

as other countries have established the organisation required if they wish to adhere, there seems to be a good prospect of a much more efficient control of the dissemination of the fungus diseases to distant countries than has ever been thought possible in the past."

The memoir contains an appendix giving a brief history of the spread of most of the important cryptogamic diseases of cultivated plants, the extension of which has attracted notice during the past seventy years.

#### PARIS ACADEMY OF SCIENCES.

##### BONAPARTE FUND.

THE committee has considered twenty applications for grants from the Bonaparte Fund. It is considered desirable to reserve the greater part of the annual income until after the conclusion of the war and to defer grants for the purchase of apparatus. The grants recommended and approved by the Academy are:—

(1) 2000 francs to Edmond Bordage, for the publication of his histological researches on the metamorphoses of insects.

(2) 2000 francs to E. Chauvenet, for the continuation of his researches on zirconium.

(3) 2000 francs to Gustave Dollfus, for the continuation of his studies on the Paris basin.

(4) 2000 francs to Henri Froidevaux, for the production of a catalogue of the periodicals, more than eight hundred in number, in the library of the Société de Géographie.

(5) 2000 francs to Emile Gadeceau, for his studies on the submerged forests of Belle-Ile-en-Mer.

(6) 2000 francs to F. Gagnepain, for assistance in the publication of an etymological dictionary of botanical genera, with illustrations.

(7) 2000 francs to L. Joubin, for pursuing at Messina the researches he has undertaken on the deep-sea Cephalopods.

(8) 2000 francs to W. Kilian, for the pursuit of his studies and his publications on the fossil fauna and the stratigraphy of the south-east of France.

Including the balance from 1916 (55,000 francs), the amount in hand is 105,000 francs, and the balance carried forward, after paying the above-named grants, is 89,000 francs.

#### THE AMERICAN PHILOSOPHICAL SOCIETY.

THE American Philosophical Society held a very successful meeting in Philadelphia on April 12-14. The address of welcome was delivered by the president, Dr. W. W. Keen, who, with Vice Presidents W. B. Scott and G. E. Hale, and with Dr. A. A. Michelson, presided. More than forty papers were presented. The national crisis also received some attention, Dr. M. T. Bogert, of Columbia University, outlining the work chemists may do to aid the National Research Council in the solution of certain war problems. Suitable badges to identify "members of the industrial army" so that they may not be called slackers was urged. Attention was directed to England's mistake in permitting general enlistment for "the front" when in many cases men with special ability could have been of much more value using their brains in the laboratory. A well-trained industrial army is just as important as the army of fighters.

A brief outline of the effect of different lighting conditions on the eye and the factors which cause the eye to lose in efficiency and to experience discomfort was given by Dr. C. E. Ferree, of Bryn Mawr Col.

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lege. More than forty different lighting conditions have been investigated, and many experiments conducted pertaining to the hygienic use of the eye. The loss of efficiency sustained by the eye in an unfavourable lighting situation seems to be muscular, not retinal. The retina has been found to lose little, if any, more in functional activity under one than under another of the lighting systems employed. The observation of motion pictures for two or more hours causes the eye to lose heavily in efficiency. The loss decreases rather regularly with increase of distance from the projection screen. It seems little, if any, greater, however, than the loss caused by an equal period of steady reading under much of the artificial lighting in actual use. In all the lighting situations tested a close correlation was found to obtain between the loss in power to sustain clear seeing and the tendency to produce ocular discomfort.

A spectroscopic method of deriving the absolute magnitudes of stars, and a new formula connecting parallax and proper motion for studying the relationship between the motion of stars and their true or absolute magnitudes, were described by Dr. W. S. Adams, of Mount Wilson Observatory. About one thousand stars have been used in the investigation, and the results establish almost certainly a definite increase in velocity with decrease in brightness.

The skeleton of a gigantic extinct bird found last summer in the Bighorn basin of Wyoming by an expedition from the American Museum of Natural History was described by Dr. W. D. Matthew, one of the curators. It is of the Lower Eocene age, a contemporary of the little four-toed horse, the fossil remains of which are found in the same region. The bird was about as large as the extinct moas of New Zealand, much bulkier than any living bird, although not so tall as an ostrich. It stood nearly 7 ft. high. The head was enormous, 18 in. long with huge compressed beak like the extinct *Phororhachos* of Patagonia, but unlike any living bird. The neck, too, was very massive and rather short, and it was quite unable to fly, the wings being about as large as in the cassowary. Although it resembled the modern ostrich group in some ways, it was not related to them, and only remotely related to any other known birds, the nearest perhaps being the seriema of South America. A few fragments of this gigantic bird were found by the late Prof. Cope more than forty years ago, and named *Diatryma*, but it remained practically unknown until the discovery of this nearly complete skeleton. A description of this specimen by W. D. Matthew and Walter Granger, with photographs and a reconstruction, will appear in the *Bulletin of the American Museum*.

In a paper by E. S. Botch, of Philadelphia, the present status of our knowledge about early man in America was summed up as follows. Man lived during at least a part of the Pleistocene period for tens of thousands of years south of the Glacial moraines. He probably went through an Eolithic period, and certainly through a Chellean period in some places, and therefore was truly a Palæolithic man. He may have shown rudimentary fine art. Palæolithic American man was the ancestor of the Neolithic historic Indian, and although less advanced in culture, much like his descendant in anthropological characteristics. Whether he was an autochthon in America or whether he came from some other place, and, if so, when, we do not as yet know positively, although his affiliations seem to be to the west. And it is to four men above all others that we owe our knowledge: Abbott, the discoverer of Palæolithic implements and horizons; Volk, the corroborator; Lund, the first finder of probably Palæolithic bones; and Winchell, the investigator of patination.