## Correspondence.

### The Atlantic Disaster.

*To the Editor of the Scientific American:*

The late lamentable disaster and sacrifice of life off the coast of Nova Scotia must render it painfully evident to the public, and particularly to those acquainted with the sea, that the present system of saving life from shipwrecks by means of the boats usually carried for that purpose is almost useless; and I quite coincide with the views expressed in a recent article in your valuable paper as to the desirability of the scientific world discovering some effectual and reliable life preserver at sea, which shall be capable of rapid manipulation and render sea voyages less fraught with such fearful danger and anxiety to ship passengers as the late examples of the Northfleet and Atlantic are justly calculated to inspire. I have been a passenger on the ocean several times during my life, and can readily understand the awful difficulties that have to be contended with in rescuing human beings from shipboard in the face of fire, rock or tempest. In such cases, which generally occur at night, all is darkness and confusion; and, with the exception of a few whose minds, accustomed by training to the sea, comprehend the situation at once and do their duty nobly, all lose their presence of mind and, in their frantic efforts to escape, only hasten their destruction. In such cases, also, time is so short that the attempts made to lower the boats carried by the ship are generally futile. Some of the boats are perhaps found to be leaky and stove in by previous storms, others never reach the sea owing to derangement of their lowering tackle, while the remainder are generally swamped by heavy seas after leaving the wreck. I beg, therefore, to offer to your notice a plan for dealing with this subject, which may or may not be the desideratum sought. If the idea should meet with the approval of the nautical world, who are alone capable of judging as to its character, I shall be happy to furnish full particulars of my proposed plan; if condemned, I shall still have the satisfaction of having endeavored to aid in the cause of humanity.

My plan is as follows: I propose to place on the uppermost after deck of a ship a false deck, in the form of a raft, say 100 feet long from the stern by 45 feet wide, according to the length and beam of the ship, and of suitable thickness, constructed with alternate layers of planking and cork thoroughly secured together, and capable of supporting from 500 to 600 persons without inconvenience. This false deck or raft is to have sides or bulwarks of thin plate iron, in the form of air tight tubes (which might be used for the stowage of provisions and for other purposes); the ends are to be closed with lattice girders or strong wire rope netting. Other suitable gear is also to be provided thereon for the safety of passengers. When not required for use, the raft would simply rest on and form a raised portion of the ship's deck; but in case of accident, I propose to launch it, by simple, powerful, rapid and efficient gearing, from the stern of the ship into the sea.

The following are some of the most important features of my proposed raft:

1. From the nature of the materials used in its construction, as well as from its form and size, the raft would be unsinkable, and could be made of any floating power.

2. In case of fire, the raft could be instantly launched from the stern of the ship and the passengers and crew betake themselves to it.

3. In the case of the ship foundering, the raft would of itself float free from the wreck with its living freight.

It is not my intention, in this short letter, to describe how I propose to secure the raft (when not in use) to the deck on which it is to be placed, or the manner of launching the same, or to meet the many objections which may be justly raised to its adoption, such as the disposition of the wheel-house, mizen mast, skylights, and other impeding gear; these objections, serious as they may appear at first sight, are mere matters of detail which can be easily overcome, and which I am prepared to meet. In case of its adoption, alterations would necessarily have to be made in the disposition of the stean gear of a ship; but the importance of the subject is such that no expense should be spared; and these alterations once made, my proposed raft would form the safest, simplest and most efficient life preserver at sea ever invented.

I beg to inclose my card and to solicit the interest and support of the scientific world in developing my invention.

Toronto, C. W. EDWARD W. FURRELL, C. E.

### Girdled Trees.

*To the Editor of the Scientific American:*

In your issue of April 19, I find an article headed "A Cure for Girdled Trees," in which a system is shown by which to unite the bark below and above the wound by the use of scions of last year's growth of wood. In my home, the ravages of field mice and rabbits in winter make it a very common matter to have the young trees in our fields and orchards girdled, and the system shown has been tried, but without the best of success, the winds causing the tree to be so shaken as to loosen the scions and prevent the connection from forming between the old bark of the trees. "Necessity, the mother of all inventions," caused me to adopt a plan by which all the evils in your system are overcome, and almost perfect success attained; and as the matter may be of interest to many of your readers, I will describe my system. When a tree is entirely girdled, I cut out, on either side of of the stock fixed upon, a space large enough to admit in a limb from ½ inch to 2 inches in diameter, according to the size of the tree, fitting in the parts of the limb to meet the bark both above and below the wound; then with nails sufficiently large, I nail the limb into the tree stock, fastening it securely, using two or more nails, placing three or four of these limb jointers upon each other, according to its size. When this is done, I bank up with soil sufficient to cover the connections, which will be all-sufficient.

In case the wounds should be too high for banking, a mixture of clay and cow dung can be used, being held in place by a canvas covering securely nailed in the tree. This system can be used up to the middle of July.

Tuckerton, Pa. ADAM DEYSHER.

### The Proposed Great Telescope.

*To the Editor of the Scientific American:*

The limits of size, with our present machinery, are nearly reached by Lord Rosse's six foot, the Melbourne four foot reflectors, and the large silvered glass mirrors of Foucault and Draper; but reflectors are inaccurate and unwieldy.

The world's great lenses compriso at present, to the best of my recollection, a twenty-nine inch, twenty-eight feet focus, by Merz, of Munich, Bavaria, not tested by experts; a twenty-four inch by the same maker; a twenty-five inch by the late Mr. Cooke, of York, England; the new Washington twenty-six inch, by Alvan Clark, of Cambridgeport, Mass.; and the Chicago eighteen inch, by the same maker. The two latter are, perhaps, the best object glasses in existence. The life time of an artist optician would hardly suffice for the slow and toilsome process of correcting, for chromatic and spherical aberration, a single pair of huge lenses, say, six feet in diameter, even if we could obtain the glass. We must, therefore, to make any decided advance in space-penetrating power, divide up our "telescope of the future" into small fragments, much as the Fresnel light-house lenses are built, each portion presenting no great difficulty of construction.

As the subject has been a hobby with me for several years, I will describe a method of constructing a composite telescope of any required power, which presents no difficulty except the cost.

The unit of construction is a stationary, hexagonal fragment of the great telescope lens into which a movable heliostat mirror reflects the object observed. Each part of the lens is of the size and cost of an ordinary ten or twelve inch object glass, and is to be corrected mechanically by a local polisher. The necessary calculations may be made and verified by completing and using Mr. Babbage's analytical engine, which applies the principle of the Jacquard loom to any possible computation.

Supposing ourselves to be in possession of unlimited skilled labor and machinery, with sufficient funds, we select, in the far northwest, an elevation where the sky is generally clear. On its southern slope, we dig and build a tunnel pointing to the pole, 80 feet in diameter at base, and narrowing upwards for nearly a thousand feet. At the upper end of this tunnel is placed the observatory, containing the binocular and microscopic eye pieces of the great telescope, a frame to hold the eye piece in use, and a meridian circle, for time. Outside are buried clocks in air-tight vacuous cases, and electric batteries and wires for adjusting anyone of the five thousand prismoidal lenses below, and for moving their mirrors. At the lower end of the tunnel is mounted the great compound lens, and outside of this, the mirror frame. Each mirror is driven westward, against the earth's daily movement, by a spring governor clock, keeping time with its fellows. All are controlled to follow the planets or moon, by a mercurial pendulum clock of absolute perfection. Its wearing parts are faced with boron or iridium, with black diamond bearings. This main driving clock is moved by many water batteries and its electro-magnets, in an exhausted glass case containing rarefied hydrogen and the wires, through which, every second, the clock sends its electric beats. The flat glass heliostat mirrors are coated on their front surfaces with platin-iridium from the Oregon iron sands, polished to reflect nine tenths of the incident light.

To find a star with our telescope, one has only to move a pointer forward on a telegraphic dial, for the difference between the star's right ascension and the local sidereal time. Each mirror turns on its polar axis, moved by an endless screw, as is the type wheel of the stock printing telegraph, by its ratchet wheel and electro-magnets. At another touch of an index on a second dial, indicating declination above or below the celestial equator, the star flashes into the field with overpowering brilliancy. Touch an index on a third dial, and the mirrors are all clamped and will follow the object round and round the world, and have it yet in view at its third rising.

Such a telescope could be built in fifteen years for inside of fifty millions of dollars. If every part could be kept at a uniform temperature, or compensated, it would enable us to contemplate the moon as from a distance of two miles.

According to the nebular theory, as the outer planets are the oldest, their inhabitants, if such there be, must have developed a civilization far superior to ours. The chief value of such a telescope would be to assist in opening communication with them by means of the ordinary Morse night signal flashes, so that we may learn from their experience instead of slowly evolving the arts and sciences for ourselves.

New York city. S. H. MEAD, JR.

*To the Editor of the Scientific American:*

I am greatly pleased to see that there are so many would-be stockholders in the telescope stock company, but the company is not started yet, and so no one knows where he can send his ten dollars. Being the one who started the project, I claim the right to propose some rules, and also to nominate some officers, providing that they meet with the approbation of those who are also interested; and I propose Mr. O. D. Munn as our president, and Mr. Peter Cooper as our treasurer, both gentlemen being known to be friends of the working man, and to be very popular among the working classes. I hope that they will accept, and also that the nomination will be approved of; for if these gentlemen accept the offices, I will be the first one to buy stock.

I see nothing in our way to prevent us from going ahead with our mammoth undertaking, so let us build ourselves a lasting monument that will be useful as well as ornamental. A million dollars appears to be a large sum, but it will be nothing more than Peter's pence among so many.

I propose that no stockholder shall hold more than twenty shares, so that we small fishes may not be swallowed up by whales; and I hope that all those who are in favor of these nominations will signify their acquiescence in the SCIENTIFIC AMERICAN.

Let us hurry up matters, as there is not much time between now and 1876. AN OLD MECHANIC.

Hudson, N. Y.

*To the Editor of the Scientific American:*

I would like to add my mite towards the million dollar telescope. I think the joint stock plan the most practical, and will take at least three shares, and perhaps more, provided they are ten dollars each. Do all you can to make the thing a success, and count on me as an humble supporter.

Hockanum, Conn. F. C. VIBERT.

*To the Editor of the Scientific American:*

I go in for the million dollar telescope. At $10 per share there will be only 100,000 shares; and as everybody wants the telescope, it will doubtless be easy to dispose of all the shares. The idea of a correspondent of allowing each subscriber to use the instrument in proportion to the amount subscribed is capital. But probably not more than two hours out of the twenty-four are suitable for star gazing; and as one half of this time would be consumed in focusing the instrument for different eyes and in looking through the finder, the time allotted to the owner of a single share would be about thirteen seconds a year; and if he did not see much during that time, still he could congratulate himself that he had looked through the big telescope.

Having had in my college days the care of a large telescope, I can say from experience to your correspondents that a telescope in the hands of the unscientific is only a big plaything, with but little play in it. The pleasure derived from manipulating the instrument, with the aid of the *Nautical Almanac*, clock and micrometer, was far greater to me than that of simply gazing at the stars or nebulæ. And further: No one who is not perfectly familiar with the management of a telescope should ever be allowed to meddle with one, or hardly to look through it. A big telescope should be approached by the uninitiated with silence, uncovered heads and light steps, but—Hands off! J. H. P.

### A Mysterious Noise.

W. A. M. reports that he recently heard a succession of strange crackling noises out of doors at night; and had great difficulty in finding the cause. The sounds came from some fallen walnut tree leaves, and he naturally expected to find that some species of insect caused the leaves to rustle. "At the next spot where I examined, I closely watched the *modus operandi* and saw the dry, brown leaves gradually curling open, moving like little automata; one, opening, would touch another, and that in turn rolled open, with the peculiar rustling sound that had at first attracted my attention. But there was no worm there. What then was the power that carried on this general movement? Upon meditating a little, the truth flashed upon me; it was simply that the day had been remarkably warm for an April day, and the heat of the sun had warped the leaves, curling them up like a voluta; but as the sun set, the northeast wind had blown the clouds and moisture from the Atlantic, and, coming in contact with the dry leaves, had caused them to uncurl. Thinking that some motion would accelerate their movement, I stamped upon the ground, and immediately the whole garden seemed alive with motion. The occurrence seems of small account, but it illustrates in a perfectly natural way the force and effects of variations in temperature."

### Utilization of Slag.

Mr. Woodward, of Darlington, has patented, says *The Builder*, a plan for manufacturing bricks from scoriæ, and the system is now at work at the Eston works of Mr. Thomas Vaughan. The slag is taken as it comes from the blast furnace. It runs into a series of molds, placed at regular intervals on a revolving table. After being removed from the molds, the bricks are thrown into a kiln or furnace close at hand, where they are annealed; and afterwards they are used in any ordinary structure for which clay bricks are suitable. The fracture is said to be close and firm, and they are capable of resisting an intense heat. So far as strength is concerned, they will withstand a crushing force of 3 to 4 tuns per cubic inch, or four or five times more than that of common bricks. The scoriæ brick remains unaffected by exposure to the atmosphere, it is said, but this does not accord with what has been said of slag (used for roads) which is said to contain sulphur, and to be liable to disintegration. This should be disproved, if possible, of the bricks. There is a considerable loss by breakage, but once solidified they are as hard as granite. It is calculated they can be made for 8s. per 1,000, or even less, whereas ordinary bricks cost 20s. and upwards per 1,000. A new company has been formed, on the limited liability principle, to work Mr. Woodward's patent, and they have acquired the right to the slag of all the blast furnaces on the Tees, including those above and below Middlesborough.