distilled water the water was sterilized, and the author concludes that the oxidation of iron takes place in water in the absence of bacteria and other forms of life, and of ammonia and carbon dioxid. As in no case was air vigorously excluded, the author concludes that it is as yet an open question whether it is the water or the dissolved oxygen which acts upon the metal. In the second series saline solutions were used, alkalies and alkaline salts being experimented with. In general the alkalies prevented action on the iron, but many alkaline salts, as potassium carbonate, hydrogen sodium phosphate, sodium meta- and pyrophosphates and the bicarbonates, do not prevent action. Sodium peroxid had no effect. Alkaline potassium salts act more strongly on iron than the corresponding sodium compounds.

In a recent letter to *Nature*, Sir William Crookes corroborates the observations of Friedlander and Kayser and of Baly, that helium is a constituent of the atmosphere. In examining the more volatile positions from liquid air no difficulty was found in observing the lines of helium. A sample of helium separated by Professor Dewar from Bath gas showed the undoubted presence of neon. The presence of helium in the atmosphere is at variance with the theory advanced, that owing to its great molecular velocity any helium in the atmosphere would escape from the influence of gravitation, unless, indeed, helium is present in space.

J. L. H.

BOTANICAL NOTES.

THE FLORA OF THE UPPER SUSQUEHANNA.

Mr. Willard N. Clute has been studying the flowering plants and ferns of the region drained by the upper Susquehanna and its tributaries, mainly in southern New York, with a small area in northern Pennsylvania, and has brought out his results in the form of a pretty little book of about 170 duodecimo pages. He has not attempted to make a phytogeography of the region, but has given us a local list, which the phytogeographer may profitably take, with similar lists of other regions, in attempting to present a general view of our flora. The book opens with a short introduction, in which there is a little about the topography, geology, rivers and streams, lakes and ponds, bogs and swamps, mountains and ravines, elevations, temperature, rainfall, etc., with brief observations upon the characteristics of the flora, the lesser floras, statistics, etc. No less than 1105 species are catalogued, a very good showing when it is remembered that only Spermatophytes and Pteridophytes are included.

The nomenclature is quite appropriately the modern one, in accordance with the much discussed 'Rochester Rules,' and the families appear to agree with those of Engler and Prantl's *Pflanzenfamilien*, but their sequence is that of the Sixth Edition of Gray's Manual, even to the position of the Gymnosperms, between the Dicotyledons and Monocotyledons. The record of localities given with the species will be of much service to the phytogeographer, for which purpose the citations should have been still more explicit in many cases. The rarer plants fare better in this regard than do those which have a rather wide distribution.

BOMBAY GRASSES.

There has recently appeared from the government printing press of Bombay, India, an important work on the grasses of the Bombay Presidency, from the hand of the lamented Dr. J. C. Lisboa. The region covered extends along the Arabian Sea, from 14½ to 28 degrees of north latitude, or about one thousand miles, and from the coast to an irregular interior line distant from one to three hundred miles, and includes nearly two hundred thousand

square miles of territory. From its latitude the region is seen at once to be distinctly tropical. On our own continent its position is equivalent to the region stretching from northern Nicaragua to southern Texas. In this region Dr. Lisboa found 278 species of grasses, a very good number when we consider that this is a list made in India, and a preliminary list at that.

The general nature of this grass flora may be seen from the following synopsis of the tribes:

Paniceæ,	13	genera,	71	species.
Tristegineæ,	1	genus,	13	"
Oryzeæ,	2	genera,	2	"
Zoysieæ,	5	"	5	"
Andropogoneæ,	21	"	109	"
Maydeæ,	3	"	4	"
Agrostideæ,	6	"	14	"
Aveneæ,	4	"	5	"
Chlorideæ,	8	"	22	"
Festuceæ,	8	"	25	"
Hordeæ,	3	"	3	"
Bambuseæ,	3	"	5	"

It is thus seen that all of the generally recognized tribes excepting the Phalarideæ are represented. The largest genera are *Panicum*, with 30 species; *Andropogon*, with 46; *Ischæmum*, 19, and *Eragrostis*, 17. There is a notable absence of certain of our best known genera, *e. g.*, *Agrostis*, *Bouteloua*, *Poa*, *Bromus*, *Agropyron* and *Elymus*. On the other hand, in addition to those already mentioned, there are species of many of our common genera, *e. g.*, *Aristida*, *Avena*, *Chloris*, *Hordeum*, *Paspalum*, *Setaria*, *Sporobolus*, etc. Some of the Indian species have come to us as weeds or cultivated plants, *e. g.*, *Panicum*, (*Syntherisma*) *sanguinale*, *P. crus-galli*, *P. miliaceum*, *Setaria* (*Ixophorus*) *glauca*, *S.* (*I.*) *verticillata*, *Polypogon monspeliensis*, *Sporobolus indicus*, *Avena fatua*, *Cynodon* (*Capriola*) *dactylon*, *Eleusine* (*Leptochloa*) *mucronata*, *Eragrostis major*, *E. minor*, *E. pilosa*. Two species, viz., *Panicum proliferum* and *Phragmites communis*, which occur in India, appear to be indigenous to North America also.

It is unfortunate that but 400 copies of this useful list were ordered to be printed by the Bombay government.

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SCIENTIFIC NOTES AND NEWS.

MR. CHARLES A. SCHOTT, Chief of the Computation Division of the Coast and Geodetic Survey, has been awarded the Wilde Prize by the French Academy, which is conferred on the one judged the most worthy from among those who make discoveries in or write works on astronomy, chemistry, geology, physics or mechanics. The award to Mr. Schott is supposed to be based on his work on terrestrial magnetism.

A COURSE of public lectures will be given at Columbia University, between December 5th and 16th, on every afternoon except Saturday and Sunday, by Professor William K. Brooks, head of the department of zoology at Johns Hopkins University. The lectures are to be on 'The Foundations of Zoology,' and while popular in form will present the results of the latest scientific generalizations, together with some account of the men by whom the results in this branch of science have been obtained. The lectures will be given late in the afternoon at Schermerhorn Hall.

THE U. S. Fish Commission Steamer *Fish Hawk* is working, under the direction of Professor Hermon C. Bumpus, in Narragansett Bay and the waters around Block Island. Several questions connected with the breeding habits and distribution of the star fish, and incidentally other problems connected with the marine fauna, are receiving considerable attention. Since the boat has returned from Cuba she has been thoroughly repaired, and is now fully equipped with her customary apparatus for work along the shore line. Lieutenant Commander Richard G. Davenport, of the U. S. Navy, is the commanding officer.

AT a meeting of the Board of Ordnance and