## Correspondence.

### The August Meteoric Shower.

*To the Editor of the Scientific American:*

The August meteors were observed here on the night of the 10th. The display was not very brilliant, averaging about 125 per hour, for one-third of the heavens, about Perseus as a center. By far the greater part of the meteors passed northward from the radiant; 90 per cent of them left a distinct train. Their average brightness was a little less than that of a second magnitude star. Night of the 11th cloudy. So no further observations have been obtained.

LAURENCE LA FORGE.

Alfred University Observatory,
Alfred Center, N. Y., Aug. 12, 1891.

### Jet Propulsion.

*To the Editor of the Scientific American:*

In your issue of August 8 I notice that Mr. John W. Hahn thinks my intermittent jet suggestion a "step backward;" dwells upon waste of power, and medium, and winds up with a statement as to intermittent screw propellers, which seems to me rather indorses than detracts from my suggestion.

Admitting, as he states, that the aim of the friends of hydraulic propulsion includes a constant jet, as their aim has seemingly fallen short of the mark, should it be considered a "step backward" to aim differently—possibly a little higher?

Regarding "waste of power" and "medium," I may only say that the end attained might or might not justify the power used; and the "medium" also is a matter not now germane to the mere principle presented.

But, regarding the intermittent screw, Mr. Hahn seems to overlook that the blades secure the intermittent thrust desired against the recovered resisting element; while his statement leads to the inference that the Archimedean screw would serve equally as well in this respect as the intermittent blade. If so, he quite naturally would befriend the constant rather than the intermittent thrust—and herein lies the difference; while cost of power, and mechanical mediums, I omit.

First let us secure the principle, then its utility will regulate the extent and value of the power, and competition the size and cost of the medium.

W. H. WETHERILL.

Philadelphia, August 15, 1891.

### Jet Propulsion.

*To the Editor of the Scientific American:*

Being a reader and lover of your valuable paper, and as boats and their means of propulsion are my pet hobbies, I have been greatly interested in what has been said of late on the subject of jet propulsion.

I have been experimenting on the subject of propulsion for a few years, as much as my limited time and means would permit, and although I am far from being scientific, and could not perhaps give good reasons why, I am not a believer in the practicability of jet propulsion, as against either the wheel or screw, now in use. I do think, however, that there is a better way.

I would like to say to the friends of the jet theory that my way to use it (the jet) would be to equip my boat with wheels, the same as they now are—except that the wheels need be only about one-fourth their present weight and strength—then direct the nozzles to the paddles below the water line, using the engines to pump the water, instead of working on the crank shaft as they now do. This would, I am quite sure, be an improvement on the wheel, and give the jets what, in my opinion, they stand most in need of—backing.

I believe that the jets *do* "bore holes in the water," as they say. We all know that, if we let a stream of water fall from an elevation in an unbroken state into a body of water at rest, the momentum acquired in falling carries it down to a greater or less degree according to the fall, to rise again to the surface, perhaps a long distance from its point of entering. My opinions need not discourage any one, as they may not be well founded. I think, as a general thing, we look too far from nature for our ways and means of doing things. Electricity is a natural light and traveler, water and steam are natural powers. We have only *learned to use them*.

There are no screw, wheel, or jet propellers in nature, though the screw, which is the best, is the nearest to nature's way.

FRANK D. WHIPP.

Cleveland, O., August 10, 1891.

### A Trip up Columbia River in the Salmon Season.

*To the Editor of the Scientific American:*

About the middle of April, 1889, I took a steamer at San Francisco out through the Golden Gate, and two days on the Pacific among whales and sharks brought us to the mouth of the Columbia River at about noon. The day was beautiful and atmosphere clear, and seated on the upper deck we had a magnificent view of grandeur along each shore. On the left or north shore, as we ascended, there stood Mt. Hood, covered to her lofty peak with snow, in appearance eight or ten miles distant, but were told that it was about forty. Then a little on there, Mount St. Helen, not as beautiful in appearance as her sister Hood; the latter a more ragged appearance.

It being in the height of salmon catching, with beautiful river strung on both sides of our narrow channel with nets and fishermen all along with their row-boats, drawing up their nets and dislodging their beautiful shining game, some weighing fifty or more pounds, with the smaller, and flopping them into their boats; and others unloading on to the wharves for the canneries.

I have sailed up and down our Mississippi to the jetties, where it empties into the ocean, and up and down the Clyde, in Scotland, where the navy of the world is built, and up the Rhine from Mordyke to Dusseldorf, and amid the wonders and curiosities along the shores of these majestic rivers to me none compare in grand beauty to our Columbia slope.

At evening we arrive safely at the city of Portland, Oregon, where we find comfortable lodgings for the night. Next morning we take the train for Seattle, stopping at Tacoma on the way. Here is one of the most flourishing and prosperous cities in America, surrounded with vast forests, sawed lumber of good quality for ordinary building purposes $7 per thousand, inexhaustible coal fields right at her door, bordering on a beautiful bay containing abundance of fish, and near the Columbia River, which yields her hundreds of tons yearly of salmon, probably giving out more actual wealth than any other river on the globe. About three weeks after I left, Seattle was nearly all destroyed by a terrible fire, which destroyed all of the business portion and the hotel we stopped at. Were I twenty years younger there is where I would locate, it being a beautiful climate, never excessively hot nor of freezing cold.

J. E. EMERSON.

### Damage from Patent Alkali Works.

*Boosey vs. Cheshire Alkali Co.*—An action was brought by Mr. William Boosey, nurseryman, to recover compensation from the Cheshire Alkali Company, Limited, for damage caused to his nurseries at Middlewich by noxious vapors given off from the defendants' works, and to restrain the defendants from continuing the works in the same way. It appeared that the plaintiff had been carrying on business as a nurseryman for thirty years at Middlewich. In 1880 he took a piece of land, about twelve acres, which at the time was in a rough and uncultivated state, and laid it out as a nursery. Upon this and an adjoining plot of land he had expended about £400 a year. The damage done to plant life by the escape of a white, limelike powder from the alkali works, particularly as it happened at the time when the produce of the nurseries was going into the market, was, the plaintiff alleged, a very serious matter. The defendants formed their company in 1887 for the purpose of the production chiefly of carbonate of soda, and their works are separated from the plaintiff's nurseries by only a line of railway. Before the erection of the works commenced the plaintiff was apprehensive as to the injurious results which might follow to his shrubs, and he instructed a solicitor to write to the company a letter giving them notice that he would take all legal steps for the protection of his property. The reply was that there was no occasion for alarm at the contemplated works, the process used by the company being absolutely innocuous. The works were then commenced, and were completed about September or October, 1889.

In the early part of March following the damage to the nurseries became apparent, and had gone on to such an extent that almost the whole of the plaintiff's stock was unfit for sale. The presence of ammonia was then very noticeable, and showers of white powder were thrown off from the works, covering and blighting the trees and shrubs. Evidence was given at great length in support of plaintiff's case. Mr. Alfred Smetham, F.C.S., consulting chemist to the Manchester, Liverpool, and North Lancashire Agricultural Society, said he believed most of the damage to the nurseries was due to ammonia. Mr. Bernard Dyar, F.L.S., F.C.S., gave similar evidence, stating that he could smell ammonia in the nursery. The proportion of ammonia that was floating about would be between 1 in 1,000 and 1 in 2,000. He had made several tests with ammonia on vegetable matter. He treated vegetable matter with a solution of 1 in 7,000, and there was a distinct shrinking.

Mr. Clement Higgins, Q.C., for the defense, said that the process of manufacture carried on at the works was innocuous. There were no noxious fumes which did damage.

He was free to admit that a certain portion of the powder did go into the air from the grinding process, and some would go through the cracks of the shed. They had done all in their power to prevent it. They had not only built what was called a gangway, but they had filled up all the cracks with felt, and the fact was that practically no dust had escaped since that was done in October, 1890. When the skilled witnesses went to inspect the works they found there, no doubt, a certain amount of soda ash in the air which they would feel, but the jury could not put their finger upon any body of evidence in the case which was conclusive and satisfactory to show that the white powder had done any damage. The damage to the nursery existed before the date of the erection of the alkali works, and was caused by the adjoining saltworks in the district, and also by frost. The ammonia that came from the works before it reached the nursery would be so diluted as to be absolutely harmless. The works were conducted upon a patent principle, the main object of which was to save ammonia, because to lose ammonia was to lose money. Not only had they this patent process in use, but they had made subsequent improvements in the process, so that they might now say the system was almost perfect, and ammonia could not escape from the works so as to do any harm. With regard to the carbonate of soda, there might be traces of it, but it must be proved that damage had resulted from it. No doubt strong enough doses of carbonate of soda would injure plant life, but it must be proved that it was in strong enough doses to do the injury in the present case.

Mr. Norman Tate, analytical chemist, said he visited the plaintiff's nursery on the 20th January. There was some damage done to the plants, but it was chiefly due to frost and coal smoke. There was no smell of ammonia. The ammonia which escaped from the works could not have done the damage. The powder which was thrown off would not injure the plants. Similar powder was used on plants to kill green fly. In proof of his statement he instanced experiments lasting three weeks which he had made, and produced bunches of green leaves of rhododendrons and cypress treated in the way he had described. He believed that possibly the other chemists had used what was often described as pure carbonate of soda, but which occasionally was found to contain some caustic soda. He did not smell ammonia in the nursery, but he had seen thick smoke from the neighboring salt works coming across an orchard and in the direction of the nursery. He could detect a smell of hydrochloric acid in the air.

James Carter, a neighboring farmer, was called for the defendants to prove that his premises near the nurseries had not suffered from the proximity of the alkali works. In cross-examination he admitted, however, that several poplars exposed to the white powder that was deposited from the works were in a dying state. Thomas Jackson stated that his garden, which was situated about 150 yards from the alkali works, gained the first prize at the last Davenham flower show, but in reply to Mr. Marshall, for the plaintiff, he stated that he had frequently seen the white powder in the nurseries. Henry Heather, chemical engineer, and John Oakes, manager of the defendants' works, having also been examined, Mr. Edward Davies, consulting chemist, of Liverpool, said ammonia was very volatile, and whatever escaped in the process of manufacture would expand in a radius of 100 yards to a strength of only 1 in 120,000. The damage was not such as he had been accustomed to see caused by alkali works. He had never known that ammonia was injurious to vegetation, but had understood it to be beneficial to some varieties. There was some, but he would not say the main damage, due to hydrochloric acid. Mr. John Fraser, of Essex, gave it as his opinion that the destruction of plants was mainly owing to frost.

Counsel having addressed the court, the commissioner, in summing up, pointed out that there was no doubt when the alkali manufactory was opened in 1889 the plaintiff's nursery was in a perfectly good and flourishing condition, and it was logically certain that damage was done at the end of the year, twelve months before the frost of last winter. He suggested that the wholesale price would be a fair value to allow for whatever goods, if any, were destroyed or damaged by the chemical works. The jury, after half an hour's consultation in private, returned a verdict for the plaintiff, awarding damages of £500.—*Chemical Trade Journal.*

### Electric Motors.

As an interesting contribution to the history of electric power transmission and electric traction, the *Moniteur Industriel* cites the fact that on January 16, 1855, Henry Gilbee was granted a patent "for the employment of two magneto-electric machines united by wires, one of the machines being put in motion by any convenient power, and generating a current which causes rotation of the second machine." The inventor, it would appear, foresaw also the establishment of a number of motors along the line of a conducting wire taking power from it. The inventor was M. Bessolo, a business arrangement having been entered into by him with Mr. Gilbee for the purpose of commercially developing the patent. Possible applications of the latter were, at the time, pointed out to be the operation of machine tools, and electric traction with underground or overhead conductors or with the rails serving as conductors. It would appear from this that all systems of electric traction have thus been antedated by Bessolo's early patent of 1855.