Correspondence.

A Telephone Twenty-eight Years Ago.

To the Editor of the Scientific American :

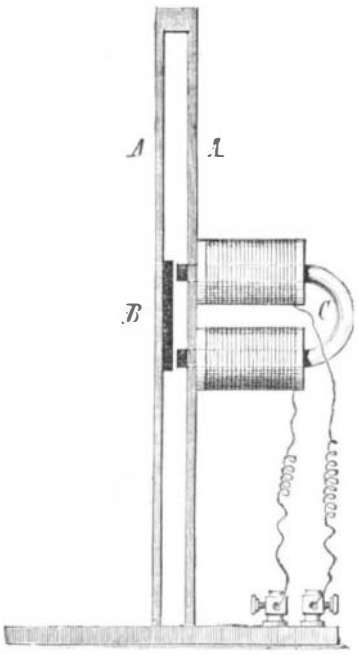
Will you allow me to call attention through your valuable paper to some early work relating to the telephone, which those who know of it regard as quite important in the history of this invention?

In the latter part of 1851, Mr. Edward Farrar, of Keene, N. H., quite recently mayor of that city, was occupying leisure moments in trying to transmit sounds over a telegraph wire, and actually succeeded in telegraphing music, and used a true telephone as a receiver!

His friends have been for some time desirous, in the interest of science, that his work should be more widely known, and in his own modest silence, I have obtained his permission to make the statement of it.

Some three years after his first actual telephonic success he had a correspondence with the Professors Silliman, of Yale College, with view of pursuing his work farther, but the replies he received were of such nature as to lead him to suppose that further attempt was hopeless, and under that impression and pressure of professional duties he laid it aside. I have before me some of that correspondence, and will quote from one of Mr. Farrar's letters a description of his experiment, and a statement which shows how closely he came to inventing a complete speaking telephone:

"Each reed of a melodeon is furnished with a small metallic point, which, while the reed is at rest, approaches near to the surface of mercury in a very small cup underneath the reed, into which the point dips when set in motion. The reeds are connected with one pole of a battery, and the cups



with the other. The current is broken with each vibration of the reed. At the remote end of the wire is a temporary magnet, with an armature fixed upon a spring in near proximity to the magnet, and which is affected as a reed at the other end of the line is set in motion."

What he here calls a "spring" will be seen by the figure to be a real telephone. It was made of two upright thin spruce boards, A A, to one of which was fixed the armature, B, and to the other the electro-magnet, C. The boards were seven or eight inches wide, about two feet long, and placed half an inch apart, and joined at the top by a strip glued between them.

He continues—"The effect is that the armature vibrates with the reed set in motion, and, the pitch of a sound depending on the rapidity of vibration, it will be the same in the reed and armature. A tune on the instrument will therefore produce a tune on the armature. What may appear somewhat strange, several different tones may be heard when chords are struck upon the instrument.

"The object of my inquiry was this. If the current power could be varied by some slight variation of a vibrator to be affected by the atmosphere as the tympanum of the ear is, the supposition is that the sounds of the voice might be reproduced by the means stated above(!)"

When it is remembered that Mr. Farrar penned the above in May, 1854, it is to be regretted that he was turned aside from so interesting an inquiry at so critical a point, and that he did not take that one step which would have then produced the speaking telephone.

We believe Reiss' telephone was made in 1861, ten years later than Mr. Farrar's. Can any earlier work than his be named?

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The Fast Ice Boat.

To the Editor of the Scientific American :

Fifty-two or fifty-three years ago the past winter, Mr. Daniel Bray, then of Richmond, Ontario county, N. Y., a boy about 16 or 17 years of age, constructed an ice boat which was successful in all respects. It was used on Honeoye Lake, in that county, and is said to have run at the rate of a mile in a minute, when the ice was in good condition and the wind fair. It was built as follows: He used a light, flat bottomed boat for the body, to guard against accidents that might ensue from running into air holes. Underneath this and about one-third the distance from bow to stern, he placed a plank crosswise, about sixteen feet long, which he securely fastened to the boat, and to each end of this plank was fastened large flat bottomed skates, the inner edges being a little the highest. A heavy stout rudder was next attached, on the inner edge of which was also fastened a large skate, but this was creased in the center. Sails, same as now used for sailing on the water, were supplied, when our young voyager was ready to "fly with the wind." I have heard eye witnesses and those who have rode in it say it could be run faster than the wind blew. I also notice in your paper of a recent date, a cut of a velocipede sleigh, the exact counterpart of one made by Mr. Bray thirty years ago, and used by the writer when a boy. J. B. B.

Steamboat Smaller than the "Nina."

To the Editor of the Scientific American :

That "smallest steamboat in the world" is larger than one made and used years ago by S. H. Roper, of this city (inventor of the Roper Caloric Engine). Roper's boat was 14 feet long, 17 inches wide, 12 inches deep, made of ¼ inch cedar; and after going about the harbor and four miles to sea, as far as Nahant, he would take it on his shoulder and carry it home.

The boiler, of 1-20 inch steel, was 8 inches diameter, 18 inches high, vertical, 63 tubes, and carried 250 lbs. steam; cylinder, 1 inch diameter, 2 inch stroke; screw, 12 inches; speed, 8 to 10 miles per hour. The boat drew 2 inches of water without passengers. Screw set at an angle.

The engine was condensing, and one gallon of water was a supply for one day. A rotary gear pump fed the boiler, sometimes against 300 lbs. pressure. The same engine was used on a velocipede to travel about the streets upon. The condenser was a pipe, which formed the keel of the boat. The fuel used was wood, about 2½ bushels of maple for a day's trip. Smokestack, 5 feet high. G. B. G.

Boston, March 14, 1879.

The Circle not Squared.

To the Editor of the Scientific American :

Referring to your issue of April 19, Q. E. D. has not only not squared the circle, but he has shown that he does not even comprehend the problem. There is no difficulty in finding the area of a circle, and no difficulty in finding the side of a square of exactly the same area. The pith of the famous problem is to find by a regular geometrical construction a line whose square shall be equal to the area of the given circle. And this Q. E. D. has not done. Rolling a circle on a plane is no more a geometrical process than finding the circumference of the circle with a piece of tape.

New York, April 10, 1879. A. B. C.

ENGINEERING INVENTIONS.

An improved steam boiler having an annular water space and an inner cylindrical receptacle through which the flues pass, and having the inner and outer water spaces connected at intervals at the top and bottom, has been patented by Mr. William Hopkins, of Dubuque, Iowa.

Mr. George H. Cobb, of Palmer, Mass., has devised a novel automatic cut-off for steam engines, which consists in a sliding cam of peculiar shape, which rotates with the engine shaft and is moved by the governor. This in connection with the usual eccentric gives the required motion to the slide valve of the engine.

An improved gauge cock, capable of indicating the height of the water in the boiler through a wide range, has been patented by Mr. Joseph B. Leger, of Handsborough, Miss. The principal feature of the invention is a curved tube, which projects into the boiler, and may be turned up or down to the surface of the water. The discharge tube at the outside of the boiler projects in the same direction and for the same distance as the inner tube, and serves to indicate the height of the water.

Mr. Andrew Harvey, of Detroit, Mich., has patented an improved accessible joint, valve, and trap protector for underground pipes. The joint is made large enough to admit a person, and it is accessible by a manhole from the surface of the ground.

The Tables Turned.

It is not many years since the freightage of Atlantic steamers was almost wholly this way. We were importing heavily from Europe, and with the exception of cotton we sent little or nothing in return. In a recent letter to the London *Times*, Mr. David McIver, member of Parliament for Birkenhead, and one of the owners of the Cunard line of steamers, declares unbesitatingly that from his own experience as a carrier, he does not know of any nation whose trade prospects at present are so gloomy as those of Great Britain. The depression in the United States and elsewhere does not at all approach the depression there. The British exports to the United States are comparatively nothing, either as regards volume or value. The British food importations are steadily increasing, and the balance of trade is so overwhelmingly against Great Britain that he sees nothing except ruin in prospect for bome industries, whether manufacturing or agricultural, if the present state of things is allowed to continue. The export trade from Liverpool to the United States is so small that whenever the restrictions on the importation of United States cattle are removed, gentlemen who are prepared to put additional steamers into the trade deliberately intend to make the outward voyages with water ballast only, without joining in the scramble for the little outward freight which other owners have been recently carrying as ballast at merely nominal rates.

PREMIUMS FOR BOYS.

The disposition of farmers' sons to escape from farm labor at the earliest possible moment is doubtless due less to the nature of the work than to the fact that farmers' boys are usually expected to work as a matter of course, and without any personal interest in the result. His efforts receive no special recognition or reward, and few opportunities are offered him for personal distinction or profit.

Mr. Stillman B. Allen, of York county, Maine, believes that much good might be done by taking more account of boys' labor on farms, and sets a practical example by offering a series of premiums to the boys of his county, for individual efforts in farming. Thus, to the boy (under sixteen) who shall raise the most Indian corn on one eighth of an acre of land during the coming season, he offers a premium of $100. To the boy who shall raise the next largest quantity, $50, and to the five boys who shall raise the next largest quantity, $10 each.

The conditions are easy, and the awards are to be made by the President of the County Agricultural Society. At the end of the season each contestant will have to make and sign a full report, giving the shape, description, and location of land, when planted, when and how many times hoed, when stalks were topped, if at all, when harvested, and how much is raised, and as nearly as can be estimated, the value of manure, and number of days' labor spent upon the crop, excluding the husking, when he may have all the help he wants from the boys and girls in the neighborhood.

The example set by Mr. Allen is worthy of being widely followed, not only for the immediate effect in heightening the interest of boys in farm work, but for its indirect effect in raising the standard of such labor. The boy that has learned by actual trial that it is possible, by careful cultivation, to get from an eighth of an acre as large a crop as the average farmer gets from twice or thrice the ground, will not soon forget the lesson.

Collection of Meteoric Specimens.

Mr. Charles B. Shepard, of New Haven, Conn., has accumulated, it is believed, the largest collection of meteoric stones in the United States, if not in the world. The collection embraces more than five hundred meteoric stones and meteoric irons. The total weight of the collection is about twelve hundred pounds. The largest iron, procured from Colorado, weighs 436 lbs., and the smallest, from Otsego county, N. Y., weighs half an ounce. The largest entire stone, procured from Muskingum county, Ohio, weighs fifty-six lbs., and the smallest one, from Sweden, weighs less than fifty grains. The specimens have been gathered from all parts of the world. The catalogue begins with one which fell November 7, 1492, in Alsace, and ends with one which fell February 12, 1875, in Iowa county, Iowa. There are none between 1492 and 1753, but most of the years since the latter date are represented and some years by several specimens. Nearly every country in the known world is represented in the list. The entire collection is in one of the buildings in Amherst College. Mr. Shepard makes one statement which will surprise most persons. He says: "There have been several instances of death occasioned by meteoric stones. Two monks in different places were thus killed in Italy, and two sailors on shipboard in Sweden."

Heinrich Wilhelm Dove.

Heinrich Wilhelm Dove, the celebrated meteorologist, died April 5. Professor Dove was born at Liegnitz, Prussian Silesia, October 6, 1803. He studied at Liegnitz, Breslau, and Berlin. In 1826 he became a teacher, and afterward a professor extraordinary in the University of Königsberg. In 1829 he was invited to a similar chair in Berlin. In 1837 he was admitted to the Academy of Sciences, and in 1845 became a full Professor of Physics. He distinguished himself by his researches in electricity and meteorology, and published various works upon these subjects. His reports and isothermal maps afforded the first representation of the isothermal lines of the whole globe for every month of the year. He was the first to announce the presence of a secondary electric current in a metallic wire at the moment that the circuit of the principal current is completed. He was Director of the Prussian Observatories, and made many useful reports. He began in 1837 the publication of "A Complete Repertory of the Physical Sciences," in which he was to be assisted by the most eminent men of science; but the progress of the work was interrupted. His book on the distribution of heat on the surface of the globe has been translated into English.

Diphtheria in Fowls.

A fatal disease prevailing among fowls at Marseilles is described by Nicati and Garard to be very like diphtheria. Thick false membranes of yellowish color covered sometimes the mouth and the pharynx, sometimes the eyes, in one case they were found reaching into the bronchi, and affecting the lung. One hen died the day after the first symptoms appeared, others in three and five days, while some remained ill for weeks. The hen so attacked utters a peculiar kind of cry, opening its beak with difficulty. Symptoms of a similar nature have still more recently been observed by M. Nicati in a pigeon house in Marseilles.