Cotton Wool in the Nostrils.

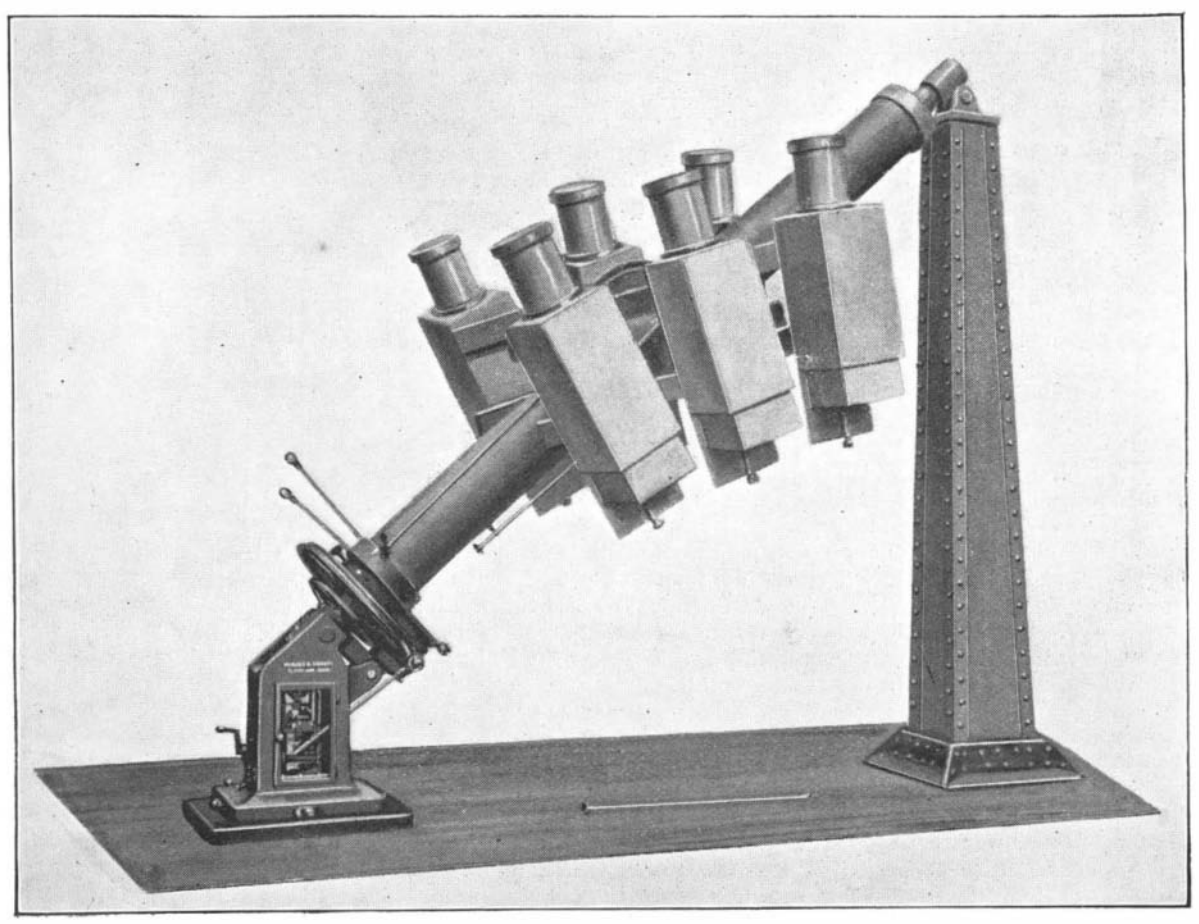
F. P. Mann, M.D., San Francisco, in the Pacific Medical Journal, writes as follows: Everybody is acquainted with the fact that nature has attempted to guard the portals of respiration through the nose by placing just within the nostrils of man or air-breathing animals a multitude of hairs. These act as a very imperfect strainer in arresting the portion of the dust and germinal matter with which the air we breathe is laden. It would also appear from somewhat extended observation and experiment that individuals whose nostrils are best supplied with hirsute growth are less susceptible to the irritating qualities of foreign material so universally distributed through the atmosphere, to say nothing of septic matter from decomposing animal and vegetable substance, bacteria, the special bacilli of various diseases, etc. Abundant experiment long ago demonstrated that cotton wool was capable of arresting germinal matter with which the air is filled. By placing within the nostrils out of sight a thin pledget of cotton not sufficiently dense to interfere with free inspiration, the air may be greatly purified. The cotton immediately becomes moistened during expiration, which adds materially to its efficiency as a filter. That thus placed it will arrest dust, particles of soot, etc., may be easily shown by introducing the pledgets and then after an hour's walk through the streets removing them, when they will be found blackened and soiled. Microscopic examination discloses quite a zoological museum of germinal matter. Prominent among the displays are found various forms of catarrhal and bronchial secretion that have been desiccated and pulverized by passing feet, thus liberating the germs which planted upon a congenial soil will produce catarrh to order.

It is not generally known that a certain variety of penicillium glaucum which often develops upon clothing stowed away in trunks or closets where dampness prevails will produce violent symptoms of influenza whenever such fungus infected articles are handled. Professor Credi, of Naples, asserts from careful observation that fifteen grains of dust from the streets of that city contains hundreds of thousands of microbic germs. Are the streets of American cities any freer from germinal matter? It is claimed for the film of cotton that it catches and holds in its meshes germinal matter. Any germs that succeed in passing through the filter are arrested by the moisture which it maintains in the anterior nares. It is probable it offers more or less perfect protection to those exposed to infectious and contagious diseases.

INSTRUMENT FOR THE PHOTOGRAPHY OF METEORS FOR THE YALE OBSERVATORY.

W. L. ELKIN.

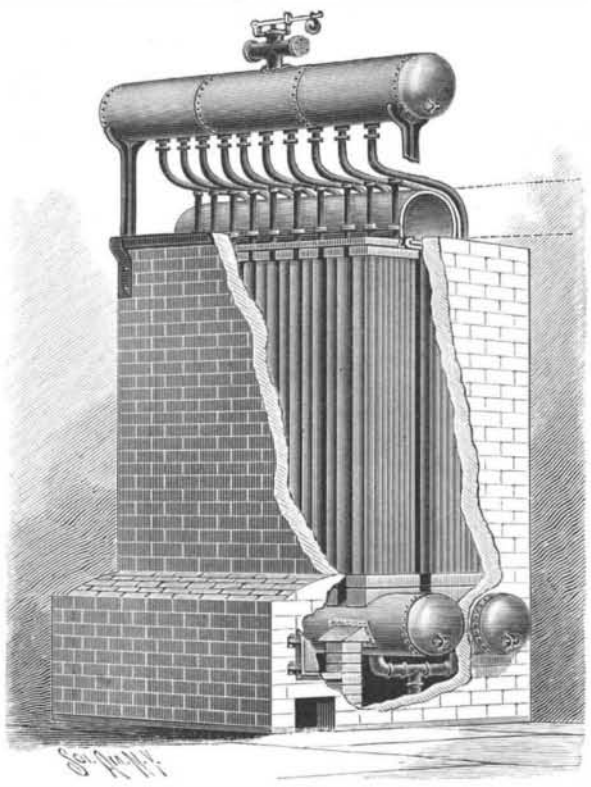
The experiments made at this observatory last year seemed to show that, if a sufficiently large field could be covered, it might be possible to secure quite a number of meteor tracks on photographic plates, during the August and December showers, at least. The incomparably greater accuracy, as against eye observations, with which these tracks locate the meteor and the radiant, has led us to consider the matter worth following up, and accordingly application was made to the National Academy for an appropriation from the Lawrence Smith fund which is to be devoted to meteoric researches From the grant awarded us the instrument represented in the cut has been constructed by Messrs. Warner & Swazey. It is a polar axis of the English form, this seeming to be the most convenient and the best adapted mounting for carrying a number of cameras, and admitting of long exposures without break. The axis is of tubular form, about 12 feet long, the ends being pivots working in bearings which are adjustable on their supports. The southern support, or base, contains the clockwork, the northern support is a column containing the driving weights, the connection being made by a cord passing under the floor. The declination axis carries arms on either end which serve as supports for the cameras. On the cut six dummy cameras are shown; it is not likely for the present, however, that we shall use more than four. Graduated aids and slow motions for both co-ordinates are provided, and the clockwork has an electric control. The apparatus is now mounted here, and will be tried on the Perseids this year.—Popular Astronomy.



INSTRUMENT FOR THE PHOTOGRAPHY OF METEORS.

AN IMPROVED TUBULAR BOILER.

The boiler shown in the illustration is specially designed to economically produce dry or superheated



ALFONSO'S TUBULAR BOILER.

steam, and is provided with simple means for regulating the draught. It has been patented by Mr. Crecencio Alfonso, of Ranchuelo, Cuba. The furnace is at one side, and the boiler, consisting primarily of twin heaters, is supported on pillars by V-shaped flange extensions, which may be hollow and filled with water to protect them from injury by heat. A common feed pipe, with branches, supplies both heaters from below, and also serves as a brace. Casings on the upper side of the heaters have steam-tight connection with vertical water tubes in parallel rows, the upper ends of the tubes being secured to boxes forming chambers, and the water preferably covering the upper ends of the tubes, yet not entirely filling the chambers in practical operation. A steam tube from each of the boxes extends up to a steam dome, the tubes being adjacent to and a portion of them partially surrounding the smoke flue. The products of combustion from the furnace rise in contact with the heaters and tubes through a central passage communicating with the smoke flue, there being in this passage a number of apertures adapted to be partly or altogether closed by a sliding damper moved longitudinally in guides. Further information relative to this improvement may be obtained of Mr. D. Luis Casañas, Ranchuelo, via Cienfuegos, Cuba.

Return of Dr. Cook's Arctic Party.

The ill-fated steamer Miranda left New York July 7, with Dr. F. A. Cook, of Brooklyn, and a party of scientists and sportsmen who desired to visit the coasts of Labrador and Greenland.

Among the party, which numbered about fifty, were William H. Brewer, professor of agriculture, Yale University; C. Fred Wright, of Oberlin College; Professor B. C. Jillson, Professor G. W. Dove, of Andover; L. L. Dysche, professor of zoology, Kansas State University; Professor Charles E. Hite, of the University of Pennsylvania; Professor Elias B. Lyon, of Chicago; and Professor A. A. Freeman, of Andover. The Miranda was to cruise around Newfoundland, cross Davis' Strait to the west coast of Greenland, then to Melville Bay and visit the winter quarters of Lieutenant Peary. The return was to be made by way of the coasts of Greenland and Labrador; and New York was to be reached about September 15. A series of accidents befell the Miranda. On July 17 she collided with an iceberg near the Straits of Belle Isle. The vessel returned to St. John's, Newfoundland, for repairs, and on Jnly 27 a second attempt was made to reach Greenland. The progress of the Miranda was impeded by fogs and ice, so that she did not make harbor at Sukker Toppan, Greenland, latitude 65:20, until August 7. She started for Holstenborg August 9, and struck a sunken rock outside the harbor of Sukker Toppan. The damage was so severe that it was not considered safe to return to St. John's in the Miranda. Dr. Cook and a portion of the party set out for Holstenborg, 140 miles away, in an open sail boat, and secured the fishing schooner Rigel, of Gloucester, Mass., to transport the party to St. John's. The Miranda then started with the Rigel in tow, but on August 21, while 300 miles out, the water tank of the steamer was burst by the heavy swell, and on August 23, Captain Farrell abandoned his vessel. Ninety-one persons were now crowded in the little schooner of 107 tons burden. Only two meals a day were allowed. The passage was rendered doubly disagreeable by bad weather. At last the party arrived at North Sydney, Cape Breton, on September 5. Most of the passengers returned home by rail. Nearly all of the baggage, including natural history specimens and negatives, was lost. The escape of the party was fortunate and one of its members, Mr. J. D. Dewell, of New Haven, evidently voiced the feelings of the majority of the party when he telegraphed to his friends: "Out of the jaws of death."

The Effect of Sulphur in Cast Iron.

In a recently issued volume of the Proceedings of the Institution of Civil Engineers there is an abstract of a paper on the above subject by Mr. W. J. Keep. The author has for six years been trying to verify the received belief that sulphur is in every way injurious to cast iron; and he has made numerous experiments with artificially sulphurized cast iron up to 2 per cent of sulphur, both gray and white, the results of which are recorded in the paper. The conclusion finally reached is that the proportion of sulphur retained by gray cast iron cannot materially injure the iron, except by increase in shrinkage, which in the extreme ends seems to be from 0·168 inch to 0·194 inch per foot. The general testimony is that most of the sulphur present in pig iron is lost in remelting, and that it is impossible it can be reabsorbed to any damaging extent from the fuel. The influence of sulphur is diminished by increase of carbon or silicon. In wrought iron, which is practically free from these elements, a small amount of sulphur is said to do great harm; and such iron will take up sulphur in considerable quantity. The influence of sulphur on all cast iron is to drive out carbon and silicon, to increase shrinkage, and in general to reduce strength; but in practice sulphur will not enter the iron in the foundry to a sufficient extent to realize these defects.