generations, under the most favorable hypothesis, viz., that more *A. chiaradiæ* be produced, to enable us to decide whether or not a new species of *Athene* has been formed.

"As to any other hypotheses to explain the formation of *A. chiaradiæ*, I can but repeat that I reject both that based on *hybridism*, and that of *a teratological* or *pathological* cause. Hybrids always show traces of the characters of both parents, especially when, as would be the case in *Athene*, of sheer necessity the connubium can not but occur with a species of such very distinct genera as *Nyctala*, *Scops* and possibly *Glaucidium*; now *A. chiaradiæ* is purely and simply an *Athene*, and shows no trace whatever of the characters, either specific or generic, of any of the forms quoted above. As to a teratological or pathological origin, a mere glance at one of the black-eyed civette will show that they can not owe their origin to such a cause. Besides in such cases, as again in hybrids, the form produced varies, and in these black-eyed descendants of *A. noctua* the specimens thus far examined are perfectly alike. The only instance in which we find perfect similarity in pathological descendants is in cases of absolute *albinism or melanism*, or, to put it better, in *monochroic* varieties.

"I believe that neogenesis gives a logical explanation of the strange case of *A. chiaradiæ*. But neogenesis, which appears to be of frequent occurrence amongst plants, has rarely been noted in animals, and I believe never before amongst vertebrata in a wild state.

"Finally, as I have said before, neogenesis may or may not lead to the establishment of a new species."

The conclusions arrived at by this eminent Italian naturalist, which have just been quoted at length, appeal to me strongly and force me to endorse the view he has so ably presented.

In the light of the evidence set forth only one answer can be made to the question as to the part that the process defined by de Vries as 'mutation' is playing among higher animals to-day. Beyond doubt we have witnessed the birth of new species of birds during the past seventy years. Moreover, some of these new species have flourished so as to have become a salient part of the bird fauna in the region where they occur and where they were unknown to skilled ornithologists, who carefully studied these regions in the early part of the last century.

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Botanical Notes.

North American Flora.

Some years ago a group of American botanists under the leadership of Professor Doctor N. L. Britton proposed to undertake the preparation of a comprehensive botanical work which was to bear the name 'Systematic Botany of North America.' One part, consisting of a few pages, was issued, since which nothing further has appeared. Botanists everywhere will be much pleased to know that in this interval work has gone forward, and that publication has been resumed. The title is now 'North American Flora' (instead of 'Systematic Botany of North America'), and its scope has been considerably extended, so as now to include the whole of North America from Greenland to Panama and the West Indian Islands.

As projected the work will include thirty volumes, which are to appear in from 120 to 150 'parts.' The volumes have been assigned as follows: Vol. 1, Mycetozoa, Schizophyta, Diatomaceae; 2 to 10, Fungi; 11 to 13, Algae; 14 and 15, Bryophyta; 16, Pteridophyta and Gymnosperms; 17 to 19, Monocotyledons; 20 to 30, Dicotyledons.

The magnitude of the work may be estimated from the fact that the part before us includes eighty pages. It will be published by the New York Botanical Garden, through the aid of a fund bequeathed by Charles P. Daly. The first part issued (bearing date of May 22, 1905) is Part 1 of Volume 22, beginning with the order Rosales, under which are monographed the families Podostemonaceae (by G. V. Nash), Crassulaceae (by N. L. Britton and J. N. Rose), Penthoraceae and Parnassiaceae (by P. A. Rydberg). The descriptions are concise and the synonymy full. Type localities, distribution and illustrations are cited. Metric measurements are used exclusively. Keys to families, genera and species are given.

The printed page is large (123 by 200 mm.), and the type and arrangement, while so compact as to leave no waste space, are pleasing to the eye.

NEW EDITION OF BRITTON'S MANUAL.

THE second edition of Britton's 'Manual of Flora of the Northern States and Canada,' which appeared some months ago includes descriptions of about one hundred additional species in an appendix, bringing the total number up to more than 4,600. Generic and specific synonyms have been added in many instances, thus adding greatly to the usefulness of the book for working botanists. The addition of a number of artificial keys will be especially helpful to beginners.

A NEW TROPICAL FLORA.

J. R. JOHNSTON (Gray Herbarium of Harvard University) has in preparation a work on the 'Flora of the Islands of Margarita and Coche' off the north coast of Venezuela, which must prove of much interest to American botanists. In noticing his descriptions of new species from these islands some time ago, the authorship of this work was erroneously given in these columns.

THE TEACHING OF BOTANY.

IN a most suggestive book entitled 'The Teaching of Biology in the Secondary School' (Longmans, Green & Co.) by Professors Lloyd and Bigelow, the former discusses many matters connected with the teaching of botany. Calling attention to the advances which botanical science has made in America during the last twenty-five years, and the changes which the teaching of the subject has experienced, he insists that the teachers should come to their work 'with a special mental equipment for their peculiar tasks,' and full of knowledge of the problems which they will be called upon to face in their work. In the course of the author's discussion one finds such chapter headings as 'The Value of Science, and Particularly of Biology in Education'; 'Nature Study; The Value of Botany in Secondary Education'; 'Principles Determining the Content of a Botanical Course'; 'The Various Types of Botanical Courses'; 'Use of the Method of Thought in Teaching Botany'; 'General Botanical Principles to be Emphasized in Teaching'; 'Detailed Discussion of the Course in Botany for the High School'; 'The Laboratory, its Equipment, Materials for Study and for Demonstration'; 'Botanical Literature for the Use of Teachers and Students.'

It is impossible to summarize these chapters. They should be read from beginning to end by every young teacher, and by some who are no longer young. In passing it may be noted that the author is thoroughly and heartily a believer in 'nature study'; indeed, he is so much in earnest in its advocacy that he devotes a good many pages to criticism of many of the erroneous methods employed by some of its teachers. In discussing the types of botanical courses for high schools he says truly, "one of the big ideas which a student should get from the study of plant forms is that of evolution. He should have an opportunity of looking into the kind of evidence which underlies this idea." The 'Huxley and Martin method,' he says, 'was ordinarily that of verification, while the development of individual initiative in thought was largely ignored.' Agassiz's method of bringing the student into 'direct contact with some form, such as a starfish, and leaving him to find out things for himself without aid of any kind' is characterized as 'heroic treatment, which can not be employed generally.'

Not to attempt too much is insisted upon, and also that the botany of the beginner must include something of each of the greater divisions of the science. In elucidating these suggestions the author discusses in detail the work which may be taken up in the high school. After quoting the course of study recommended by the Committee on a College Entrance Option in Botany, of the Society of Plant Morphology and Physiology, he details a course of his own, beginning with morphology and anatomy of the fruit and seed, and following this with ecology, field work, physiology, the root, the shoot, the leaf, the bud, Myxomycetes, Schizophyta, Thallophyta, Bryophyta, Pteridophyta, Phanerogams, geographical botany and physiographical plant ecology. In practise it will be found quite

impossible to cover this work in the time allotted to botany in the secondary schools, but tnere can be no doubt as to the high value of these suggestions, from which the teacher may well make such selections as his time may permit.

Charles E. Bessey.
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CURRENT NOTES ON METEOROLOGY.

FOEHN WINDS IN THE ANTARCTIC.

During the Antarctic voyage of the *Discovery,* warm southerly winds were observed which, because of their high temperature, have generally been regarded as of *foehn*-like character. Sir Clements Markham (*Geogr. Journ.,* June) believes that the high temperature may result from the fact that these winds blow from the ocean beyond the pole, that is, Weddell Sea, and not from adiabatic warming during descent. Hence he thinks that the Great Barrier may end on the other side of the pole with another line of ice-cliffs facing the Weddell Sea, and that the winds may blow across the ice barrier with great velocity without lowering their temperature. On the other hand, Dr. W. N. Shaw suggests that the snow which comes with these warm southerly winds is carried along in a surface drift, and notes that intensely cold air can contain very little moisture.

LOW TEMPERATURE IN THE SAHARA.

In the *Meteorologische Zeitschrift* for June, 1905, there is a note on some low temperatures observed on December 19, 1904, in the Sahara, between Tuggurt and Guerrara. The temperature at midnight was 30.2° Fahr.; at daybreak (6:15 A.M.), 28.4°; at sunrise (7:15 A.M.), 33.8°; at 2:30 P.M., in the shade, 75.2°; at 7 P.M., 41.0°; and at 8:30 P.M., 39.2°. It was calm, and the sky was clear. On December 20, at 7:30 P.M., the temperature was 33.8°, and there was heavy frost, which in places reached a thickness of 1 cm.

NOTES.

Das Wetter for June, 1905, contains an interesting article, of a 'popular' nature, entitled 'Aus dem Leben der Wolken,' by Dr. A. de Quervain; also a discussion, illustrated by means of curves, entitled 'Temperaturen auf Bergstationen und in der freien Atmosphäre, by Dr. W. Wundt.

The *Annuaire météorologique* of the Royal Observatory of Belgium contains a useful list of text-books of meteorology, prepared by J. Vincent. Special attention is paid to *general* treatises, but a considerable number of special works on marine, medical and agricultural climatology are included. The list begins with Aristotle, and includes books in Latin, Greek, English, French, German, Italian, Dutch, Russian, Danish, Spanish, Hungarian, Norwegian and Portuguese.

The mechanism of the origin of rain-clouds, and the conditions of heavy rains and floods on the northern slope of the Pyrenees, were discussed by Marchand, Director of the Pic du Midi Observatory, before the Congrès du Sud-Ouest Navigable, held at Bordeaux in June, 1902. The paper was printed in the proceedings of that congress, and a German translation of a portion of the article, in the *Meteorologische Zeitschrift* for June, 1905, makes this interesting study accessible to the general reader.

Recent publications on the meteorology of the free air are those of Teisserenc de Bort, on the diurnal changes in temperature (*Comptes rendus,* Vol. cxl., 1905, 467) and of Hergesell, on the results obtained by means of kites over the Mediterranean Sea and Atlantic Ocean in 1904 (*ibid.,* January 30, 1905).

R. DeC. Ward.

ANNUAL REPORT OF THE COUNCIL OF THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

The annual report of the council for the year 1904–5 states that the arrangements for the meeting of the association in South Africa had been directed, under the sanction of the council, by a special South African committee, sitting in London, and consisting of the general officers of the association (the president and president-elect, the general treasurer and the general secretaries), Professor Armstrong, Dr. Horace Brown, Sir William Crookes, Sir