Correspondence.

A New Comet.

To the Editor of the Scientific American:

On the morning of August 28, while searching the eastern sky, I discovered a new telescopic comet in the constellation Auriga. Its position at the time of discovery was right ascension 5 hours 59 minutes; declination north 31 degrees 52 minutes.

Subsequent observations show that the comet has a slow motion eastward, or toward the sun.

It is not a difficult object in the 10 inch equatorial, and a short, faint tail is visible.

WILLIAM R. BROOKS.

Smith Observatory, Geneva, N. Y., Sept. 1, 1892.

The Famine in India.

To the Editor of the Scientific American:

In your issue of June 18 is an article by Dr. Van Allen, of the American Madura Mission, on the subject of the distress which has lately prevailed in the Madras presidency.

Any one reading this article would suppose that this distress was similar to that of the great famine of 1876-78, to which Dr. Van Allen compares it.

The severity of a famine may be measured by the area over which it extends and by the intensity of the distress within that area. As regards the first point, in 1876-78 the distress extended over sixteen of the twenty-one districts into which the Madras presidency is divided, the only districts which escaped being those in which famine is practically impossible, namely, the two "west coast" districts, in which the rainfall in the worst years is sufficient to prevent serious scarcity, and the three which are protected by the great irrigation works of the Godavery, Kistna, and Cauvery deltas.

The present (or I ought rather to say the late) famine has extended to only eight districts, and in three of these it has been so slight as hardly to deserve the name of famine at all.

As to the intensity of the distress within the area affected, the best test is the number of laborers attending the relief works which are opened to provide employment for the distressed population.

The largest number employed over the whole presidency at any one time during the last year has been 91,000; in no single district has the number ever reached 30,000; in two it has reached 20,000, and in two others 10,000.

In 1877, in the single district the works of which were then under my charge, the numbers exceeded 200,000, or more than double the number for the whole presidency during the last year; and though I have not at hand the figures for the whole presidency, I believe that they exceeded 2,000,000.

Toward the end of 1877 the weekly increase in numbers exceeded 100,000.

Dr. Van Allen says that this year's rains have failed, and that another year of famine is in prospect. His letter having been published in New York on the 18th of June, could not have been written much later than the middle of May. Considering that the rains of the "southwest monsoon" are not due in the south of India till the latter end of June, and those of the "northeast monsoon" till the end of October, there is a certain amount of audacity about the assertion that the rains "have failed" in the middle of May.

As a fact, so far from the rains having failed, the southwest monsoon has been this year above the normal average, and the famine is practically over. In three districts relief works have been stopped altogether, and in all others the numbers employed are falling rapidly, having diminished by about one-half during the last five weeks.

I am afraid that one of the leading Madras papers is right when, in commenting on Dr. Van Allen's article, it describes him as possessing a "somewhat hysterical imagination." J. P.

Ootacamund, August 2. 1892.

P. S.—It might be worth your while to ask Dr. Van Allen when the group which is reproduced by you was photographed. I and some others who have seen the paper think we recognize an old friend of 1877.

Bacteria in Hailstones.

The *Johns Hopkins Hospital Bulletin* recently received some observations by A. C. Abbott upon the bacteria found in the interior of large hailstones which fell during the storm of April 26, 1890. Care was taken to exclude all organisms except those brought down from the altitude where the hail was formed. The number of organisms observed ranged from 400 to 700 to the cubic centimeter. The majority represented only a single species—a short, thin. oval bacillus—though several other undetermined species were observed. These observations suggest possibilities. Medical men are often asked to account for the origin of sporadic cases of disease well known to be contagious—scarlatina, for example—where the source of infection is impossible to trace. A cyclone may have swept through an infected region; clouds of dust containing the bacillus of the disease in question may have been carried to a height, borne along for hundreds of miles, incapsuled in hail stones or rain drops, and brought again to the earth in a location favorable to their growth.

SEARCHING FOR SUNKEN GOLD NEAR HELL GATE, NEW YORK.

For several weeks a dredging company organized in Gloucester, Mass., has been endeavoring to locate a great quantity of British gold. This gold lies at the bottom of Long Island Sound, under 90 feet of water, just above Hell Gate, near New York City. The amount of money is reported to be not less than $5,000,000, and has been quietly reposing at the bottom of the Sound for more than 100 years. The details of the sinking of the Hussar, a British war ship, with this large quantity of money and seventy American prisoners of war on board, are very interesting, but would occupy too much of our space to be repeated here. It is sufficient to say that the dredgers have located the sunken vessel, over which the tides of 100 years have washed a tremendous quantity of sand and debris, and have already brought to the surface a number of pieces of money, some human bones, pieces of iron, steel, and copper, and other fragments of the vessel. The method of searching employed by the diver at the bottom of the sea is shown in the accompanying illustration, for which we are indebted to the *Electrical World*. A powerful incandescent lamp protected by a double globe, and connected by a strong insulated cable to a generator on the wrecker above, furnishes the light for this submarine work. Casting this light before him, the diver prowls around among the rocks and seaweed of the bottom, and explores the remains of the old wreck with almost as much ease as if he were in the light of day above, and not buried under ninety feet of water. Although previous attempts have been unsuccessful, the present company is determined to prosecute the work, and keep the diver and his light below until his search is rewarded by the glitter of the long-lost treasure.

A SUBMARINE SEARCH LIGHT.

The Drawing Frame.

Drawing or doubling is the operation through which the cotton has to pass after it has been carded. The ends, bands, or slivers, as they come from the card, are exceedingly tender and loose, the fibers of cotton not being yet arranged in the parallel form requisite for good spinning. Before any twist is given to the bands, the fibers should be in a proper position for the manufacture of smooth yarn. The doubling and drawing out of the bands, which accomplishes this perfectly, is done on the drawing frame. Some drawing frames are constructed with three pairs of rollers, and some with four pairs; the latter having the advantage of doing more work in the same time. The rollers in a drawing frame are generally so adjusted that the drawing is done between the first and third rollers, the middle roller having but little influence on the result so far as the stretching is concerned. Where there are three or four rollers, the drawing is performed twice: each pair of rollers draws a certain amount. The distance between the rollers is so adjusted that the longest fiber of the cotton does not reach from the center of one roller to the center of the other: this prevents the rollers from tearing the fibers, because the first pair of rollers pulls the fibers, while the second holds them fast.

If, on the other hand, the distance between the rollers is too great, the filaments of cotton separate in unequal thickness, and the result is unequal yarn. It is more preferable to have the rollers too close together than to have them too far apart, provided they are always so far distant as not to injure the staple. The principal object to be attained in drawing the bands is to reduce their thickness after they have been doubled. Doubling and drawing effects the twofold purpose of stretching the fibers of cotton and equalizing the bands. The more a band is doubled and eliminated, the more perfect should be the yarn spun from it; but this process of drawing can, nevertheless, be carried too far. Excessive drawing, as well as excessive picking and carding, tends to weaken the fiber, and finally renders it brittle and rotten.

Still, if the machinery is kept in such perfect order as not to injure the cotton, it may be considered impossible to eliminate the fibers to too great an extent. The sliver from the last drawing head should be of a silky luster, and its component fibers should lie perfectly parallel with the band and with each other. But little cotton is wasted in this operation; the waste consists principally of those parts which have to be broken off in consequence of their running singly, or when the attendant, through negligence or inadvertence, misses a can, and gets behindhand with the rollers.—*Baird's Cotton Spinner.*

The Trolley Electric Car.

As an alternative to horse cars it seems to have some merit. It is certainly far less unsightly and cumbersome than an elevated road. Beyond question it is far more cleanly and healthy in its operation and surroundings than either a horse railroad or an elevated steam road. We should suppose it had some superiority over a cable road as being less costly to build and operate, with greater control of the cars, and at least an ability to back a car instantly when necessary. We have understood that a great many electric roads have re-endowed many American citizens with their birthright—a free home—enlarging the area of prosperous municipalities and building up beautiful suburbs where the humblest may sit under his own veranda and apple tree.

It is a stange sensation for a New Yorker, like ourselves, to come back to the city after visiting other places blessed with electric roads, and to settle down to the old humdrum horse cars. A trip two weeks ago to Scranton showed us a city with not a single horse car in it, but with electric cars in every direction used as freely and gladly by the people as though they had been there since the year in which the city was founded. Or, if one has been in the Northwest, he will have visited Minneapolis, where the electric cars last year carried 26,500,000 passengers, and where this year the travel on the electric lines is many per cent heavier than in 1891. Or perhaps we may take the report of Boston, where on the Fourth of July over 600 electric cars carried hundreds of thousands of people in comfort and safety. The annual report of the West End Company of Boston, just published, shows that electricity is there doing a work that no other motive power could have done, and that the trolley has been patronized by the public to such an extent as to make the stock of the company one of the best investments to be found in that staid and shrewd city, an investment, moreover, that is pretty well distributed among the proletariat of capitalists constituting the conservative element of the community. If the trolley is a failure in Boston, as some of our New York newspapers contend, the price of the stock, the rapid extension of the electric system, and the demand for trolley roads where none have yet been put in, are good evidence to the contrary.

By all means, let us have every storage battery car we can; and conduit roads, too, when we may; and underground roads as soon as possible; but their development and the general cause of rapid transit are not going to be benefited one bit by dispraise of one of the simplest and greatest inventions of the age—the humble, useful trolley. The trolley is here to stay.—*Electrical Engineer.*

Professor Carl Schorlemmer.

Dr. Carl Schorlemmer died at Manchester, England, after a prolonged illness, on June 27th. Born at Darmstadt about 1834, Schorlemmer died at the comparatively early age of 58, respected and beloved by all who knew him. Few chemists possessed such an extensive knowledge of the literature of his subject, combined with so thorough an acquaintance with the practical side of his subject. He thus seemed to be specially marked out for writing a treatise on chemistry. The great work on "Chemistry" bearing the names of Roscoe and Schorlemmer is not yet completed, and, in view of his death, it is doubtful if the last volume will be written, since the work necessary to complete it came within his special province.