

Correspondence.

The Great Ship Railway.

To the Editor of the Scientific American :

A question concerning the details of the Eads ship railway has arisen in my mind which cannot be answered from any examination I have been able to make among your articles on the subject. When a locomotive begins to pull a heavy train, it is necessary that the connection between the cars should have some slack or spring. Otherwise the most powerful engine could not overcome the quiescent inertia of the train. I think you will get my idea by this mere allusion, without any lengthy theoretical discussion.

It appears to me, from your illustrations of the ship railway, that the trucks are placed under a rigid framework which supports the vessel, and that when the engines begin their journey they must start the whole mass at once. Please state whether I am correct or have overlooked something in the description.

C. K. NEEDHAM.

Orlando, Fla.

Fall of Celestial Bodies.

To the Editor of the Scientific American :

Mr. E. B. Whitmore, in his query "Can a Celestial Body fall to the Center of its Attraction?" seems to overlook the fact that Newton's laws refer to the path described by the center of the body; and that the apheion of a body's orbit may be very near or even beneath the surface of another body, in which case there must be a collision, as when meteors strike the sun, and as would be the case were the earth suddenly stopped in its orbit.

From this standpoint he will see that there is no antagonism between the laws of the orbits and the possibility of a collision.

Returning to the query, I think that, of two spheres alone in space, the center of neither one can reach the center of attraction, while of three or more bodies, the center of any one may pass through the center of attraction.

H. D. WILLIAMS.

Stamford, Conn., Nov. 26, 1885.

Cross Tie Timber.

To the Editor of the Scientific American :

In the SCIENTIFIC AMERICAN of Nov. 21, page 320, there is an article under the heading "Durability of Cross Tie Timber," in which the following error occurs, viz.: "Assuming that the average durability of ties is seven years and the distance apart is three feet, there will be 2,640 to the mile." If the distance apart were two feet, which I suppose was meant, the figures would be correct.

In this connection let me ask you if you do not think it probable that in the near future railroads will be constructed without perishable wooden cross ties?

Already I believe street railroads are constructed without timber, and in many of our best modern buildings iron has taken the place of timber.

In discussing the timber question, I think this should not be overlooked.

Under any circumstances, however, the timber question is an important one, and I am glad that it begins to receive attention.

P. BARRY.

Rochester, N. Y., Nov. 25, 1885.

The Dolbear Telephone Case.

To the Editor of the Scientific American :

In the SCIENTIFIC AMERICAN of November 28, in the article on the Reis telephone, there is a quotation from the judgment of Judge Gray in the Dolbear case, in which is the statement that it was not denied that "Bell was the first inventor of a speaking telephone." This statement is ambiguous, and may be understood in two ways. It was admitted that Bell invented a speaking telephone. It was not admitted that Bell was the inventor of the first speaking telephone. A distinction was made between the telephone invented by Reis in 1861 and the telephone invented by Bell in 1876 as being unlike in principle though having the same function, namely, to transmit speech. It was affirmed at the outset that Bell was not the inventor of the first speaking telephone, but that Reis invented one long before, and this was reiterated time and again in the case. Judge Gray knew this, and he carefully framed his statement so as to convey the impression that admissions had been made which had not been made, and yet if the sentence was carefully scrutinized, it would be found to be rhetorically correct—a case of trifling with the language which one would not look for in a United States judge. The whole trouble lies in the use of the word *first*. It was admitted that Bell was the first inventor of (a particular kind of) a telephone. It was emphatically denied that Bell was the inventor of the first speaking telephone, and it was asserted that Reis invented a speaking telephone fifteen years before.

A. E. DOLBEAR.

College Hill, Mass., Dec. 1, 1885.

The Axolotl.

To the Editor of the Scientific American :

In the SCIENTIFIC AMERICAN, July 5, 1884, is an article on "The Mexican Axolotl," with an illustration from specimens then under the observation of Prof. H. J. Rice. I obtained five specimens from a creek here and placed them in my aquarium. They were two inches long, with branched gills, four toes on front feet, and five toes on hind legs; the feet being very nearly transparent, as also was the tail. In three weeks, with water at an equal temperature of 66°, they changed from a bright yellowish-brown to an almost black color; sexual organs becoming very prominent and large, and the animals having an extraordinary appetite, gulping down everything they could swallow, and sometimes tearing off and swallowing a leg from each other, or a piece of tail, all of which grew on to the mutilated animal in perfect form again inside of two weeks. The animals had no anus, but after digesting their food it was rolled into a ball into their stomachs, and ejected from the mouth. I fed them house flies, which they preferred above any other food. In these three weeks they attained a length of 4½ inches, and the branched gills had changed to prongs, having a slight backward curve, and having a solid appearance.

In four weeks, the pronged gills had turned under just behind the head, having the appearance of two black knobs, and outer skin of tail beginning to come off in thin, gauzy strips, polluting the water, so that I changed it regularly three times a week thereafter.

In five weeks, gills had turned down completely, and had become part of the head, which began to have a flattened appearance; outer skin of tail and body being cast off in larger quantities; two nostrils appearing over the mouth, like fine pin points, the head being capable of moving up and down; the eyes protruding, and being capable of being moved independently of each other, and the animal coming up more often for air, and sexual organs growing smaller.

In six weeks, all the females have changed to land animals, and males beginning to change. Nostrils protruding, eyes prominent and bright, sexual organs almost disappeared, and animals having a decided preference to dry land instead of water. Loss of appetite noticed in all of them, and their walk is a peculiar staggering gate, as though they had not attained sufficient strength for this exertion, and loved to lie by the hour, as though asleep, on the dry stones above the aquarium.

Seventh week: all the axolotls transformed into perfect salamanders; bright yellow spots covering them entirely; a quick, running movement, performed now with ease; sexual organs appearing almost indistinct, and the animals becoming amphibians. From the time when they transformed until they became true salamanders, they took little or no nourishment whatever.

F. E. JEROME.

Russell, Kansas.

The Red Skies Continue.

To the Editor of the Scientific American :

Very little, if anything, has been said in the past year about the phenomenon of the red sky; and yet the red skies continue, and in 1885 we have quite as fine effects as in 1883.

In the last of August, 1883, there was a large volcanic eruption at the island of Java. It was undoubtedly the grandest affair of the kind known to the modern world, and was said to have thrown ashes to the height of 3,000 feet.

People unfamiliar with the revelations of the weather map at once thought that they saw a connection between this eruption and the beautiful red skies; while others, who could not quite believe that this delicate coloring was due to volcanic dust, thought that it must in some manner be due to dust particles, so advanced the idea of meteoric or "cosmical" dust; that is, they would seem to carry the idea that such a phenomenon could only be caused by dust.

Why should it be implied that such theories as these are not in harmony with the weather map, and what has the weather map to do with the subject?

First, the map shows the meteorological conditions of the earth, from which we learn all about the movements of the atmosphere, and how impossible it would be for dust to travel around the world, even though it had the property of giving to the sky a certain coloring. Next, it shows us the atmospheric conditions under which we always have a red sky. Those conditions given, and a "red sky" is as certain as that we will have ice when the thermometer falls below 32°. A subject supported by such positive and negative evidence would seem to be all-sufficient to convince any reasonable person.

On the one side the evidence of impossibility, as impossible as that water would run up hill; on the other, that certain conditions will produce certain effects.

As shown before in articles on this subject, it would be impossible for the dust from Java to reach the United States. People unfamiliar with the weather map may not be able to see and understand the full

force of the argument, yet the map is patent to all, and all may see it and learn from it the movements of the atmosphere, and with a little care and attention understand how such a cause cannot produce such an effect, and what conditions prevail when such a phenomenon does occur.

In meteorology we have the two factors high and low barometer, technically called "high" and "low." These move on general lines from the west toward the east. The areas of "low" move in irregular belts, evidently around the world. They are continually appearing in the west and disappearing in the east. These "lows" are from 1,000 to 2,000 miles on centers, with a "high" between. On the basis of 2,000 miles on centers, which would be a very low average, there would be fully six centers in one belt in the half circumference of the globe, to say nothing of the additional centers by the multiplicity of belts of "lows."

These "lows" in the atmosphere are like so many valleys in the topography of the earth. The wind is toward them from all points of the compass, whereby the atmosphere from all around, within its influence, is drawn to a common center. By this arrangement the clouds are carried to the place, more or less near the center "low," where the precipitation occurs.

The clouds move at a height of at least 23,000 feet, showing movement of atmosphere at least that high, which would preclude anything like dust that was only thrown 3,000 feet in air from passing over and beyond its influence in a contrary direction. The "low" nearest to Java would catch this dust, and it would be precipitated to the earth within a limit of 2,000 miles. If perchance some little should get beyond one center, and run the gantlet of one "low," it would have to come in contact with another, another, and another; so we see that it would have little opportunity to run the gantlet of from six to a dozen, or perhaps more, and have about as much of a chance of reaching the United States as the waters of the Pacific would of flowing across the area of the United States into the Atlantic.

In the absence of any more than the few meteors which are occasionally seen in the heavens, and the height at which the delicate coloring takes place, the meteoric dust theory is as unreasonable as the volcanic dust idea.

I do not care, in this short article, to repeat all the argument in favor of the vapor theory; enough to say that these red skies proceed from a certain condition of the atmosphere, and that they may as readily be foretold as a "local storm" or tornado. We only have to consult the map, and familiarize ourselves with the conditions under which these effects of red and pink skies take place. Given a south "high" and a north "low" we will have the phenomenon almost every time. Why not every time? For the simple reason that the sky is not always clear, even with a "high"; but only with a "high" do we have a clear sky. At "high" we have the minimum of moisture, the delicate suspended vapor, which in combination with the north "low," to give the necessary amount of heat, produces the red sky.

These conditions being given, a red sky is as certain as a "local" with a north or far away "low," or a tornado with a "low" (in the United States) traveling northward toward another "low" far to the north.

I. P. NOYES.

Washington, D. C., October 26, 1885.

The Death of William H. Vanderbilt.

Mr. Wm. H. Vanderbilt died suddenly at his home in New York city on the afternoon of Dec. 9th. He was stricken with apoplexy while conversing with Mr. Robert Garrett, President of the Baltimore & Ohio Railroad, and expired instantly. The funeral took place from St. Bartholomew's Protestant Episcopal Church, of which he had long been a member. The body was temporarily interred in the family tomb on Staten Island, but will eventually be removed to the new mausoleum now under course of construction. Mr. Vanderbilt was undoubtedly the richest man in the world. His estate is estimated at two hundred million dollars. At such a time, however, it is more pleasant to recall his benefactions during life. He gave largely to the Medical College in New York and to Vanderbilt University, at Nashville, Tenn. It is to his generosity that we owe the transfer of the Obelisk to Central Park. In spite of his great wealth, amounting to probably not less than \$23,000 a day, Mr. Vanderbilt was very simple in his habits, and found his greatest pleasures within his family.

Good for Freckles.

Dr. E. Morse in the *New Eng. Med. Monthly* says: I have found the following very good for the removal of freckles:

- R. Sulphocarbonate of lime..... ʒ ij.
- Glycerine.....
- Rose water, aa..... ʒ xxv.
- Alcohol..... ʒ v.

Mix. Wash the skin twice in twenty-four hours, letting it remain damp with the lotion for half an hour. It has proved itself most excellent where all other remedies had failed.