the grasses and sedges appear not to have been studied at all, though these, next to the trees and shrubs, are the most important ecologically in most temperate regions. These omissions as well as the failure to distinguish sharply between related species—thus *Vitis cordifolia,* which is not known certainly to occur in Michigan, is confused with the very common *Vitis riparia*—and the failure also to discriminate between primary and secondary plant societies, detract seriously from the worth of Mr. Livingston's paper. The excellence of his treatment of the soils and the geological factors of the flora is thus marred somewhat by hurried and inexact observation of the flora itself. The ecologist must know his plants, or his work is worthless. He can not neglect any great group, not even the lower cryptogams, and give us a true conception of the actual plant life. He must stay with his flora till he knows it—he must see, if possible, the relation of each species with its environment, its relation too with its neighbor. If he can not cover a state or a county, let him be content with a township or a section. A broad plant survey has its uses; it has also its defects, but even so, such a survey should spring out of an intimate knowledge of local floras. A generalization not drawn from verified particulars is of no use to exact science.

FRANCIS DANIELS.

UNIVERSITY OF MISSOURI,
July 2, 1903.

DISCOVERY OF THE BREEDING AREA OF KIRTLAND'S WARBLER IN MICHIGAN.

ABOUT a month ago Mr. E. H. Frothingham, an assistant in this museum, and his friend, Mr. T. G. Gale, took an outing in Oscoda County, Michigan, and went prepared to secure specimens for the museum. On their return it was found that a male specimen of Kirtland's warbler (*Dendroica kirtlandi*) was among the bird skins which they had secured. This is one of the rarest and most interesting of North American birds, less than thirty specimens having been recorded from the United States and Canada. Mr. Frothingham has published a preliminary note of this June capture of a Kirtland warbler in the *Bulletin of the Michigan Ornithological Club,* Vol. IV. (Detroit). This is the first June record of the capture of this species. The late occurrence of this bird in northern Michigan and its relative abundance (several birds were seen and heard which were not taken) suggested that the bird was breeding in that region. In the hope of settling this point, as the breeding area of this bird was unknown, this museum sent its taxidermist, Mr. N. A. Wood, to Oscoda County to make a thorough investigation of this question and to secure specimens for the museum. Mr. Wood has just returned from this trip and has had excellent success as is shown by his having secured two nests with the young and one egg, thus establishing beyond question the breeding area of this species. A full account of the results of Messrs. Wood and Frothingham will soon be published. From an ornithological standpoint this is a very important discovery. In the *Auk* for October, 1898, Mr. F. M. Chapman writes concerning our knowledge of the North American warblers: "With the exception of several Mexican species just reaching our border, we can now write 'rare; nest and eggs unknown,' only of Kirtland's warbler." It is thus evident that this is a discovery of considerable interest.

Some unauthorized and incorrect reports have been made public, which makes it desirable to make this preliminary statement.

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CURRENT NOTES ON METEOROLOGY.

CLIMATE OF CAIRO.

IN 1859 the Khedive of Egypt ordered the reestablishment of the observatory which had existed at Bulaq from 1845 to 1850, but had then been closed. A site was selected and regular observations were commenced in 1868. The observatory is about three miles northeast of Cairo, on the edge of the desert, close to the military barracks of Abbassia. In 1889 Mr. J. Barois published a very

complete study of the climate of Cairo, using the observations made at the observatory for the twenty-one years, 1868–1888. Monthly bulletins were issued up to October, 1898, and in February, 1899, the observatory was transferred to the Survey Department, Public Works Ministry. In 1900 this department issued 'A Report on the Meteorological Observations made at the Abbassia Observatory, Cairo, during the years 1898 and 1899.' This report included the mean values derived from the observations of the previous thirty years, and was very fully illustrated by means of plates showing the mean daily and annual variations of the different weather elements. The work at the observatory has been carried on under the direction of Captain H. G. Lyons, R.E., Director-General of the Survey Department. Recently (1902) there has been issued a second 'Report on the Meteorological Observations made at the Abbassia Observatory, Cairo,' including the observations of the year 1900, together with the Alexandria means derived from the observations of the previous ten years. Eye readings made every three hours have been replaced by self-recording instruments. Meteorological stations have been established at Port Said, the Barrage, Assiut and Aswan. The diurnal and annual variations of the different weather elements are illustrated by means of numerous curves.

The Abbassia Observatory, and the cooperating stations, under the wise direction of Captain Lyons, are carrying on a valuable work in a country whose meteorology has always been of the greatest interest, and in which increasing numbers of Americans seek health during the winter months.

THUNDERSTORMS AND THE MOON.

In *Popular Astronomy* for June, Professor William H. Pickering summarizes some published statistics of thunderstorm occurrence in relation to the moon's phases, using data collected by Polis, van der Stok, Köppen, Hazen and others. The conclusion reached is that there really is a greater number of thunderstorms in the first half of the lunar month than in the last half, and also that the liability to storms is greatest between new moon and first quarter and least between full moon and last quarter. The difference is, however, not large enough to be of any practical importance.

RAIN AND DUST FALL IN EDINBURGH IN 1902.

In the *Quarterly Journal of the Royal Meteorological Society* (XXIX., 1903, p. 134) Dr. W. G. Black gives the results of his catch of dust and soot in the central district of Edinburgh during the year 1902. The fall of dust and soot in an open dish or gauge of 75 square inches amounted to 2 ounces, giving 3.8 ounces per square foot, or about 24 pounds for every 100 square feet.

R. DeC. Ward.

NEW YORK ZOOLOGICAL PARK.

The Zoological Society has recently received at the Zoological Park the following interesting animals, as reported by Director Hornaday: (1) A bear cub, six months old, collected at Port Muller Bay, Alaskan Peninsula, and evidently representing a species recently described as Merriam's Bear (*Ursus merriami*); this is probably the first specimen of its species to come into captivity. It is of a uniform bluish-gray color, quite different in appearance from all other bears that have thus far been received from Alaska by the Zoological Society. (2) Mr. Charles Sheldon has succeeded, after more than two years of constant effort, in securing a grizzly bear cub from Mexico. A fine young specimen, which, in spite of its black coat, is evidently a grizzly, arrived on July 15, from Mexico, as a gift from Mr. Sheldon. If this animal really is a grizzly, it represents the most southern form of that group of bears. (3) A Clouded Leopard (*Felis nebulosa*) was brought to the society by Captain Golding, from Singapore. This is a full-grown specimen, and at the proper time will be placed on exhibition in the Small Mammal House. (4) A fine half-grown specimen of the Siamang (*Hylobates syndactylus*), received from Captain Golding, is, in all probability, the first representative of its species to reach America alive. It is