for the study of the greatest extension of the coronal streamers is of much value.

As in the last eclipse, the spectroscopic investigations will be carried on entirely by grating, concave and flat. Dr. S. A. Mitchell will occupy a position at the central station, and will use the objective grating with which such successful results were obtained at the last eclipse. Mr. Littell will take charge of another objective grating, using a very long slit, with which it is expected to obtain some light on the rotation of the corona, as the length of the slit is sufficient to take in the disk of the moon and the brighter portions of the corona.

Mr. Jewell and Dr. Humphreys will use a concave grating of 30 feet focal length and a ruled space of 3½ x 3 inches, which has just been constructed by the Johns Hopkins University. It will be used without a slit, and as Dr. Humphreys and Mr. Jewell expect to occupy a position near the northern border of the shadow-path, where the duration of the reversing layer will be several seconds, the concave grating used by these observers is expected to yield results of unusual value. Mr. Jewell will also take charge of a concave grating of 10 feet focal length, and a photographic instrument in which a visual lens will be utilized.

The character of this particular eclipse is well shown by the fact that although this station will be located within seven miles of the northern border, the duration of totality is over three minutes, more than twice as long as the duration of totality at the central line of the eclipse in 1900.

Dr. N. E. Gilbert has the important task of looking after an instrument loaned to the expedition by the University of Wisconsin. It consists of a combination of a spectrum and Nicol prism, by means of which only the reflected light of the corona will be admitted on to the photographic plate. This will be used at the suggestion of Prof. R. W. Wood, of the University of Wisconsin, who has made certain interesting investigations with regard to the possibility of securing reliable records of the Fraunhofer lines in the spectrum of the corona. According to his theory, they ought to be found there, but for some reason it has been impossible to secure reliable records of their presence there.

Dr. Wood believes it is possible to detect the presence of these lines in the spectrum of the corona, basing his supposition on the fact that the light emitted by the particles in virtue of their incandescence so overpowers the reflected sunlight that the lines are invisible. That the coronal light is strongly polarized is well known, and there is scarcely any doubt that the polarized light is reflected sunlight. To quote Dr. Wood's remarks, in Science for February 1, 1901:

"If now a Nicol prism be placed before a slit of the spectroscope in such a position as to transmit the polarized radiations, these will be allowed to pass with almost undiminished intensity, while the emitted or unpolarized light will be reduced in intensity by one-half. The great change in the ratio resulting might easily be sufficient to bring out the dark lines distinctly. I feel firmly convinced that the experiment should be tried at the Sumatra eclipse of next May, for I have successfully accomplished it in the laboratory with an artificial corona."

Thus we see that eclipse work of the present day includes in its programme a study of the coronal light, the record and measurement of the bright coronal lines, and their identification, if possible, with terrestrial elements. and the distribution in the corona and round the sun of the various bright lines of the coronal spectrum, and especially of the bright line "coronium."

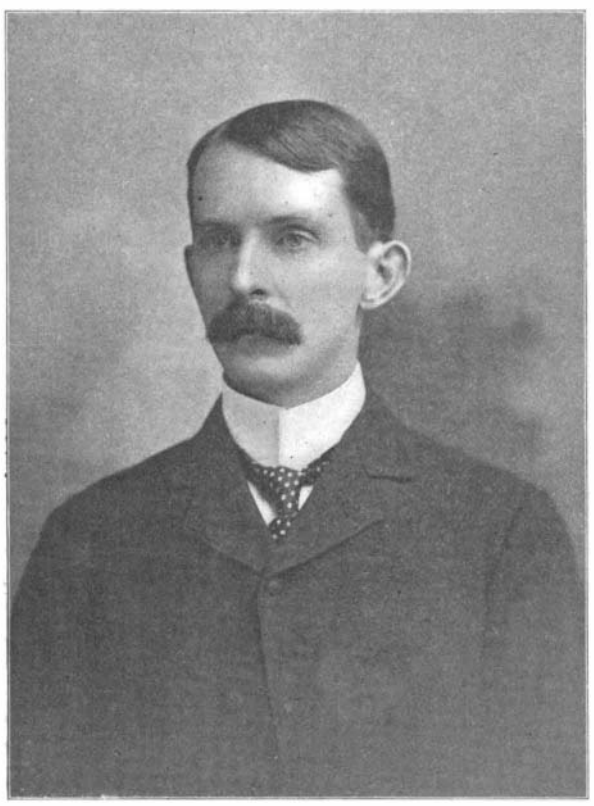
This May is the first time the United States Naval Observatory has sent an expedition to observe a total eclipse of the sun since 1878. Let us hope success may attend the present Government Eclipse Expedition, and that an important advance may be made in connection with the study of the corona, and especially as to the best methods and instrumental means for future research.

ELECTRICAL PROTECTION OF THE MAILS.

The Post Office Department is utilizing all means to insure the security of mail matter, and it may not be generally known that the government conducts from time to time tests of inventions designed with this end in view. The Post Office has suffered considerable losses by organized thieves who were dressed in uniform like government mail collectors and provided with duplicate keys. An electrical device for protecting the letter boxes is now being tested. A number of mail boxes with locks electrically controlled have been installed on one of the mail routes in the business section of the capital, says The Western Electrician. The electrical locking devices are under the control of an operator at the central station in the Post Office where there is a clock, similar in appearance to the ordinary watchman's clock, provided with a mechanism which prints the numbers of the mail boxes when they are opened and when they are closed. The first box must invariably be visited first by the collector, as this box controls the operation of the lock of box number 2, box number 2 of number 3 and so on. After allowing the mail collector time to reach the first box, the operator at the central station presses a button which releases a secondary locking device, and allows the carrier's key to throw the lock bolt. The opening of this box performs the same service for box number 2 as that performed by the operator at the central station; that is, sets automatically the lock for the collector's key to open. Since succeeding boxes are set by the one last opened, it is obvious that the predetermined order of visitation by the collector must be strictly adhered to. The act of opening and closing each mail box is instantly recorded on a time dial at "Central," and in case of unlawful attempts being made to open them Central is instantly notified of "trouble on route" by the ringing of an electric bell. Should the occasion arise when the collector desires to communicate with the operator at Central, he can do so by pressing a button at any mail box, a prearranged code of signals permitting the sending of a few important messages.

THE NEW COMMISSIONER OF PATENTS.

Frederick Innes Allen, the new Commissioner of Patents, was born in Auburn, N. Y., January 19, 1859. He comes from New England stock, being a direct descendant of George Allen, who landed with the Weymouth party from England in 1636, and settled at Weymouth, Mass. The head of the branch of the family from which the Commissioner is descended was one of the founders of the town of Sandwich,



F. I. Allen

Commissioner of Patents.

Mass., the first town of the Plymouth colony upon Cape Cod.

Mr. Allen's father was William Allen, who for many years was prominently and actively engaged in the practice of patent law. He was a contemporary of, and associated with, such great patent practitioners as Blatchford, Gifford, Harding, and other authorities upon patent law of a generation ago. He was the managing attorney of the combination of reaper patent owners who controlled the manufacture of harvesters in the United States forty years ago, and which was the largest combination of the time.

Commissioner Allen was educated at the Auburn High School and Phillips Academy, Andover, and graduated from the Sheffield Scientific School of Yale with the class of '79.

He then took up the study of law, and was admitted to practice in 1882. His natural inclination was to patent law, and he at once began the study of this special branch of his profession. He has been eminently successful in his practice.

While he has always been a diligent student of the law, Mr. Allen has found time to acquaint himself with a wide range of topics, and few men have more general information upon a greater variety of subjects. He has been a special student upon naval and ordnance construction, and he has given a number of entertaining and instructive addresses upon these subjects. Mr. Allen also excels as a mineralogist. While at Yale he took the class prize for geological and mineralogical study. He has never lost interest in the subjects and his collection of specimens is large and complete.

Mr. Allen is a man of dignified appearance and pleasant manners. He gives one the impression of being a man of strength and firmness coupled with that breadth of view which is so absolutely essential in any one holding a position requiring as diversified talents as a Commissioner of Patents. He has, by education and experience, a thorough knowledge of the patent practice, and there is no reason why he should not soon acquire a thorough understanding of the inner workings and special needs of the Patent Office. We are happy to extend to him our congratulations upon his appointment to this most important trust.

THE NEW YORK BOTANICAL GARDEN MUSEUM.

The museum stands on a commanding site near the Bedford Park entrance to the garden. Looked at from the south, it is an imposing building. The walls are a gray white; they rise in four high stories, and the center has a dome. The Corinthian columns at the portico, and the stone balustrade at the outer side approach contribute to the substantial elegance of the structure.

The practical information now to be gained in the garden is mainly to be obtained in the museum, and at the same time, no small measure of pleasure. In the work rooms in the basement, quantities of unmounted specimens of plants are being put into order. The young men at work upon them spread upon a large thick sheet of glass, a coating of Dennison's glue diluted with vinegar. Upon this, the dried specimen is laid for an instant; then it is touched upon a sheet of porous paper that the unneeded glue may be absorbed; from this, it is laid upon the permanent cardboard, which already bears a printed label. After being kept under pressure for two or three days, the specimens are strapped in two or three places, and thus are perfectly secure.

One of the students at work gave a hint in regard to the preservation of the color of flowers, worth noting here. It has been found that if the specimens, after being under pressure for a day or two, are laid in papers heated in the sun, until their drying is complete, the color is preserved as by no other process.

The first floor contains the collections illustrating economic botany. They are beautifully arranged and are deeply interesting. Each case tells a volume. For example, one showing pine products contains a section of the trunk of a Georgia pine, cut as such trees are when the turpentine is collected. Beside it are jars of turpentine and tar in various degrees of density, with lumps of resin. Close at hand are specimens of soaps in which tar or resin has been used.

The cocoa bean, cotton, cork, tea, the grains, hemp and the rest of the vegetable products upon which we depend, are represented with equal detail in the collection. One case of special interest is that devoted to sedge-fiber products made by the Northwestern Grass Twine Company, of St. Paul. The fabric is called *iyotan*. The samples of carpets, rugs and cushions of soft greens and grays into which the grasses are woven are very agreeable in color, and look durable.

The next floor is devoted to the illustration of systematic botany in a manner at once interesting and instructive. Each of the large cases is devoted to one family of plants, or to closely allied groups. For example, the *Polypodiaceae* may be named. Its 3,000 species are represented by specimens of fossil ferns from coal measures, a section of a large tropical tree fern, roots in jars of alcohol, as well as dried ferns mounted, and cuts of microscopic preparations of sections of ferns.

Between the upright cases, swinging cases on standards are arranged. These contain dried specimens of a great variety of plants, arranged, apparently, rather with reference to making the room attractive than to their classification.

This collection and the one below are of deep interest and calculated to inspire children who see them with an enthusiastic love of botany as it may now be studied. A day in this museum with most people would do more in this direction than years of study according to the old methods when the science consisted mainly in the identification and classification of flowering plants.

The top floor of the building is not open to the general public. The beautiful laboratories there, physiological, taxonomic, chemical, and embryological, are used both by graduate students of Columbia and the garden students, and here they carry on original work in all these departments of botany. They have access to the botanical library of about 8,000 volumes, and to the immense herbaria belonging to both institutions. The plants are arranged in cases, and classified according to Engler and Prautl's system. In such a working-place as this many of Nature's remaining secrets ought surely to be discovered.