proper functions and to adjust itself to the conditions of its environment.

It is worthy of note, also, from the same point of view, that this struggle is inevitable to a great degree, and that it is only out of the resulting chaos of opinions as to ways, means and methods, and out of the experience of the institution itself, that definite and approved lines of action and policy may be attained.

In view of these circumstances, it seems essential to warn our allies of the academic world and the public at large against the danger of expecting more from the institution than is possible of accomplishment in a limited time and with a limited income. Although the work of the institution is in a peculiar degree novel and untrammeled, it is yet subject, properly enough, to the restrictions set by human experience and by contemporary society. Hence, if the reviewer of the year books finds reason to complain of a bewildering array of technical details, he should reflect that this array is far less than a host of investigators would like to have it. If the humanist or the scientist finds reason to complain that little or no aid has been given to him or to his special field of research by the institution, he may derive comfort from the fact that he is one of an overwhelming majority necessitated by the limitations of available resources. And if the bibliophile has found reason for dissatisfaction in the distribution of the publications of the institution, he may be disposed to be lenient with the latter on learning that he is one of many thousands soliciting favors.

Out of this plexus of internal and external relations and interrelations it is the duty of the administrative branch of the institution to evolve, so far as practicable, such a degree of order and system as will best promote productive and thorough work of research, and at the same time to restrict, so far as practicable, an unproductive or wasteful expenditure of energy and resources. Although progress towards an adequate fulfilment of this duty must be of necessity slow in order to be sure, it is believed that distinct advances are accumulating, and that the obvious difficulties and dangers which beset the development of so novel an institution are only such as may be overcome by a reasonable application of time and patience.

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Scientific Books

The Principles of Heredity. By G. Archdall Reid. London: Chapman and Hall.

The problems presented in the study of heredity are so diverse and so intricate that they should be illuminated by data drawn from all fields of biological science. Possibly, the phase of the subject which has been the least systematically studied is that of the evidence bearing on heredity afforded by disease, and the publication of a volume by a medical man of high scientific attainments, which embraces this neglected data is to be welcomed. The existence of statistical records makes it possible to utilize the observations made on the inheritance of diseases, and, in this particular field, 'The Principles of Heredity' is a contribution deserving of much consideration. Dr. Reid, the author, has made notable contributions to the study of evolution and heredity in earlier works, as 'The Present Evolution of Man' and 'Alcoholism. A Study of Heredity.'

The analysis of the subject of heredity is now changing from the stage of general treatment to a very critical one, based on measurements and experiments, as well as on the closest microscopic examination of the hereditary substance and its behavior during initial stages of development. This makes it difficult for any writer to satisfy present standards. It will be appropriate to examine Dr. Reid's work with this situation in mind.

The title of the book, 'The Principles of Heredity,' leads the reader to expect something

more than appears in it. The biological student, be he medical man or layman, will be disappointed that the author does not mention, in any adequate way, in his chapter on 'Theories of Heredity,' the recent work of students of cytology as laying the foundations for a scientific study of the subject. The compensation for this insufficient treatment of a fundamental aspect of the subject is to be sought in the introduction of new matter from the field of observation of the medical man. But, this is not altogether satisfying.

The results achieved by the application of biometrics to studies of heredity, and by experiments, along lines suggested by Mendel's researches, are also omitted. The chapter on 'Theories of Evolution' and the subsequent consideration of the theories mentioned are likewise disappointing. This is not, as it appears to the reviewer, because the statement of the theories is necessarily brief, but because it is superficial and dogmatic.

The presentation of the subject is more argumentative and speculative than closely analytical. The pages abound in great vigor of statement, but the positiveness of the author's position on controverted matters detracts from its worth. The book appears to be written with little scholarly reserve, and one misses in it the fine balance of statement which has been set as a standard by earlier writers in the same general field, even as far back as Lamarck, and so fully exhibited in Darwin's works and in the last edition of Weismann's 'Lectures on the Evolution Theory.' Therefore this book, although introducing much new matter, does not appear to rise to the level of current standards in the serious discussion of the principles of heredity.

A few quotations will serve to illustrate the vein in which the discussion is carried on:

"At first sight it would appear an easy matter to test the truth of the Lamarckian doctrine of heredity. We might, for example, amputate the tails of a pair of parent dogs, and then observe whether puppies, subsequently born, were tailless. But the theory is not held in this crude form, at any rate by the scientific supporters of it." The suggestion that observations upon the progeny of one pair of parent dogs might give results of scientific value is too superficial, and should be accompanied with a reference to the work of experimenters on this very point, such as the following by Weismann of the effects of amputating the tails of both parents, through twenty generations of mice. Many similar instances occur, where a general statement is made without reference to any recent data. The author's discussion of the inheritance of acquired characteristics, although we agree with his main contention, is not up to the standard of that of a number of writers of the past few years.

In portions of the book the author goes at his task like a special pleader. The outline of Chapter XII. on 'The Argument from Disease' is characteristic: "The Lamarckian doctrine is certainly untrue. It is equally untrue that hereditary tendencies may be easily changed by the direct action of external forces —Professor Cossar Ewart's observations."

Page 14: "The Bathmic theory of heredity and evolution may then be ruled out of court. We are left with the Lamarckian and Neo-Darwinian doctrines. One or the other or both combined must furnish the true explanation of evolution." The use of *must* in this connection is an illustration of what is meant by the author's positive form of statement, as is also 'The Lamarckian doctrine is certainly untrue.' The author might properly reach these conclusions after a suitable examination of the data bearing upon the matter, but what one misses is the essence of philosophical opinion, and the reader is to be excused if he reaches the conclusion that the writing is a weak discussion of underlying principles. While a limited class of readers may like to have debated questions so directly disposed of, the large body of scientific readers will take exceptions to this summary way of dealing with them.

After one page of general statement the author says, page 15: "We need not multiply instances; the Lamarckian doctrine should now be plain to the reader." But to one at all acquainted with Lamarck's writings, the impression remains very strong that La-

marck's doctrine can not possibly be plain to the reader from the author's presentation of it.

The book not only lacks evidences of seasoned thought, but of familiarity with the more recent literature bearing on the discussion of heredity, and, on the whole, is a disappointing analysis of the subject. Nevertheless, we believe it will be of service on account of the new point of view adopted and the citing of evidences bearing on heredity furnished by disease. Doubtless, this volume will assist materially in getting medical men to pay more attention to the matters discussed in it. If this be the case, the purpose of the book, as stated by the author in his preface will be justified: "I have addressed the volume mainly to medical men. The evidence relied on is drawn largely from medical sources; medical men form the largest body of scientific workers; they deal continually with questions of heredity, a knowledge of which is of great importance to them; but in a measure they have neglected the systematic study of the subject. Little or no instruction is given in it to medical students. There does not even exist a text-book to which they may refer. But a knowledge of heredity is becoming essential to the educated doctor. I have sought to supply the want. I hope, however, the professional biologist and the general reader will not find the work devoid of interest." William A. Locy

Postelsia, The Year Book of the Minnesota Seaside Station, 1906. St. Paul, Minnesota. 1906. Pp. 364. Small octavo.

Four years ago the first volume of this unique publication was issued, and now we have a second volume so like the first in paper, print, illustrations and bindings that it seems a fit companion for it upon the shelves of the botanist's library. Like its predecessor, the present volume contains seven papers, with a half-page 'Word of Introduction' from Professor MacMillan, the director of the Minnesota Seaside Station. The first paper, 'Observations on Plant Distribution in Renfrew District of Vancouver Island,' by C. O. Rosendahl, occupies more than one third of the volume. In it the writer first discusses the marine formations, then the formations of the beach, and the formations of the forest country, and follows with an annotated systematic list of the pteridophytes and spermatophytes of the region. His conclusion is "that the flora of Vancouver Island, in so far as it can be judged by observations confined to a limited area of the same, is typically boreal, with an admixture of more arctic forms than the latitude, the elevation above sea-level, and present climatic conditions would indicate." The second paper, by F. K. Butters, on 'The Conifers of Vancouver Island,' describes thirteen species as occurring spontaneously on the island, viz., *Taxus brevifolia,* a shrub or small tree; *Pinus contorta,* a small tree; *Pinus monticola,* a tree 30 meters or more in height; *Picea sitchensis,* 'tidel and spruce,' attaining 60 meters in height and two meters in diameter; *Tsuga mertensiana,* 'mountain hemlock,' a tree of the alpine regions; *Tsuga heterophylla,* 'western hemlock,' a tree nearly as large as the tidel and spruce; *Pseudotsuga taxifolia,* 'Douglas fir,' a large tree of 'magnificent proportions'; *Abies grandis,* 'white fir,' a tall, slender tree; *Abies amabilis,* 'white fir,' 'a tall tree with a straight, slender trunk'; *Thuya plicata,* 'cedar,' a large tree, 'not infrequently five meters in diameter at the base'; *Cupressus nootkatensis,* 'yellow cedar,' a tree of moderate size; *Juniperus communis sibirica,* '*juniper,*' a dwarf, trailing shrub; *Juniperus scopulorum,* 'western red cedar,' a small tree. The author thinks it 'probable that further exploration of the higher mountains of the interior will reveal from one to three other species of the *Abietineae.*' In the third paper, A. W. Evans makes an annotated list of 71 species of *Hepaticae* collected principally by members of the Seaside Laboratory. 'Some Western Helvellineae' is the fourth paper by D. S. Hone. It is followed by a paper by R. F. Griggs describing a new genus of kelps, *Renfrewia,* related to *Laminaria* and *Cymathere,* from the Vancouver coast near the Seaside Laboratory. But one species, *R. parvula,* has been discovered. Isabel Henkel's 'Study of Tide-pools,' and Professor C. W. Hall's 'Geological Features of the Minnesota Seaside Station' are interesting geological