Consanguineous marriages are not in themselves, in perfectly healthy stock, causes of degeneracy, but where degeneracy has begun, such marriages, of course, accelerate its action.

The book closes with a chapter on the prevention and treatment of degeneracy. The author is not an advocate of heroic methods, such as the legal regulation of marriage and other still more certain methods of checking its transmission. He proposes milder means, particularly rational forms of prophylaxis adapted to circumstances and to individuals.

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A Synonymic Catalogue of the North American Rhopalocera. By HENRY SKINNER. American Entomological Society, December, 1898. Pp. xiv+100.

The catalogue of North American butterflies published by Mr. W. H. Edwards in 1884 listed 612 species from the United States and Canada. The new catalogue, now before us, enumerates 645; the moderate number of additions in about 14 years of great activity among lepidopterists indicates that our butterfly fauna is fairly well known. The additions are in reality somewhat more numerous than the figures cited indicate, owing to the rejection of some of the names of the earlier list; but there is no tendency to 'lumping' exhibited, which is rather surprising in consideration of some of Dr. Skinner's previously expressed views.

The literature is cited very fully, though we notice a few omissions, such as that of Edwards' account of the larva of *Lycæna exilis*. The genera are nearly as in the Edwards catalogue. It is to be regretted that *Pamphila* is still made to include a great number of forms, belonging to numerous genera; but it is certainly true that the best generic arrangement which could be offered at the present time would be largely provisional.

An examination of the catalogue recalls and emphasizes certain interesting features of our butterfly fauna. Certain portions are of tropical origin, while other groups belong to what has been called the holarctic region. In the tropics conditions have been relatively uniform for ages, and in consequence we have a large number of organisms in a condition of considerable stability—in other words, 'good species.'

The writer has found, when working with Coccidæ, that the tropical species are, as a general rule, much more easily separated than those of temperate regions. The same is true, apparently, among the butterflies. Take the Hesperidæ and Lycænidæ, which are so numerous in tropical America. The tropical groups of Hesperidæ, in particular, have largely invaded the United States, and very many species have been catalogued. Now Dr. Skinner himself has told us in another connection that these species are, as a rule, well-defined, though frequently superficially similar. But there is one characteristically holarctic series of Hesperidæ—the series of *Pamphila comma*—and here at once we meet with innumerable local races or weak species, with difficulty to be separated from one another. So in *Lycæna* the holarctic group of *pseudargiolus* and its allies is especially polymorphic. When we come to the typically holarctic genera, such as *Argynnis*, we find a wilderness of plastic forms, which may be called species or varieties according to the taste of the student.

It thus happens that for the evolutionist temperate regions, lately subject to glacial desolation, are in many respects more interesting than the luxuriant tropics. Here, especially, are species in the making; here is Nature's kitchen and the cook at work. In the tropics, on the other hand, we often find more numerous and more finished products, and wonderful adaptations, the origin of which is past our comprehension.* The naturalist in South America might well think species were created as he found them; the naturalist of the northern United States could hardly imagine such a thing, unless convinced on *a priori* grounds.

Yet when changes have occurred in tropical lands we find such phenomena as are common in the north. The snails of the Greater Antilles, islands that have undergone great changes of level in recent geological periods, are almost as confusing as the North American Argynnids. So, it seems, we may in some measure learn the

* For plants compare Dr. E. Warming's interesting paper in the *Botanical Gazette*, January, 1899.

past history of a group by studying its species. If the species are well defined and show elaborate adaptations to the environment the group has long existed under relatively uniform conditions. If, on the other hand, the species are defined with difficulty and connected by numerous races it may be presumed that the environment of the group has changed in recent times, and especially that it is undergoing expansion and differentiation in new territory. In northern regions the retreat of the ice has exposed much such territory; in the Antilles it has been the elevation of the land; in other cases a type may have found new lands by migration, and may thus exhibit incipient new species in the midst of a stable ancient fauna. As an example of the last-mentioned class may be mentioned *Danais berenice jamaicensis* in Jamaica, as against the old Jamaican type *Papilio homerus*. We have digressed from the immediate subject of this useful catalogue, but the interest of such works lies largely in the suggestiveness of their orderly and condensed array of facts.

T. D. A. Cockerell.

Mesilla Park, N. M., February 12, 1899.

Industrial Electricity. Translated and adapted from the French of Henry de Graffigny. Edited by A. G. Elliott, B.Sc. London and New York, The Macmillan Company. Pp. 152. With 65 illustrations. Price, 75 cents.

This little volume, according to the editor's note, is the first of a series upon Electro-mechanics, the other volumes of which will treat the more important of the branches here touched upon, separately and in detail. It is divided into short chapters, and explains, in very clear and non-mathematical language, the various applications of electricity.

Beginning with Nature of Electricity, a *résumé* of Hertz's work is given, showing the identity of light and electrical vibrations. Then follow, in order, chapters on Electric Units, Magnetism and Induction, and Practical Measurement of Electrical Quantities.

Chapters V. and VI. are respectively on Chemical Generators of Electricity and Accumulators, covering the subjects of primary and storage batteries and containing much useful information and explicit directions as to handling and care.

Dynamo Electric Machinery is next touched upon, including direct current dynamos, alternators, two- and three-phase generators. The remaining five chapters merely touch upon the following subjects: Electric Light, Electricity as a Motive Power, Electro-chemistry and Electro-plating, Bells and Telephones, and Telegraphs.

The only criticisms that can be advanced are:

1. On page 12 the table gives 10^2C.G.S. units in one Henry instead of 10^9, while the table on page 27 has many of the dimensions of the mechanical, electro-magnetic and magnetic unis given incorrectly.

2. Besides these lapses the volume is, with one or two exceptions, entirely devoid of allusions to American apparatus and machinery.

Taken as a whole, however, the volume is a creditable piece of work, for the task of condensing so much in so small a space is, to say the least, herculean. W. H. F.

GENERAL.

The Teachers' Professional Library, edited by Professor Nicholas Murray Butler, of Columbia University, is announced by The Macmillan Co. The books already published on 'The Development of the Child,' by Dr. Nathan Oppenheim; 'The Study of Children and their School Training,' by Dr. Francis Walker, and a 'Handbook of Nature Study,' by O. Lange, are included in the series and the following are announced for early publication:

'The Practical Lessons of History,' by William T. Harris, LL.D., U. S. Commissioner of Education.

'Social Phases of Education in the Home and in the School,' by Samuel T. Dutton, Superintendent of Schools, Brookline, Mass.

'Educational Aims and Educational Values,' by Dr. Paul H. Hanus, Harvard University.

'The Hygiene of the School and of Instruction,' by Edward R. Shaw, Ph.D., New York University.

'Method in Education,' by Walter L. Hervey, Ph.D., Department of Education, New York City.

'The Study and Teaching of History,' by Miss Lucy M. Salmon, Vassar College.

'The Study and Teaching of Geography,' by Dr. Jacques W. Redway, of New York.

'The Study and Teaching of English,' by Percival Chubb, of the Ethical Culture Schools, New York.

'The Study and Teaching of Mathematics,' by