

## BOTANICAL NOTES.

## A MODEL NATURAL HISTORY SURVEY BULLETIN.

A FEW years ago the State Botanist of Minnesota began publishing botanical papers bearing upon the botany of his State in periodical bulletins under the name of 'Minnesota Botanical Studies.' These have attracted wide attention as well from the matter which they contained as the manner of their publication. The State law under which the natural history survey is conducted provides for the immediate publication of scientific contributions in the form of bulletins, in advance of the annual report, and this wise provision has enabled the State Botanist to conduct the unique publication referred to above. The first number was issued in January, 1894, since which ten more numbers have appeared, covering 1,043 pages, accompanied by eighty plates, and including fifty botanical papers. The wide range of these papers may be seen from the following synopsis :

	No. of Papers.
Morphology.....	1
Histology.....	1
Physiology.....	14
Phytogeography.....	7
Algæ.....	5
Fungi.....	4
Lichens.....	3
Liverworts.....	1
Mosses.....	6
Flowering Plants.....	7
Slime Moulds.....	1

Among the titles are the following : 'On the occurrence of Sphagnum atolls in Central Minnesota,' 'A revision of the Mucoraceæ with especial reference to species reported from North America,' 'A preliminary list of the mosses of Minnesota,' 'Titles of literature concerning the fixation of free nitrogen by plants,' 'A contribution to the bibliography of American Algæ,' 'On the distribution of the North American Helvellales,' 'A rearrangement of North

American Hyphomycetes,' 'Contributions to a knowledge of the lichens of Minnesota,' 'The alkaloids of *Veratrum*.'

A comparison of the foregoing titles and subjects with those which commonly fill the pages of the publications of other natural history surveys justifies us in regarding this bulletin as a model which might profitably be followed in other States.

## THE USEFUL FIBER PLANTS OF THE WORLD.

THE United States Department of Agriculture has recently issued a most useful and interesting descriptive catalogue of the useful fiber plants of the world. It was compiled by the well-known statistician, Charles R. Dodge, and is the result of many years of labor. It includes 1,018 fibers alphabetically arranged, and illustrated by 102 cuts and twelve half-tone plates.

In the treatment of each fiber a brief description is given of the plant from which it is derived, and this is followed by a description of the fiber and the operations by which it is prepared for use. In cases of the more important fibers further details are given as to cultivation, preparation for the market, commercial statistics, etc.

The introductory chapter includes some interesting sections, that upon the principal fibers used commercially in the United States being especially noteworthy. From it we learn that about thirty species are used in this country, and that with the exception of the Cabbage Palmetto (*Sabal palmetto*), the Saw Palmetto (*Serenoa serrulata*) and Spanish Moss (*Tillandsia usneoides*), we are still more or less dependent upon foreign growers for our supply. Thus of the more common fibers, flax is imported from Belgium, Russia, Holland, Italy, Great Britain and Canada ; hemp, from Russia, France, Belgium, Germany, Austria-Hungary, Italy and the Netherlands ; jute, from India ; cotton, from Egypt and Peru ; raffia, (used for tie bands), from Africa ; sisal

hemp, from Yucatan; manilla hemp, from the Philippine Islands, etc.

Two classifications of fibers are presented, structural and economic.

The first is as follows:

#### A. FIBRO-VASCULAR STRUCTURE.

1. *Bast fibers* (of dicotyledons).
2. *Woody fibers* (of dicotyledons), from (a) twigs and small stems, used entire, (b) roots, (c) trunks split or cut into layers or splints, (d) trunks ground into pulp.
3. *Structural fibers* from (a) the isolated fibro-vascular bundles of the leaves and leaf stalks of monocotyledons, (b) the whole stems, roots or leaves of monocotyledons, (c) the fibrous portions of the leaves or fruits of certain dicotyledons.

#### B. SIMPLE CELLULAR STRUCTURE.

4. *Surface fibers*, including (a) hairs on seeds, (b) hairs from stem surfaces, and (c) epidermal strips from leaves, as of certain palms.
5. *Pseudo-fibers*, including (a) certain mosses, as species of sphagnum, (b) certain seaweeds used for packing, (c) certain seaweeds for cordage, (d) the mycelium of certain fungi.

Economically, fibers are classified as follows:

- A. *Spinning fibers*, including (1) fabric fibers, (2) netting fibers, (3) cordage fibers.
- B. *Tie material*.
- C. *Natural textures*, including (1) tree basts with tough interlacing fibers, as in the 'lace barks,' (2) ribbon or layer basts, (3) interlacing structural fibers or sheaths, as cocoanut sheaths.
- D. *Brush fibers*, including (1) prepared fibers from isolated fibro-vascular bundles, (2) fibers from roots, flower pedicels, etc., (3) twigs and splints.

E. *Plaiting and rough weaving fibers*, including those used for (1) making hats, sandals, etc., (2) matting, thatching, etc., (3) baskets, (4) chair-bottoms, etc.

F. *Various forms of filling*, as (1) stuffing for chairs, cushions, mattresses, etc., (2) caulking, (3) stiffening, *e. g.*, in the manufacture of 'staff,' (4) packing.

G. *Paper material*, for making (1) textile papers, (2) bast papers, (3) palm papers, (4) bamboo and grass papers, (5) wood-pulp papers.

CHARLES E. BESSEY.

THE UNIVERSITY OF NEBRASKA.

#### SCIENTIFIC NOTES AND NEWS.

##### REPORT OF THE SECRETARY OF AGRICULTURE.

THE Secretary of Agriculture has presented to the President his report reviewing the work of the Department for the past year. The conduct of the Department under Secretary Wilson has greatly advanced the economic and scientific study of agriculture and the conditions on which agriculture depends, and the recommendations of his report will consequently carry much weight.

Mr. Wilson proposes that agents for the Department should be stationed at each of the important American legations abroad for the collection of information of interest to American farmers. The Department is endeavoring to get information from foreign countries with which to compete in the markets of the world regarding crops and prices, and is also taking steps to ascertain what crops are grown on different thermal lines, so that seeds and plants may intelligently be brought to this country to assist in the diversification of our crops and add to their variety. There is a necessity for American agents, educated in agricultural science, in every foreign country to which are sent reports.

Mr. Wilson recommends an increase in the appropriations in aid of the Bureau of Animal Industry, of the Weather Bureau and of the publication offices. He thinks the Department should be enabled to place the results of important operations at agricultural colleges before the entire country, so that the farmers of each State may benefit from the work done in