

maker, to enable observations made with them to be reduced to the same numerical expression. I need hardly remind the inhabitants of Aberdeen that the Association, in one of the first years of its existence, undertook the comparative measurement of the Aberdeen standard scale with that of Greenwich, a research ably carried out by the late Mr. Baily. The impediments to the general progress of science, the removal of which I have indicated as one of the tasks which the Association has set for itself, are of various kinds. If they were only such as direction, advice, and encouragement would enable the individual or even combined efforts of philosophers to overcome, the exertions of the Association to which I have just alluded might be sufficient for the purpose; but they are often such as can only be successfully dealt with by the powerful arm of the state or the long purse of the nation.

"These impediments may be caused either by the social condition of the country itself, by restrictions arising out of peculiar laws, by the political separation of different countries, or by the magnitude of the undertakings being out of all proportion to the means and power of single individuals of the Association, or even the voluntary efforts of the public. In these cases the Association, together with its sister Society the Royal Society, becomes the spokesman of science with the Crown, the Government, or Parliament,—sometimes, even, through the Home Government, with Foreign Governments. Thus it obtained the establishment, by the British Government, of magnetic and meteorological observations in six different parts of the globe, as the beginning of a network of stations, which we must hope will be so far extended as to compass by their geographical distribution the whole of the phenomena which throw light on this important point in our tellurian and even cosmical existence. The Institute of France, at the recommendation of M. Arago, whose loss the scientific world must long deplore, cheerfully co-operated with our council on this occasion. It was our Association which, in conjunction with the Royal Society, suggested the Antarctic Expedition, with a view to further the discovery of the laws of terrestrial magnetism, and thus led to the discovery of the southern polar continent. It urged on the Admiralty the prosecution of the tidal observations which that department has since fully carried out. It recommended the establishment, in the British Museum, of the conchological collection, exhibiting present and extinct species, which has now become an object of the greatest interest.

"A deep debt of gratitude is therefore due to bodies like this Association, which not only urges the wants of science on the Government, but furnishes it at once with well-matured plans how to supply them with the greatest certainty and to the greatest public advantage. We may be justified in hoping, however, that by the gradual diffusion of science, and its increasing recognition as a principal part of our national education, the public in general, no less than the Legislature and the State, will more and more recognise the claims of science to their attention."

WHAT I SAW AT THE LONDON DOCKS.

BY THE AUTHOR OF "CURIOSITIES OF NATURAL HISTORY."

I LATELY had occasion to visit this busy and most interesting portion of our great metropolis, in company with a young midshipman who was about to proceed to Calcutta in the good ship "The Queen of the Clyde." Taking a steamer from Hungerford, we soon arrived at the Thames Tunnel, and of course paid our penny to look once more at this gigantic model of the burrow of the sea-worm, the *teredo navalis*—the same creature that ate up the Russian men-of-war sunk before the harbour of Sebastopol. It is curious to remark the deep hollow place which is worn away in the corner of the board where the man who takes the pennies sits, from the continuous friction caused by putting down the pennies in the same spot; also to observe the beautiful polish on the balustrades on each side of the steep stairs going into the tunnel, caused by the friction of people's hands as they allow them to slide down in descending, or hold fast as they are ascending. At the bottom of the stairs I found the same old steam-organ playing away as fast as usual, or perhaps faster than usual, for they had just put some coals on; also the usual penny shows, where you could see twenty views for that sum, all being of the most miscellaneous character, and painfully unartistic.

Emerging from the tunnel, we passed through a labyrinth of narrow streets, full of butchers' shops, where they seemed to sell no smaller joint than a whole quarter of a cow or half a sheep, till at last we came to the dock gates. These ponderous masses of wood and iron, to which the gates of Troy were but as wickets, used formerly to be moved with great labour, and to the loud-sounding voices of the labourers; now, however, they swing to and fro with the ease of a well-hung drawing-room door, and one man directs their movements with the slightest touch of his hand. The hydraulic press does all this, and a marvellous improvement it is upon the old pulley-hauling system.

Immediately on passing over the gates, we came upon a heap of apparent rubbish, which I, nevertheless, examined. I was pleased to find it a small hill composed of stones from a volcanic formation. Among the heap I found numerous specimens of cinder-like stones, showing numerous air-bubbles in their substance, not unlike pumice-stone or slag from a glass or iron factory. These, however, were decidedly of a volcanic origin, and it was amusing to see the little air-bubbles come spinning up to the top of the water when unceremoniously displaced by the fluid getting into their innermost hiding-places. There were also lumps of more solid volcanic stones, and on them small crystals, shining like mica. Besides the black stones, there were some red-coloured ones, also full of holes, which holes were lined with a beautiful thin white material, like egg-shell, on fracturing. One of these stones was discovered to be a brilliant pebble of quartz, and doubtless this egg-shell-like substance was the remains of other pebbles which had become decomposed by time or heat. On the outside of most of the stones were traces of their once

having formed a shingle beach, for there were still adhering to them bits of a species of oyster, and on one there was a portion, well preserved, of the ordinary "brain coral." In the interstices of another stone I found the round eggs of either a lobster or else of some sea-shell, hard and dry, like partridge shot.

What, then, was the history of this slice of a volcano lying in the London Docks? Simply, that it was the ballast of some vessel which had picked up the stones nearest to the place where she was taking in her ballast—and that would be, probably, on the sea-shore; and, having used them for the voyage, she had turned them out as rubbish in the docks. I was told that the ship to which this ballast belonged was "The Damascus," last from Sydney, laden with wool. I do not say she brought this ballast from Sydney, but she must have been anchored off some volcanic region when she did pick it up.

Further on I found a quantity of stones, also volcanic, and some odd-looking granite, which came as ballast in the "Evening Star" from China, laden with tea. Further on, again, was another heap of shingle, such as I had never seen before, also from China. This ballast from the tea ships is often broken up and used to mend the roads with; so that, in some streets of the east end of London, the omnibusses and cabs crumble Chinese granite under their wheels.

Lying about the tea ships were several enormous bamboos. Everything from China is sure to have a trace of bamboo about it. A sailor informed us that the solid canes were "he," and the hollow ones "she" bamboos. Close by the bamboos was a fine study of ichniology, or the science of foot-steps; for the bottom of a door had been filled up with the common clay (possibly to keep out the rats), and the man who had put it down had stamped it with his hob-nailed boot, leaving a number of most beautiful impressions of the boot, and of the pattern of the nails, such as would have made Robinson Crusoe open his eyes wider than even when he first saw the foot-print of the celebrated "man Friday."

Passing further along, we peeped into an enormous warehouse, which smelt like a grocer's shop. There was nothing in the warehouse, and a very civil man at the door told us that it was cleared out to receive the cargoes of the sugar ships, which were daily expected with the results of the autumn crops of the sugar canes. In a few weeks this warehouse would contain sugar, to the amount of so many thousand pounds that we shudder to think of the aggregate. In the warehouse live tax-masters over the sugar, in the form of rats. Wherever man is found, there will also be a rat; and the docks and the sewers are the great headquarters of the London rats.

Opposite to where we stood was a large ship, painted a dead white colour, looking like a ghost; her name was "The White Eagle." She had come from Penang, and there was a law-suit about her. This was a rather curious coincidence, for the idea generally associated in one's mind with Penang is a "Penang lawyer;" and this is a

species of tough and elastic bamboo, which is used extensively for walking-sticks or for defence. These canes, according to an ancient legend, were once the principal administrators of justice in that country, and hence their name, "Penang lawyers," to this day.

The cargo of this ship was not touched for some time pending the law-suit, and the rats had had a fine time of it. Our informant told us that after dark he had seen sixty or seventy enormous rats sitting on the galley of the ship, as "oudacious as could be;" and they would not move out of the way even if you kicked them. However, they met their match in an ingenious man who "catches for the ships." He does not catch one or two rats at a time, but a large proportion of the whole colony; he has large traps, and he gives the rats the run of the traps, (that is, he allows free ingress and exit to the bait therein contained,) for three or four nights; and when they have come to the conclusion that there is nothing to fear from the trap, down goes the door, and he catches sixty or seventy rats at a time. This is no bad haul, as rats are worth from fourpence to sixpence each for the "dogs to kill"—the normal and natural use of a rat, according to the idea of a certain class of Londoners. The bait he uses, it should be noticed, is simple and inexpensive, being only common cabbage leaves. The rats, after a sea-voyage, are as greedy for green vegetable food as are the sailors themselves. This bait (the secret of which, I think, I ought not to have told) might be tried in ordinary houses. The rats make fine runs down into the holds of the ships, and they eat everything that is eatable. My informant told me that, in unloading a ship, they discovered a large package, which, on moving, was found to be as hollow and as empty as a big drum. The rats had so entirely eaten up the contents (whatever they might have been), that they had not left a single grain whereby it could be known what the package originally contained. The sides of the package remained erect; and, preserving its form, the ropes were tied and in their places, yet the inside was desolate emptiness.

Besides the rats, there are other nautical plagues, in the shape of cockroaches—monstrous brutes, as big as two ordinary kitchen black beetles tied together. They come from "all parts," but more particularly from Ceylon and the Mauritius. They can fly as well as crawl, and they crawl into odd places; for my informant told me that, somehow or another, one gigantic fellow crawled down his waistcoat, and gave him "such a nip in the back." However, luckily for us, the cold "nips" these cockroaches in return; and as the cargo is gradually taken out of the ship, the cockroaches get uncomfortable; they come up and die in hundreds, from the cold. This is a fortunate circumstance; for otherwise we might have them in our kitchens, gnawing holes as big as mouse-holes, and eating whole sugar basinfuls of sugar at a time. We should have to enlarge our beetle-traps, and the cats would sit watching for them, thinking they were a new kind of mouse. A friend tells me that in the East he has seen a cable of hide, externally

looking like any other cable, but when it is suddenly used, and a strain put on it, so as to tighten it, the cockroaches come swarming out of the interstices of the cable, thus escaping sudden death by squeezing. He has seen them fall out of the cable into the water, swim to the shore, and then climb up in readiness to get back into the ship at the first opportunity.

Passing onwards in the docks, we came to the magnificent ship "The Persia," beautifully smart and handsome-looking, taking in her cargo for Auckland. A number of new square deal boxes were being hoisted in, and these contained paper going out, possibly to receive type-marks, and to return to us printed all over with Australian news, and wished-for tidings of absent friends. A ripple on the quiet water told us something was moving in the docks; and on hearing the "ye hoy" of the sailors, we found a beautiful barque, "The Royal Bride," coming into dock from Columbo. Her anchor was rusty, her sides weather-beaten, and her decks crowded with hardy seamen; and in these men we saw in perfection what I call the "seaman's eye." It is more or less to be noticed in all those who have been at sea. It consists of a beautiful, clear, sharp, and wide-awake expression, which is more easily recognised than described; it is the result of the eye being always under training to look for objects at a distance—to peer through the darkness of the night—to look aloft at the rigging, and to detect quickly what is wrong; it is the eye of quick observation and decisive action. These sailors, just arrived from sea, exhibited the "seaman's eye" to great perfection. After a few days ashore, they will partially lose it; if they remain long in the service, they will never quite lose it, for I have remarked it in many old seamen at Greenwich Hospital.

Passing out of the London Docks, we arrived at the St. Katherine's Docks, and witnessed the unloading of a vessel which had arrived with a cargo of wine. We peeped into the cavern-like entrance to the far-famed wine-vaults, whence issued an odour as of ten thousand half-washed wine decanters placed to our nose at the same time. We read a notice that "No lucifer-matches, fuses, tinder-boxes, pipes, or cigars, were allowed on the premises."

Passing the sharp-eyed custom-house officer at the dock-gate, and finding ourselves in Ratcliff Highway, we noted what we saw in this curious street, of which we may have something to say another time.

FEMALE EMPLOYMENT.

NO. IV.

It is universally acknowledged that women are best fitted by nature for deeds of mercy and charity, for offices of consolation or of tender care; consequently, they have been thus employed, in greater or lesser numbers, in such labours of love. To smooth the pillow of the aged, to calm the fretfulness of childhood, to comfort the sorrowful and aid the weak—these and kindred acts have ever been the special province of women.

To make use of their services in a more systematic way in such avocations, and to widen the circle for their sympathetic efforts, is now being urged as a measure of vital importance to society at large, as well as to the individuals directly benefited; while those to be thus employed are to receive in return a certain remuneration for the performance of these duties.

Before entering into detail as to the proposed methods by which women can thus earn their living in avocations congenial and in harmony with their dispositions, a few words must be said for the better understanding of the subject. Objections may be raised by charitably inclined persons against having paid labourers for such work, on the ground that there are already many benevolent women who are willing to give up their time for these and similar purposes, in connection with almsgiving and public institutions for the sick in mind or in body.

There are, doubtless, numbers of pious women willing to perform these christian duties gladly, without fee or reward, who have *riches at their command* and time likewise; but these are often physically or mentally unfitted for such arduous and continuous work, in consequence of their habits of luxurious ease, that cannot be put off or on like a piece of dress. Women nurtured from childhood to be waited on, and whose every wish is promptly granted, are from their position incapacitated for the performance of continuous and tiring tasks, such as occur in attendance on the sick, the infirm, the ignorant, or the vicious; therefore, however much many women thus situated might wish to perform these acts of charity, it is found that, without long trial and indomitable perseverance, their efforts after a time cease, and their tasks are given over to others trained and fitted for the occupation.

There are likewise other kind-hearted Christians, equally willing to devote their time and energies to the poor, had they the means of living; and it is for this class of workers that remuneration is proposed. Nor ought this necessity to detract from the value of their services. A clergyman has the means of living secured to him; so have city missionaries and scripture readers, overseers of schools or hospitals, and no one thinks the less of them or of their laborious duties, from the fact that their services are paid for. It is nowhere asserted that only rich men should be preachers and teachers of the poor or healers of the sick: in all cases the labourer is worthy of his hire, and we see no reason why women should form an exception to this general rule.

Women who can *amuse the public* are frequently overpaid, while those who might aid the public by raising the morals of the ignorant and debased are not paid at all. Hitherto, their services in many instances have been civilly declined, but now a wiser spirit is abroad; far-seeing philanthropists are of opinion that the influence of *refined women* is urgently needed in various departments of our social system. This fact being accepted by the majority of thinking men, we shall classify, under the following heads, the proposed spheres of action where the presence and services of women are most