

Correspondence.

Indian Summer.

To the Editor of the SCIENTIFIC AMERICAN:

I was much interested in a late article on the cause of the "Indian Summer." Also in a note from a Southern correspondent.

I spent thirty-five years in western New York and the past six years in South Carolina on the Santee River. The fall here is quite the opposite of the "Indian Summer" of the North. Day after day the air has that crystal clearness that is sometimes seen in the North the morning following a thunder storm. I have noticed this and enjoyed it every fall of my stay here. I write this, as it seems to me to confirm the theory of the "Indian Summer" as noted by your correspondent.

The blue haze spoken of in your note from the South is the drawback to sightseeing in the North Carolina mountains, at all times of the year, as I have found from experience, and not peculiar to the fall.

E. J. HUTCHINSON.

Ferguson, Berkeley Co., S. C., December 13, 1904.

Mosquito Extermination.

To the Editor of the SCIENTIFIC AMERICAN:

In a recent issue of your valuable paper there was a notice of a national meeting to be held in New York and Brooklyn, in regard to the extermination of mosquitoes. I would suggest the following plan for the distribution of crude oil into the haunts of these pests: Papier-maché bombs are loaded with crude oil with a small time fuse and small quantity of explosive in the interior of the shell, which bursts them at any predetermined distance, scattering the oil over a large surface and in inaccessible places where a force pump or spray would not cover. These shells can be fired from mortars similar to those used in pyrotechnic displays. This, it seems to me, would be a very simple and inexpensive way of covering a large territory.

F. A. DOBSON.

New York, December 10, 1904.

Boilers in the United States Navy.

To the Editor of the SCIENTIFIC AMERICAN:

I trust I am early enough to have a correction made in this week's issue of a statement contained in your very interesting editorial of the 3d instant, descriptive of the trial of the "Pennsylvania."

Wholly in the interests of fair play I call your attention to the erroneous impression conveyed by that part of your reference to changes in the machinery of the "Pennsylvania," in which you state: "The battery of thirty Babcock & Wilcox boilers was replaced by a battery of thirty-two modified Niclausse boilers."

While naval officers are about the most conservative critics in the world, it so happens that the innuendo inferentially cast on the Babcock & Wilcox boiler by the above note touches their pride in the wonderful efficiency and durability of that particular type. This, backed by years of experience with it, and by unimpeachable data indicating an economy unexcelled by any other type, makes the reflection (which I am sure was inadvertent) particularly unfortunate, especially as the other type, however excellent, has yet its reputation to make by long service in our navy.

It is also true that the results of the trial of the "West Virginia," while less gratifying than those of the "Pennsylvania," were in no degree attributable to the difference in the boiler plants.

I have, therefore, simply to request that you will so modify your article as to state the fact that Babcock & Wilcox boilers were never designed by the department for the "Pennsylvania." The department simply specified water-tube boilers of straight tube type, and the Cramps, simply in this case, decided upon the Niclausse.

Very truly yours,

A. B. WILLETS,

Commander, U. S. Navy.

Philadelphia, Pa., December 7, 1904.

[We take much pleasure in inserting Commander Willets' letter, for we certainly had no intention of casting reflection upon any particular type of boiler. The use by the builders of a certain make of boiler, in preference to another that is commonly installed in our battleships and cruisers, was mentioned merely as being one among several points of difference in the motive power of the two sister ships.—Ed.]

Firing Tests of the Brown Wire Gun.

The 6-inch Brown wire gun which was illustrated and described in our issue of May 7, 1904, is now at Sandy Hook, undergoing its acceptance trials by the Army Board. Up to the present 7 rounds out of the total of 250 have been fired, with powder charges varying from 32 to 64 pounds, and the results are decidedly promising. The first three rounds of 32, 48 and 58 pounds of powder were what might be called warming-up rounds, and with the last-named charge a

velocity of 2,379 feet per second was obtained at 150 feet from the muzzle, with a powder pressure of 28,500 pounds to the square inch. In the sixth round, with a charge of 64 pounds of powder, the velocity was 3,174 feet per second, at 150 feet from the muzzle, with a chamber pressure of 37,060 pounds to the square inch, and a recoil of only 18 3/4 inches. The gun gives every promise of reaching its estimated velocity of 3,500 feet per second with 42,000 pounds pressure in the powder chamber.

New Expeditions for the Observation of the Total Solar Eclipse of August 30, 1905.

BY MARY PROCTOR.

The great astronomical event of the coming year (1905) will doubtless be the total solar eclipse of the sun, August 30, already referred to in the SCIENTIFIC AMERICAN for August 20, 1904. Plans are now being formed with regard to eclipse expeditions, the choice of observing stations being specially favorable. Several well-equipped expeditions will probably be sent from this country and Europe.

Mr. William H. Crocker, of California, has generously offered to defray the expenses of expeditions to be sent from the Lick Observatory to Labrador, Spain, and Egypt, and the provisional programme for the three stations is, in the main, as follows:

In Labrador, a photographic search will be made for intramercurial planets, in a region of the sky 8 1/2 deg. wide, extending in the direction of the solar equator from 4 deg. below the sun to 15 deg. above it. It has been thought likely that there may be one or more planets between the orbit of Mercury and the sun, and during a total eclipse they would become visible, if ever. On the whole, however, the observations so far made negative the existence of any body of considerable size in this region, though in 1878 Prof. Watson and Mr. Swift, it was thought, had discovered one, if not two, such planets.

In an article contributed by Prof. W. W. Campbell, of the Lick Observatory, to the Popular Science Monthly, for June, 1904, he writes: "The eclipse of August 30, 1905, will occur when the earth is seven degrees from the plane of the solar equator. It will therefore be advisable to search over a region of considerably greater width than was the case in 1901. Inasmuch as increased area means increased instrumental equipment, expense, and difficulty, a corresponding shortening of strip to be observed would perhaps be justified. It is to be hoped that observing parties well equipped for the intramercurial search will be located in Labrador, Spain, Tunis, and Egypt. If clear weather prevails at any of the four stations, very valuable results may be secured. Should a new planet be observed at three such stations, the enormous interest attaching to its discovery would be heightened by the fact that its approximate orbit could be determined at once. If no planets are revealed on first-class plates, the negative result would be scarcely less valuable, though certainly less interesting, than positive results; and the intramercurial question would cease to be a pressing eclipse problem."

Owing to the generosity of Mr. Crocker, a photographic search for intramercurial planets will be made not only in Labrador, but in Spain and Egypt as well. In Spain the photographic intramercurial search will cover a region of 9 1/2 deg. wide, extending in the direction of the solar equator from 14 deg. below to 14 deg. above the sun. In Egypt the photographic intramercurial search will cover a region of 8 1/2 deg., extending in the direction of the solar equator from 4 deg. below to 15 deg. above the sun.

Photographs of the corona by means of a camera of five inches aperture and forty feet focus, of the form first used by Prof. Schaeberle at the eclipse of 1893, will be made at Labrador, Spain, and Egypt. The large-scale coronal photographs made by Schaeberle at that eclipse opened a promising way for determining an explanation of the changing form of the corona, and whether the coronal streamers are moving in or out, or both, or neither, a question that has not yet been satisfactorily answered. Photographs of the corona should be secured for this purpose at widely-separated stations; and the circumstances of the widely-separated stations in Labrador, Spain, Tunis, and Egypt seem admirably adapted for solving this most important problem at the coming eclipse.

In Spain, a study will be made of the polarized light in the corona. These observations with the polariscope are for the purpose of determining the relation between the reflected and intrinsic light, and perhaps the size of the reflecting particles which are distributed through the corona.

The expedition in Spain will also be provided with spectrographs with moving plate-holders, which will be used to obtain a continuous record of changes in the spectrum of the sun's edge at the time of second and third contacts; and other spectrographs for determining the wave-length of the green coronal bright line, and, if possible, the wave-lengths of the bright and dark lines in the isolated spectrum of the sun's

edge, as nearly as possible at the time when the dark lines give way to the bright ones, and vice versa; and of a spectrograph for recording the general spectrum of the corona.

This is merely an outline of the programmes for the three eclipse expeditions to be sent from the Lick Observatory, California, to Labrador, Spain, and Egypt, respectively. The details of the programmes have not yet been fully worked out, but will be announced later.

The Yerkes Observatory will not send any expedition to observe the total eclipse next August, but the Naval Observatory, Washington, D. C., will probably send three expeditions, one of which may be located near Burgos, in Spain.

Prof. E. C. Pickering, of the Harvard College Observatory, Cambridge, Mass., states that there will be no official expedition from the observatory. However, Mr. L. W. Ripley, of Hartford, Conn., intends to conduct a party under the auspices of a local amateur scientific society.

An expedition composed largely of amateurs will go to Burgos, Spain, which is probably one of the most desirable stations along the route of anticipated darkness. A programme is being arranged for covering the minor details of an eclipse, such as observations of the diminishing sunlight; the peculiar shadows cast by the foliage on the ground when the sun is nearly eclipsed; the strange wavering lines or shadow-bands, as they are called, which make their appearance a few moments before totality; the swift onrush of shadow; and finally the glorious but indescribable corona.

Thus, while the astronomer is absorbed in special details which require his whole and undivided attention, the amateur enjoys the opportunity of watching the unfolding glories of the corona from the standpoint of a poet or artist. Words fail to convey the impressiveness of the scene (which has been witnessed by the writer on two occasions), and from remotest times it has been described with enthusiasm, as being one of the most beautiful of natural phenomena.

Successful Voyage of the Turbine Steamer "Loongana."

The marine steam turbine has once again demonstrated its possibilities and suitability for the same class of work as that which has hitherto been fulfilled by the ordinary reciprocating engines. Details have recently reached London of the passage of the turbine-propelled steamer "Loongana" from Glasgow to Australia. The "Loongana" is a vessel of 2,440 tons, driven by three Parsons turbines. The journey was covered in 30 1/2 days. The vessel experienced some of the roughest possible weather during the voyage, but even under these most adverse conditions it was found that with four boilers at work, a speed of 18 knots per hour could be easily maintained. Some interesting tests were carried out during the voyage to ascertain the relative economies of the turbine and the ordinary reciprocating engines, and conclusive data were obtained showing at what speeds the turbine is the less expensive. These experiments proved that for vessels where a speed of 16 knots is required, the turbine is much more economical than the cylindrical engines, but it becomes more expensive if the speed is decreased below 15 knots. Special observations were made of the behavior of the turbines and vessel under fluctuating conditions. On no single occasion was there any sign of propeller racing and it was only when traveling at the highest possible speed that any vibration over the screws was experienced, and then it was very slight. Far steadier running was obtained, even in the roughest weather. Not the slightest trouble was experienced with the machinery and the turbines did not have to be stopped for any purpose throughout the voyage except when coaling at ports. Nor did the necessity arise for repairing or renewing any part of the machinery. This is the longest journey that has ever been covered by a turbine-propelled steamer, and the steady running of the vessel under all conditions of weather constituted one of the most prominent features of the journey. Anticipations have been entertained that although this machinery has proved far more economical in regard to fuel consumption than reciprocating engines for vessels engaged in coast and short-distance traffic, it would prove more expensive for ordinary long-distance voyages. The trip, however, has proved the opposite to be the case, and established the superiority of the turbine for long-distance traffic under all conditions.

The British consul at Lyons states that the transmission of electric power over considerable distances is developing, and it is stated that 3,000 horse power is to be transmitted from the Alps, distant 100 miles from Lyons, for the working of the tramway company. The British vice-consul at Grenoble reports that a considerable quantity of electric power is still to be purchased in that district at a cheap rate for the purpose of establishing manufactories of all kinds.