engage their minds more than any beautiful objects which are matters of fancy,—therefore we call them a 'matter of *fact*' people.

Now, the people living in the country called HOLLAND are a 'Germanic' people—they are called *Dutch*. Suppose that you were to show a Dutchman a solid round cheese, and a beautiful diamond brooch with fancy ornaments of gold. Which do you think he would admire?

Rose. The CHEESE, papa. He would say that the round cheese was 'a matter of fact'—a *solid, real* thing.

Henry. And he would say that the brooch was only a matter of fancy—that it had no real value.

P. And this 'matter of fact' Dutchman is a good representative of the GERMANIC family; for he is one of the unmixed German breed.

But, the other family—the Celtic nations—have different mental qualities. We do not find that they are the same slow reflecting people as the matter-of-fact Germanic race; but they have acute active minds, ever thinking *new* thoughts of new things. We do not hear much talk of their *understanding*, but more of what we call *imagination*—

H. I have learnt what that means: it is the power which makes 'images' in our minds.

P. True; so these Celts love to make images in their minds of beautiful things—of things which we do not always call real; they are famous for beautiful ornaments and all matters of taste and fancy.

So, if you were to call on a dark-haired, long-faced Frenchman, and say, "Which do you love best, this cheese or this diamond brooch?" he would say —

II. "Give me the diamond brooch," he would say. "Give the lumpy Dutchman that lumpy cheese. I value beautiful things."

Rose. Because they please his *imagination*.

P. And this imaginative Frenchman is one of the CELTIC family—almost a pure Celt. But he would not say "lumpy" Dutchman, he would be too polite.

Rose. And politeness is "ornamental behaviour!"

P. True. Now, bear these two points in mind when we speak of the produce of each nation. We may call the reflective *Germanic* race —

Rose. The people for 'matters of fact.'

P. And the imaginative *Celtic* race —

II. The men for 'matters of fancy.' Did you not *tell* us, papa, when you talked of the silk trophy, that the French people beat the English people in *fancy* silks? That is because they are Celts, and I suppose that we are not.

P. Only partly so.

Rose. And silk is a fancy article. You told us, papa, that the silk manufactures of England did not flourish here until the poor Frenchmen from Nantes settled in Spitalfields.

P. Now, you may look at the MAP. Suppose that you went from the Exhibition to Dover, and then crossed the English

Channel to the land on the opposite side—in what country would you find yourself?

H. In FRANCE, papa.

P. Then, let us see what France has sent to the Exhibition.

FRANCE.

The French, you know, are a *Celtic* race. Before I had been to see the Exhibition, I was reading an account of the "French Department." The first sentence showed that it related to France.

"The space is occupied with articles *tastefully* arranged, showing the peculiarities of French industry. A great variety of objects known as '*fancy* articles,' with beautiful specimens of tapestry. Articles of jewellery, and *ornamental* articles in fancy woods, pearl, &c."

These are placed in the front of the department. On entering are found—

"Beautiful bronzes and ornamental workings in the *precious* metals, *decorative* furniture, brilliant mirrors (in the *polish* of which the French have hitherto surpassed the English), sofas, splendid shawls, silks, merinoes, and carpets.

"*Beyond* these, in the farthest space, are articles of apparel, boots, shoes, gloves, hats, &c.; designs for paper-hangings and chimney-pieces."

H. Ah, that is rather curious. The *ornamental* things are placed in the front, and the useful things at the back.

P. But, when we examine the French department, you will

find that even the useful things are made in the most elegant manner. The French shoes are made of—

II. Shiny leather.

Rose. Say *polished* leather, Henry—'French polished.'

P. While the gloves of French kid are equally fine.

II. I wonder, papa, which are the most striking objects of the French Department?

P. Two monuments of their wonderful ingenuity. One is the most beautiful case of artificial flowers that ever man saw. The flowers are all made of French cambric, yet I have known people, who have examined them, declare that they *must* be real. One gentleman would not *for three or four minutes* believe that they were artificial; not until he had read the inscription which was fastened to the case. There is a blighted withering rose, with the shrivelled leaves falling off, and the very maggot, with its web, may be seen on it. An old fading sunflower in the distance is the very picture of sorrow; its yellow petals are turned grey, and—but it's useless to describe, you must see it.

The other representative of France is the case containing the jewels of the Queen of Spain, exhibited, as I told you before, by the Queen of Spain's jeweller at Paris. For their beautiful jewellery, the French have long been as famous as for their workings in the 'precious' metals, gold and silver.

II. I will now count up the productions of FRANCE:—

1. *JEWELLERY, ARTIFICIAL FLOWERS, and many ORNAMENTAL ARTICLES in fancy woods, pearls, &c.*

2. *Workings in the PRECIOUS METALS; Splendid SHAWLS, SILKS, MERINOES, CAMBRICS, MUSLINS, and CARPETS.*

3. *Boots, and SHOES, HATS, GLOVES, and other wearing apparel.*
And that is a proper sort of list for an imaginative and ingenious nation!

P. I shall not have time to give you so long an account of each nation. You know that we are to have a course of "OBJECT LESSONS FROM THE GREAT EXHIBITION," and in that course the most interesting 'lions' of each nation will be described.

Look at the map and you will see a country at the *north* of France.

Rose. Yes,—BELGIUM, papa.

BELGIUM.

P. The department of this country is properly placed next to that of the French in the Exhibition.

Rose. Are the Belgian people *Celtic*, papa?

P. You shall judge for yourself.

They exhibit not only the magnificent *LACE* which you saw on the Archbishops Fenelon, A'Becket, and the Pope, but beautiful *MUSICAL INSTRUMENTS*.

H. (whispering.) Think, Rose!—*Musio*.

P. Also, numerous magnificent specimens of carpets, for which Brussels, the capital of Belgium, has so long been famous.

There are other specimens of woollen manufactures from Brussels, Antwerp, Louvain, and Ghent: the weavers of the

latter city had once upwards of 30,000 looms. But Belgium, poor country! has been the scene of many a dreadful war; and it exhibits goods which painfully remind us of the fact.

Rose. What are those, papa?

P. A most formidable collection of arms, of bright barrelled muskets, and bayonets, from a town called *Liege*. *Liege* is the Birmingham of Belgium, and can supply guns, and many other metal manufactures, as cheaply as we get them from that famous town. Now, tell me what think you of Belgium? Is it the country of a Celtic or of a Germanic nation?

H. Let us count up its products:—

BELGIUM has sent to the Exhibition, LACE, MUSICAL INSTRUMENTS, CARPETS, WOOLLEN GOODS, MUSKETS, and other METAL MANUFACTURES: some are fancy articles, and some are not. What do you say, *Rose*?

Rose. I can't tell. I should think that the people are both Germanic and Celtic.

P. That is the state of things. Belgium is a curious country. It is situated between France, a *Celtic* nation, and Holland, a *Germanic* nation. It has more than once changed masters,—belonging at one time to France, and at another time to Holland. The towns near France, such as *Liege* and *Namur*, are mostly *Celtic*: in fact, they are of French origin, and their language is similar to the French. Again, in the northern part, called *Flanders*, where we find the great woollen manufactures, the people are more *Germanic*, resembling their neighbours, the *Hollanders*, while *their* language (called *Flemish*) is a dialect of

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the Dutch. There is thus a very great distinction between the two parts of the nation—a distinction which is kept up by the inhabitants of the towns.

H. Then we will say that the goods sent to the Exhibition from Belgium, show that they are a mixed nation—half Celtic and half Germanic.

HOLLAND is the next country, papa. You said that the Dutch were a 'matter of fact' Germanic people. I suppose that they have sent plenty of butter and cheese?

P. Wait a minute, we are going on a little too fast. Before we go any further, I must tell you that we cannot judge what will be the object of a nation's industry (much less what they will send to the Exhibition) merely by knowing the *race* to which they belong. The manufactures of a country depend also upon its soil, and the vegetables and minerals it yields.

H. Ah, I had forgotten that. There would not be so many metal manufactures in a country if its soil did not contain metals.

P. And then, again, the character of a people (and even their industry) will much depend on the *climate* of their country.

Take *Holland*, for instance. The land is lower than the sea; the soil is therefore very marshy, exactly suited for Cows—even more than for sheep; *therefore* ——?

Rose. Plenty of milk—plenty of butter and cheese. I see, papa, the butter and cheese making does not grow entirely from the character of the people.

P. No. We find, too, that Holland sends beautiful *linen* to

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the Exhibition; for large tracts of the soil are well suited for growing the linen plant, called 'flax.' The character of the people may, therefore, help us a little to *remember* their productions, but may not always serve as a guide.

When you look in the Exhibition for the goods sent from HOLLAND, you may look for LINENS and WOVEN GOODS, METAL MANUFACTURES; good specimens of MACHINERY, BASKET WORK, DUTCH CLOCKS, and almost every variety of manufacture.

Rosa. We shall soon be home, now, papa.

P. Yes; and I have told you very little, as yet, of the goods sent from Europe. We will pass through the other countries hastily. If you cross the North Sea, from Holland, you will find a country at the north-east, called

DENMARK.

P. When I visited the Denmark department I was much pleased with a piece of sculpture there. It represents a hunter, who has taken possession of the cub of a lioness; and its mother following him. The position of the lioness is very interesting. She has not attacked the hunter, but has grasped him with her claws; and is looking up intreatingly in his face. The hunter has tucked the sleepy-looking cub under his arm; while with his right hand he holds up a lance, with which he threatens to defend himself. The countenance of the lioness is a beautiful representation. It expresses the earnest anxiety which even a dumb animal can feel for its little one.

In Denmark, you may see the usual produce of the fields ; also knitted articles, leather and boots, with decorated vases, musical instruments, &c.

H. What comes from SWEDEN, papa ?

P. From

SWEDEN AND NORWAY,

where, as well as in Denmark, the people are more *Germanic* than *Celtic*, we have the produce of their famous iron mines. The iron of Sweden is, you are aware, that which is so useful for making into *steel* ; so they have not only sent iron *ores*, but all kinds of steel tools, such as files, iron tubes, iron plates, iron pots, and cooking utensils, sabres, and swords, to show the beautiful quality of their steel. Swedish iron is not only of superior quality, but its quantity is *immense*.

Very fine specimens of two metals called *COPPER* and *NICKEL* are also exhibited, with specimens of *MAGNETIC IRON*, for it is from *Sweden* that we obtain our principal supply of these metals. Sweden has also sent *COTTON GOODS*, made in the houses of the peasants, with hand-looms, as it used to be made in England, before steam power was introduced. Besides all these things there are specimens of *FLAX*, and of *LINEN*.

If from Sweden you cross over the Baltic Sea, you arrive at a very large country called

RUSSIA.

This is truly an enormous country. It contains *one-seventh*

of the whole land of the earth. It therefore yields the Emperor immense riches ; it will even yield more yet, when more of the soil is cultivated, for not *one-sixth* at present yields fruit. There is one large tract of land in Russia with a soil composed of decayed vegetable matter, in some parts three feet, and in other parts six feet deep. This fertile tract of land is as large as the countries of Austria and France together ; and upon it, immense quantities of wheat are grown, which afford a supply for Europe, and increase the riches of Russia.

The soil also yields riches in another way—from the *timber*, which is cut down in the immense forests. *Mineral substances*, again, are abundant. There are large mines of copper and salt ; there are quarries of marble, and abundant supplies of gold, platinum, and, in some parts, precious stones.

You may therefore expect that in the Exhibition *RUSSIA* has shown signs of her *riches*,—and this you will find to be the case. On my first visit to the Exhibition, the Russian department was not opened, but was surrounded by a hoarding, for one of the ships containing the goods sent was blocked up by the ice of the Baltic Sea.

The department is, however, now opened with the most gorgeous and dazzling display. They have in Russia a green stone called *malachite*, which one of the Russian porters told me was worth its weight in gold.

Rose. I never heard of that stone before, papa !

P. No, it is not well known ; it is, in fact, a sort of copper ore, consisting of copper united with *carbonic acid*, or 'carbonate of

copper.' This stone has also been found, but in smaller quantities, in the copper mines of Durra Burra, in Australia.

But I was going to tell you of the extravagant quantities of this precious stone which Russia has sent to the Exhibition. People had been accustomed to see it used for brooches, jewel boxes, and other *small* articles; but how was every one surprised to find it worked up into a pair of drawing-room doors! These doors are a beautiful and astonishing sight. They are to be sold if any one will buy them. Their value is said to be £6,000. Will you have them, Henry?

H. Yes, if you will lend me the money to buy them, papa. No, I don't think that I would buy them, then,—because with the £6,000 I could build a dozen houses as large as the one aunt lives in.

Rose. Ah, papa, Henry is a 'matter-of-fact' man. He is one of the 'Germanic race.' Look at his *blue eyes*!

P. Not only is there a pair of doors made of malachite, but a beautiful mantel-piece, with a table and chair on each side of it. The chairs are worth £120 a-piece, and the prices of the tables are £400 each.

In the front of the department, there are three large handsome vases, made of a precious stone called *jasper*, which have excited the wonder and admiration of many people—almost as much as the malachite has. Those who understand the workmanship of vases, have been very much struck with one of them. They have been wondering how, in such a hard stone, the beautiful border of leaves could be cut. It is supposed that

a *diamond* was used for the purpose. The vase is valued at £3,000. All three of these vases are the property of the Emperor, and were made at *his own manufactory*.

In the very centre of the front is another great vase, of porcelain. This also was made at the Emperor's manufactory—it is valued at £2,500.

But these things form only a small part of the riches sent from Russia. There are quantities of SILVER-PLATE; gold-plate also; and jewels worth £40,000.

There is an artificial branch of currants, made of a precious stone called white *cornelian*, in which even the very stones are seen inside the fruit. These look so natural, so juicy, and tempting, that the young Prince of Wales said,—“He should really like to eat them.”

There are even more specimens of fine Jewellery.—There are
 Bunches of cherries in *red cornelian*,
 Pears in *agate stone*,
 Plums in *onyx*.

Rosc. Are there any more articles, papa?

P. Yes. In the background there is a curious *carpet* made of squares of squirrel-skin. *Medallions* made of porcelain, and vases of beautiful azure and gold.

II. Has Russia sent any *raw material*, papa?

P. I cannot say, as I have not examined the whole of the department yet; but I expect that when we go there we shall see specimens of tallow, timber, wheat, flax, hemp, linseed, wool, hides, and so forth.

H. Which family, papa, do the Russians belong to?

P. They are neither *Celtic* nor *Germanic*, but belong to a family formed by the union of the Germans with the Mongolian race.

The people of this family are called the *Sclavonic* race. The chief distinction in their character is, perhaps, a love of brute force; many of them are in a rather savage state, and their favourite occupation is plunder, and war. If you travel to the south of Russia, you will reach a famous country called *GERMANY*.

You have heard, I dare say, that this country is divided into several small states. Those states situated around the River Rhine have, together with Prussia, formed a union, so that the taxes paid as "customs" may be more easily collected. This union, from the German words *zoll*, a tax, and *verein*, a union, is called

THE ZOLLVEREIN.

H. Are the people a Germanic race, papa?

P. Let me see if you can judge. Would a 'matter of fact' people be more likely to send useful or ornamental articles?

Rose. Useful articles, I should think.

P. Then listen to the first account I read of the Zollverein.

"The general character of the articles sent by these states is *utilitarian* (useful)."

Here is a list of some of their goods. There are models of their fine *apparatus used in MINING OPERATIONS*—rare minerals—

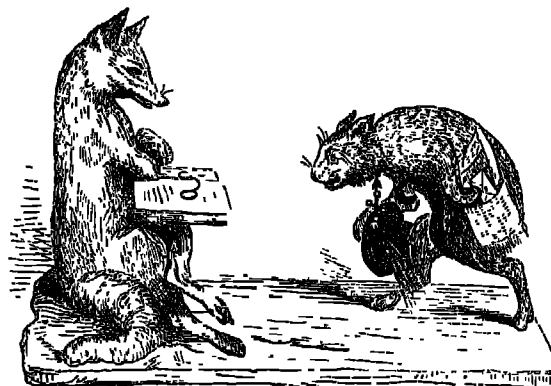
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fine *preparations* of colours, such as the beautiful blues, smalt and ultramarine.

There are also woven goods in abundance—all useful things. The principal article of commerce in Saxony—the *Saxony* *unrein* *arom*—hosiery—worsted, and woollen stuffs—the celebrated Berlin wool work, and paper patterns for ladies to copy—with specimens of calico, are sent. Carpets, silks, oil-cloths, and a very large display of useful 'raw material.'

II. Then such a list of goods as that, seems to belong to a *Germania* nation.

P. That is correct. But, although the Germans are a hard-working, matter-of-fact nation, they have sent us ornamental goods. In the department of the kingdom of WURTEMBERG there are some extraordinary specimens of stuffed animals. There is a scene of hunting the wild boar, and another of *stag* hunting, I think. Opposite those two scenes there are collections of animals, which have been prepared to illustrate some of the fables published for children. There is the whole history of *MARKUS*, the Fox, in which are many diverting scenes. These you may see on our next visit. I have drawn some of them for your amusement.

In another part of the Zollverein there is a very pretty model of the castle in which HIS ROYAL HIGHNESS THE PRINCE ALBERT was born. Although it is pretty, it does not display any of the remarkable ingenuity which we see in the works of the French.

If you look again at your map, you will see, at the south-east of Germany, a country called

AUSTRIA.

Here we have a strange empire, a curious mixture of the *Germanic*, the *Celtic*, and the *Slavonic* races. The people of Austria have sent us many fine things. There are fine specimens of raw material.

From *BOHEMIA*, the northern part of Austria, the most beautiful objects in stained glass are sent. There are lucifer matches, for which Bohemia is also famous, producing enormous quantities.

The most striking of the useful articles are the articles of *AUSTRIAN FURNITURE*. These articles are ornamented with the most perfect carvings. I am afraid that when you visit the furniture room, and notice its style, you will wonder what it was really made *for*. The great bed in particular will surprise you.

In the statuary room of Austria you will find a statue, called "The Veiled Vestal." It represents a female, whose face appears to be covered with a veil. You know that it would be almost impossible to cut a thin veil in marble, and the artist has, therefore, only carved the *fold*s of the veil on the face, and has indented the parts of the face between the folds, so that at a distance you feel sure that the figure has on a real veil. Every one is deceived at its appearance, until he has examined it closely.

Which country would you like to hear of next?

Rose. Here is a country, papa, at the west of Austria. It is called *SWITZERLAND*.

SWITZERLAND.

P. This country is the most mountainous in Europe. Just as there are two kinds of Belgians, so there are two families of Swiss—the *French* Swiss (of Celtic origin), and the Germanic Swiss.

The Celtic division is famous for its JEWELLERY, and its beautiful GENEVA WATCHES. The other division is more famous for its agriculture—its dairies, butter, &c.

The ingenuity of the Celtic family in Switzerland is as great as in any other country. They have sent to the Exhibition watches *for the deaf and blind*—a watch which only requires winding once a year, or not so often, indeed, as it runs 374 days—a watch smaller than a fourpenny piece, to hang in a brooch—a still smaller watch, made on the top of a pencil-case. This beautiful little thing not only tells the hour, but the *day of the week* and the *month*. Next to the watches there are valuable cases of *jewellery* work, also many curious and valuable *philosophical instruments*. There are very beautiful and delicate *carvings in wood*, and *straw-plait* of wonderful fineness, together with a number of “ingenious trifles,” which, it is said, show how the people in that mountainous country occupy themselves during the winter months.

They also send specimens of ornamental ribbons, embroidered curtains, velvet, “Swiss muslins,” and “cambrics” in abundance, with many varieties of cotton goods.

It is said that in nearly every branch of manufacture—either

of pottery work, or of woven goods, or of metal work—the Swiss have sent good specimens.

H. They seem very industrious for a *Celtic* race, papa!

P. You must not suppose that the Celts cannot be industrious. They are not generally disposed to work hard when tilling the soil, but most Celtic people have great patience as well as ingenuity.

You may learn from the Swiss how much a nation may owe to the climate and country it lives in. The Swiss of Geneva and the neighbourhood are not very different in their origin from the Spanish or Portuguese, or from the people of France and Italy, which countries surround Switzerland; but they are by far the most active. What do you suppose has helped to make them so?

H. The wind, papa, which blows across the snowy mountains. I should think that the mountain breezes would always keep the Swiss from going to sleep.

P. There is no question that both the Celtic and the Germanic Swiss owe much of their activity to such a cause. If you were to ask a Swiss, "Why is it that you are so much more active than the Celts of Spain?" he would say, perhaps, "Because I do not live in so warm a climate—because I breathe the mountain air—because, ever since I have been a little child, I have been accustomed to climb the mountain side, and walk over the steep hills."

There is very much that is interesting in the history of a Geneva watch. You may one day hear how the different parts

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of each watch are divided amongst different hands in the villages, and are put together and finished in the towns. Watches are made in the same way in CLERKENWELL, near London, except that the workmen live in dark back streets, and closely-packed houses, breathing a very different air from that of their fellow-workmen in Geneva.

Rose. And not having such pleasant cottages, I dare say.

P. We will now pass westward to

SPAIN.

Here is a strongly Celtic race of people. Their principal manufactures, wine, sword-blades, tobacco, &c. One of the swords sent to the exhibition from TOLEDO, has a blade which is beautifully 'tempered.' It is so elastic that it may be bent so as to form a circle, and in this shape it is put away in its sheath. When taken out it immediately becomes straight again.

II. The Spaniards ought to have sent plenty of 'fancy-work,' as they are Celts.

P. So they have done. I have read that the fancy work in embroidery, and the black lace of Spain, is truly exquisite—so beautiful that "the English ladies who work crochet and Berlin wool may throw away their needles and hooks in despair." Spain has also sent a *shrine* in gilt metal, and in precious stones. There is a wonderful table, ornamented with *mosaic* work. It proves how patient, as well as ingenious, are

many of the Celts. It must have cost immense labour, and have taken an immense time—for it is said to contain *three million* pieces of wood!

There are, from Spain, beautiful specimens of raw material, to show what wealth there still is in their soil. There is in the iron mines abundance of iron as fit for making fine steel as that of Sweden, but not much is sold, for want of good roads to convey it to the ships on the coast.

I read about the Spanish roads, papa, in "Uncle's Richard's" letter in *PLEASANT PAGES*. I remember how he was bumped about in the diligence. How strange, papa, that there should not be good roads; but making roads is not 'fancy work.'

Rose. Do the Spaniards make much woollen *cloth* or cotton goods, as the English and the German people do?

P. I think not. Most of their fine merino wool is exported as 'raw material.' They have woollen manufactures; but I have read that the manufactures are mere *shams*. It is said that all sorts of woollens, cottons, hardware (or iron utensils), are smuggled into the country.

The next country to Spain is

PORTUGAL.

The Celtic people of this country are very similar to the Spaniards. Formerly the two nations were one. The Portuguese have sent us beautiful artificial flowers formed of feathers—exquisite carving in ivory—fine marble—barrels of *snuff* (of which any one may take a pinch). There are specimens of

woollen and cotton cloths. I have not noticed these cloths, but I have read concerning them :—"Of these, the less said the better."

H. Now let us cross the Mediterranean, papa, to

ITALY.

P. Here is a truly Celtic race. Like the Spanish and Portuguese, they have sent us everything that is beautiful. Poor Italians! They live in 'the garden of Europe,' with a rich soil, and a most luxurious climate, and yet they are not a happy people.

Rose. Why not?

P. Because they want perseverance and industry. They know very little of the enjoyment of 'working hard.' They are famous for their music, their dancing, and their painting. The marble statues and splendid architecture show how rich is the imagination of this Celtic nation.

From the northern parts of Italy,—TUSCANY and LEGHORN, we have beautiful specimens of straw-plait.

Rose. I once wore a Tuscan straw hat, and mamma wears a Leghorn bonnet.

P. None but Italians could, I should think, make such beautiful work in straw. You do not set much value on a *straw*; yet, see how this value can be changed by industry! There are in the Exhibition specimens of Tuscan plait which are worth their weight in gold. Beside the statues, the Italians have sent mosaic tables, and other ornamental furniture; but the most

striking objects are their ingenious models, showing the beautiful anatomy of different animals. I will show them to you the next time we go to the Exhibition.

At the east of Italy is a country called

TURKEY.

The most noticeable article in the Turkish department is a huge brass machine, of elegant shape, looking something like a large tea-urn. It is really a large brazier for charcoal, called a *mangal*. The charcoal is burned inside the mangal, which, in a Turkish house, is placed in the centre of the room; the Turkish ladies sit round it to warm themselves.

H. I think I would rather look at a blazing fire, than a brass *mangal*.

The Turks have also sent us beautiful specimens of coffee-cups, and other household utensils. There are specimens of the famous Turkey carpets, Turkish *beads*—of which you shall one day hear more—silks embroidered with gold, musical instruments, and many more of the kind of articles which people call 'beautiful.' There are, too, specimens of the Turkey *sponge* from the shores of the ARCHIPELAGO; there is one piece just as it was taken from the rock, with an oyster still sticking to it.

Rose. What is the name of that little country at the south of Turkey?

P. That is

GREECE.

Greece was formerly the first country of the world; but, alas! the fates go round like the world itself, and Greece, in the midst of the World's Industry, is an unimportant place.

Amongst her raw materials there is a piece of the beautiful marble which was used for the great Parthenon, and for the statues, in the days of Greece's glory. There are many other fine specimens of marble, like that which was used for building many an ancient temple. You may see a blackish marble—variegated marble—marble with reddish and 'sky-blue green' spots—grey marble—marble with grey spots, like clouds—marble with yellow veins—green marble—greenish marble—flesh-coloured marble—transparent marble, and marble which is perfectly black.

There is also 'marble alabaster.' There are other raw materials from Greece, but few manufactures.

II. Now, I think, papa, that you have mentioned all the countries of Europe. I will count them up, that I may remember them:—GREAT BRITAIN, FRANCE, BELGIUM, HOLLAND, DENMARK, SWEDEN and NORWAY, RUSSIA, the ZOLLVEREIN, AUSTRIA, SWITZERLAND, SPAIN, PORTUGAL, TURKEY, and GREECE.

There is one thing I notice, papa,—that the Celtic nations are found at the south of Europe, and at the west, and most of the Germanic nations live northward.

P. That is the case. The most westward of the Celtic

nations are the people of Ireland, which country is, you know, at the west of England. These people have all the failings of the Celts, and all their good qualities, also. These good qualities might be better known if the Irish had better opportunities of showing them.

Let us now mention the principal goods from AFRICA.

Chapter Fourteenth.

THE GOODS FROM AFRICA.

AFRICA is the least civilized part of the world. We shall not, therefore, find many of her productions. Indeed, the history of the goods from the remainder of the globe will not occupy much time. The principal African contributions have been sent from Egypt and Tunis.

EGYPT.

Egypt is on the northern side of the eastern nave, opposite to the Koh-i-noor. In the front of its department it protrudes long matchlocks, sabres, and very large saddles, richly embroidered with gold, similar to those exhibited by other Eastern countries. One of the walls of the department is covered with drapery of violet, crimson, green, and blue silk garments, with crimson and green shawls, all embroidered with gold.

II. I think that the people of Africa and Asia seem very fond of gold embroidery. I wonder whether they are *Celts*?

I'. No; they belong to a different race, which you may hear of one day. It is said that the goods from Turkey and the Eastern countries convey an instructive lesson to the mind. The East is the land of despotism, where power belongs only to the wealthy rulers. So, it is found, that in splendid dress, jewellery, and armour, and in all that belongs to the rich, the Eastern nations excel the Europeans; but that in *common* comforts—in those articles which all classes need—they do not equal the more civilized nations.

On the southern side of the nave, opposite to Turkey, is the department of

TUNIS

Here we have nearly the same kind of goods as in Egypt. The tools of husbandry, hay-forks, &c., are very rude, while there is "*extremely fine* door-matting, and a magnificent collection of gold-embroidered dresses."

You may see, on the map, that Tunis is in the northern part of Africa—in the part inhabited by the Moors and Arabs; so we find in the Tunis department a real Arab's tent of black camel's hair. This tent is adorned with such ornaments as the Arabs find in Africa—skins of lions, leopards, antelopes, and wild goats. There are Arab musical instruments—a fiddle with two strings, a guitar, and an African banjo. There are hats hanging up, as large round the brim as a coach-wheel, very suitable for wear under an African sun, no doubt.

From

THE CAPE OF GOOD HOPE,

which, you can see, is at the very south of Africa, are sent skins of wild animals, buffaloes' horns, rhinoceros' horns, and oil from the sheeps' tails, which I will one day describe to you. The sheep of the Cape, and of Africa, have enormous tails, which are sometimes carried on wheels. There is an elephant's tusk weighing 103 lbs. Amongst the manufactures is the head-dress of a Kaffir warrior, and a beautiful tippet made of the feathers of various Cape birds.

There are also goods from the *western coast* of Africa—broad-brimmed straw hats again, calabashes, poisoned arrows, &c., &c.

Chapter Fifteenth.

THE GOODS FROM ASIA.

THE principal Asiatic goods are sent from India, Ceylon, Persia, China, and the islands of the Indian seas.

The two former countries have been mentioned.

PERSIA,

like the other Eastern countries, sends many 'fine' things. The Persian carpets and rugs are beautiful. There are silk and

cotton dresses, and numerous articles embroidered in silk and gold. There are silk and gold scarfs, silk and gold cushions, silk and gold bags for ladies, silk and gold slippers for gentlemen, silk and gold caps for gentlemen, silk girdles, embroidered purses and sashes, scented woods, mother-o'-pearl beads, &c.

CHINA

sends many *singular* things. It is a country noted for its porcelain, silk, tea, &c. You must remind me that, when we go again, we particularly examine one collection of goods. It is a complete collection of the various materials employed in

THE GREAT PORCELAIN WORKS OF KIAING-TSIH'-CHIN.

There are Chinese gongs, lamps, edible birds' nests, which you will like to see; ivory chessmen, all kinds of woods inlaid with mother-o'-pearl, japanned goods, the dyes used for making green tea, Chinese shoes, model of a Chinese junk, and other articles, such as you may have seen in the Chinese Exhibition.

At the south of China you may observe a large group of islands in the Indian Ocean, such as SUMATRA, BORNEO, JAVA, &c. From thence are sent the extraordinary gum which has lately become so extensively useful, viz., GUTTA PERCHA. Indian-rubber is also sent, with collections of spices; for some of these islands so abound in spices, that they are called '*the Spice Islands*.' *Sago*, another important produce of these parts, has been sent, with gamboge, tortoise-shell, shellac, isinglass, and specimens of the fine rattans, bamboos, and other canes of the tropical countries.

THE GOODS FROM AUSTRALIA.

By proceeding south-eastward from the Spice Islands you arrive at Australia. This department, you may remember, we visited in the Exhibition. There is, in one part, a piece of 'fibrous malachite,' with specimens of 'stream-gold,' and polished stones. One of the most important products of Australia is its *wool*; of this specimens are sent, with patent and *enamelled* kangaroo-skins. From VAN DIEMAN'S LAND—the large island at the south of Australia—are sent all varieties of wood,—black wood, velvet wood, musk wood, myrtle, sassafras, and blue-gum timber, rosewood, and many others. There are all kinds of earths, gums, skins, with other most varied animal and vegetable productions. Honey and bees'-wax is sent; for, it is said, that in no place in the world do bees thrive better than in Van Dieman's Land.

Chapter Sixteenth.

THE GOODS FROM AMERICA.

WHEN in Van Dieman's Land, you take a ship and proceed eastward, you will arrive at two large islands called NEW ZEALAND.

The people here have begun to manufacture; and have sent

specimens of cloth and soap,—of leather, and bags made from flax; for flax and corn grow beautifully in the fine climate of these islands.

From New Zealand continue eastward, and you reach the great continent of the New World.

In South America, the principal countries are under a *tropical* climate; their produce, therefore, is not unlike that of the East Indies and the Spice Islands. From CHILI, PERU, and BRAZIL, there are gold and silver ores—raw hides from the numerous herds of bullocks in the neighbourhood of Brazil; and artificial flowers, and butterflies, formed of feathers and beetles' wings. From BRITISH GUIANA and the WEST INDIES are not only spices, but the produce of the splendid trees and vegetables,—such as the mahogany, banyan, nutmeg, cocoan, coffee, sugar, rice, almonds, raisins, &c.

In North America we have products from Mexico, California, and principally from

THE UNITED STATES.

MEXICO sends little else besides a collection of woods, and “designs of fruit and reptiles in wax.”

From CALIFORNIA is 100 lbs. of *quicksilver*, and, I believe, a small lump of gold ore; but a much larger quantity was expected.

From the UNITED STATES we have fine collections of raw produce, and are to have many more articles. Most of them are useful rather than ornamental. There are some punching

machines, which are striking objects; stoves and grates, ploughs, and a large iron safe, which, it is said, no one can open except the man who made it. America is famous for its india-rubber, and has, therefore, sent a model of an india-rubber life-boat, which, it is said, can be made to be put in one's pocket; yet, when opened, it is two yards long and one yard wide.

The *most important* products of America, however, are its COTTON and CORN—of these, there are all kinds of specimens—and INDIAN CORN, or MAIZE. A new kind of oil has also been sent, called *Lard Oil*: great quantities of it are made in America from lard, the fat of the pig. It is much used for machinery. In the north gallery there is a 'great exhibition' of Soap—all kinds of plain soap and fancy soaps made into fancy shapes. There are busts in fancy colours of celebrated persons done in soap. If I remember rightly, Her Majesty's countenance has been modelled in this way.

The least agreeable articles from America are the peculiar rifles and pistols called 'revolvers,' which are constructed so as to fire off several balls without the trouble of reloading. The most agreeable and beautiful object is the statue of the Greek slave, which we saw and talked about when noticing the 'Lions' of the Exhibition.

II. There was another agreeable thing, papa—I mean that great picture of an eagle, hanging up at the end of the nave. It was an enormous eagle, you may remember.

P. Yes; I had forgotten it. If you look at our map once more, you will see that at the north of the United States are

several British colonies—CANADA, NEW BRUNSWICK, NOVA SCOTIA, NEWFOUNDLAND, &c. ; but as we have visited the department of Canada, which is the most important, I will leave you to look for the productions of the smaller colonies another day.

II. I should like, now, to count up all the countries we have heard of, papa ; but I don't think that there will be time, for, see, the cabman is turning round the corner ! We are nearly home.

P. I had intended to talk to you about our great city, London, but there will certainly not be time *now*.

II. No ; the cabman has reached the beginning of our terrace. I am very glad we are so near home ; and I am very glad that we have been——

P. You may be very glad, too, that there is so great an Exhibition. Let us always think of it as the TEMPLE OF PEACE, for such it is. There, men are now learning to love the peaceful arts ; they are learning, too, how their neighbours, as well as themselves, take delight in such works.

II. So, they learn that *they are like each other*.

P. True ; they learn, too, that God, their Father, has given to all the same kind of feelings and tastes ; and that He can make them all work together for good. When they have thus learned that they are brethren, men will learn that they may work together for even a greater good. God has made all men to admire that which is fair and right—all men can see that truth and justice are more beautiful than anything in the

Exhibition. Thus, Henry, we may hope that a 'good time' will soon come. In that time, men of all nations will often meet. Then, they will strive together that, under God's blessing, "all things may be settled upon the best and surest foundations; that peace and happiness, truth and justice, religion and piety, may be established among us for all generations."

H. Why, papa, I think that men mean to do so very soon,—at least, there is somebody who wants to teach them to do so, for, see what somebody has printed on the cover of the Catalogue!—I will read it to you.

THE PROGRESS OF THE HUMAN RACE,
RESULTING FROM THE COMMON LABOUR OF ALL MEN,
OUGHT TO BE THE FINAL OBJECT OF THE EXERTION OF EACH INDIVIDUAL.
IN PROMOTING THIS END,
WE ARE CARRYING OUT THE WILL OF THE GREAT AND BLESSED GOD.

Ah! that is rather too hard a sentence for me; I cannot understand it yet.

P. Then I will explain it to you fully another day; but we have reached home again. Come, Rose.

H. Why, Rose! Poor Rose, she is so tired, papa, that she has fallen fast asleep!



SUPPLEMENT.



PLEASANT PAGES

ON

“PLEASANT PAGES.”

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"DEAR SIR,—I am one amongst many English mothers deeply indebted to you for assistance constantly derived from your periodical visit to us in the form of 'Pleasant Pages.' I must not trespass on your time to tell you how many of your 'thoughts that make thoughts' have filled my mind with bright hopes for the future. A holier and purer mode of instruction than any I have ever yet seen, must surely have a tendency to make purer and holier men and women than the world has ever yet known, and have an influence in promoting that 'kingdom of righteousness, peace, and joy,' soon, I trust, to be established upon the earth. \* \* \*

"With many other mothers, and dear children too, who are rising up to call you blessed, and thank you, I trust, by holy and useful lives, for your kind exertions,

"Nothing kill." "I am, dear Sir, yours very truly, M. B.

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A garland! a garland!  
All the flashing, gleaming glory.  
Alas for men! that they should be so blind.  
And now another day is gone.  
A rosy child went forth to play.  
Awake, little girl, it is time to arise.  
Do you to others kind and true.  
Can you catch the flying shadows.  
Epitaph on an Infant.  
Fair befall the cotton tree!  
Father of all! we bow to thee.  
From day to day we humbly own.  
God's presence shineth everywhere.  
God bless our native land.  
God might have made the earth bring forth.  
Hark! amid the "shivery leaf sounds."  
Harvest Home.  
He is the wisest, and the happiest man.  
Higher, higher will we climb.  
How oft enchanted have I stood.

How lovely shines the liquid pen!  
How fast those pretty blossoms fall  
Hurrah! hurrah! for England.  
I have a little sister.  
I sing the almighty power of God.  
"Let there be light," the Eternal spoke.  
Little brother, darling boy.  
My home, my own dear home.  
Mother, how still the baby lies!  
Now I lay me down to sleep.  
Old England for ever!  
Render, whose' or thou art.  
Sing a sweet melodious measure.  
Spring is coming, Spring is coming.  
The bird that soars on highest wing.  
The stars are bright.  
There is a flower, a little flower.  
Time speeds away—away, away.  
To a bee.  
Up! up, let us a voyage take.  
When all thy meeries, O my God.  
Work while you work.

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