

disappeared, but the diffused white light still lingered, gradually becoming more and more limited in extent, though remaining equally pronounced, until 10.30; when it occupied the small segment of the sky comprised within about 5° on each side of the north point of the horizon, and from 6° to 7° above it.

Lamorna, Torquay, Oct. 24

W. PENGELLY

THE AMERICAN GOVERNMENT ECLIPSE EXPEDITION

AT the last session of the Congress of the United States of America, an appropriation of 6,000*l.* was made for the observation of the Total Eclipse of the Sun, under the direction of Professor Benjamin Peirce, the Superintendent of the U.S. Coast Survey. This generous act of legislation was suggested by one of the ablest statesmen of America, the Hon. John A. Bingham, of Ohio, and passed both houses unanimously.

An officer was immediately sent to examine the various places, and obtain all the local information which might be required to select the most favourable positions for observation. The expedition has been divided into two parties, each of which consists of about twelve persons. One party is under the immediate direction of Prof. Peirce, and will observe in Sicily; and the other is under the direction of Prof. Winlock, the director of the Observatory of Harvard University, and will observe in Spain. Almost all the astronomers of the expedition were upon the central path of the great eclipse which occurred in America in August 1869, so that they have already been under fire, and are prepared for the sudden outburst of the total obscuration.

The observations for precision will be entrusted in each party to an experienced officer of the survey, who will be upon the ground at least a fortnight before the eclipse. He will have the instruments all properly mounted and protected, the time well observed, and the arrangements made so that the principal observers of the physical phenomena may find everything in readiness when they arrive. Their presence will not, therefore, be required till within a few days of the eclipse. The officers upon whom this duty has devolved are Mr. Schott and Mr. Dean, assistants of the Coast Survey.

The spectroscopic observations have been chiefly arranged by Professor Winlock, assisted by Professors Young and Morton. New and peculiar methods have been prepared for preserving a record of the lines of the spectrum for subsequent measurement and discussion.

The photographic preparations are varied and original. The party of Prof. Peirce will have photographic apparatus prepared by Mr. Rutherford of New York, with lenses especially ground for the purpose under his direction by Fitz of New York, and young Fitz will himself superintend this portion of the observations. The party of Prof. Winlock will have its photographic apparatus prepared, under the directions of the Professor, by Clarke, of Cambridge, and will use lenses ground by Clarke. Alvan Clarke, Jun., will also assist in these observations. Prof. Winlock's new method of photographing the sun through a long tube will be used in a portion of this class of observations. In both parties arrangements are made for long and short exposures in different instruments during the period of totality.

The polariscopic observations will be made by Prof. Pickering in the party of Prof. Winlock.

General observations of the corona will be made by as many of the party as possible, and it is hoped that Steinheil's hand comet-seekers will be especially available for this class of observation. Hand spectroscopes will also be used by several of the party, and it is hoped that in the preparations for this portion of the service material assistance will be derived from Mr. Lockyer's suggestions.

It is worthy of notice that two of the ablest officers of Engineers of the United States' Army have been de-

tailed by the War Department to accompany the Expedition. They are Major Abbott, whose name is familiar to hydraulic engineers through his connection with General Humphrey's Monograph upon the Mississippi river, and Captain Ernst.

B. P.

DR. W. ALLEN MILLER

WE have already referred to the lamented death of Dr. W. A. Miller, and now give a short sketch of his life. Dr. Miller was born at Ipswich in 1817, and received part of his education in Merchant Taylors' School. He obtained, however, his first insight into chemistry in a school belonging to the Society of Friends, at Ackworth, in Yorkshire. At the age of fifteen he was apprenticed to his uncle, who was surgeon to the General Hospital at Birmingham, and at the age of twenty he entered King's College, where (we quote from an obituary notice in the *Chemical News*) his knowledge of chemistry attracted the attention of Professor Daniell, who, during the illness of the laboratory assistant, engaged his services. In 1840 he visited Germany, and passed some time in Liebig's Laboratory at Giessen. In the same year he was appointed to the post of Demonstrator in the Laboratory of King's College. In 1841 he became Assistant Lecturer to Professor Daniell, and also took his degree of M.D. in the University of London. He also assisted Professor Daniell in various scientific inquiries, and conducted the experiments on the electrolysis of saline compounds, his name being associated with that of Daniell in the paper that appeared in the *Philosophical Transactions* for 1844. In the following year he became a Fellow of the Royal Society, and on the death of Professor Daniell succeeded to the vacant chair. At this period he became greatly interested in the subject of spectrum analysis, in which he worked with great activity as an observer of the various phenomena which were then attracting the attention of the scientific world. He was a member of the Council of the Royal Society from 1848 to 1850 and from 1855 to 1857, being elected treasurer in November 1861, thereby becoming vice-president of the society. About this time his highly-trained mind and great knowledge were utilised to the highest degree in a joint research with Mr. Huggins on the spectra of stars and nebulae, and in this class of researches his loss will be as severely felt as it will be at King's College, the Council Board of the Royal Society, and other places where his calm and sound judgment was conspicuous.

Professor Miller received the degree of LL.D., Edinburgh; of D.C.L., Oxford; and of LL.D., Cambridge. He also received the gold medal of the Astronomical Society, in conjunction with Mr. Huggins. At the time of his death he was a member of the Royal Commission which is now considering the whole question of scientific instruction and the advancement of science. His contributions to scientific knowledge, beyond those we have mentioned, were not large, his time being much taken up, as is the case with too many of our best scientific men, with teaching. His "Elements of Chemistry" is a valuable work which has long been favourably known, and has gone through several editions.

AUGUSTUS MATTHIESSEN

THE sad death of Dr. Augustus Matthiessen, which we briefly referred to in a previous number, has bereft English chemical and physical science of one of the most arduous and successful workers who ever entered her ranks. Born January 1831, in London, he from early youth upwards, manifested a great liking for chemistry, but it was not until he came of age that he entered upon its study in earnest at the University of Giessen, where he subsequently took his doctor's degree, and afterwards at Heidelberg, where, for nearly four years, he worked