

many years, of his patient and trenchant mind to effect some real advance. The ideas to which he most recurs are those of Delaunay and Gylden, to both of which it is evident that he attaches high value.

The paper No. 79, "Integrals of Planetary Motion Suitable for an Indefinite Length of Time," supplies a solution of the problem in outline, but in complete and not in unfinished outline, so far as it is illustrated by the system of Jupiter and Saturn.

The volumes are published by the Carnegie Institution of Washington. Vol. iv. contains an index, but it is of the perfunctory character that makes it little more than a list of names; Delaunay's name is followed by a list of no fewer than eighty-three reference numbers, without other clue; it would be shorter and equally useful to write DELAUNAY—*passim*.

R. A. S.

*Stray Leaves and Some Fruit on Cancer, based upon Physiologic Chemical Principles.* By Henry D. McCulloch. Pp. 49+3. (London: John Bale, Sons and Danielsson, Ltd. 1907.)

THE title of Dr. McCulloch's book is original, and there is no doubt as to the "stray leaves," but in our opinion there is very little "fruit," and we find very little of either "physiologic" or "chemical" principles in the foundation of the heterogeneous collection of quotations which form the bulk of the book—if, indeed, it can be said to have any foundation whatever.

In the present state of the cancer question, such undigested material can only be another obstacle to the real study of this most difficult of problems. A particular form of protozoal infection is assumed without any proof, or mention of work on this theory, as the cause of cancer; and the author thinks that "by proper culture, and introduction to the leucocyte, a vaccine or perfect remedial agent, vicariously prepared in a living animal, will be possible."

Dr. McCulloch makes an attempt to explain the rôle of the leucocyte in the natural production of specific vaccines in cancer. Certain leucocytes being phagocytes eat up the opsonised microorganisms under certain conditions, and return to the lymphatic glands and there degenerate; their remains are propelled to the "gland reservoir," where a chemical dissociation and rearrangement of their constituents is brought about, and are finally converted into the immunising agent. This occurs in the early stages of cancer, which are not recognisable. When these conditions fail, the leucocytes perform segregation, and hence the metastasis in the cancer growth.

The dissociation and rearrangement which occur, according to the author, are said to be brought about by enzymes. No doubt these play a part in the process, and it might have been thought that the author would have made an attempt to try to isolate them, or, at any rate, determine what enzymes were present. The assumption of an enzyme is not sufficient proof for its presence, since enzymes are specific in their actions, by which means they are identified. A "nascent enzyme" has not yet been described. The author has also introduced "hormone" in the hope that the word may help to explain the unknown.

The presence of so many quotations might have included the following, by a distinguished physiological chemist:—"The less a physiologist knows about chemistry, the greater is his inclination to work at the most difficult chemical subjects—the proteins and ferments. If even this subject be not sufficiently obscure to him, he can study the phenomena of coagulation. He feels most at home in the still more obscure subject of the pathology of coagulation and of the ferments; it is good to fish in the dark! These

authors have built up a literature which no one can become master of, and which is only a drag and a brake to science."

In this book of quotations, Dr. McCulloch finishes up with one in Sanskrit, of which he gives a voluminous interpretation, which appears to have even less to do with cancer than many of the many others of which the book is made up. R. H. A. P.

*Helianthemum Canum* (L.) Baumg. und seine nächsten Verwandten. By Dr. E. Janchen. Pp. 68. (Jena: Gustav Fischer, 1907.) Price 2.50 marks.

*Helianthemum canum* is a highly variable species, and therefore one for which it is difficult to define the limits. In the volume of Engler's "Pflanzenreich," dealing with the Cistaceæ, Dr. W. Grosse differentiates two varieties that are each again subdivided into several forms. The herbarium worker may follow such a splitting of interrelated forms, but it is extremely unlikely that he could separate them in the field where intermediate forms would probably be found. Dr. Janchen puts forward an alternative limitation of *Helianthemum canum*, and one or two nearly related species. Broadly, he merges in *canum* part of the species recognised by Grosse as *marifolium*, and maintains *italicum* and *rubifragum* as independent species. There appears to be considerable support for Janchen's arrangement, and the adoption by Grosse of two varieties under different species as *H. canum v. marifolium* and *H. marifolium v. canum* is decidedly confusing, but the determinations of Dr. Janchen are also based solely on herbarium material, although a crucial test could be obtained either by a study of the plants as they grow or by cultivating them from seed. Undoubtedly, such methods are arduous but not impossible, as all the plants under discussion are European. It is only right to add that Dr. Janchen himself recognises the necessity for determining the systematic limits in such variable species by the methods indicated.

*Limnologia: Studio Scientifico dei Laghi.* By Dr. G. P. Magrini. Pp. xv+242; illustrated. (Milan: U. Hoepli, 1907.) Price 3 lire.

THIS valuable little work forms Nos. 372-373 of Hoepli's well-known scientific series of manuals. As the title implies, it deals entirely with the phenomena of lakes, and is intended to be preliminary to a somewhat similar work on the much larger subject of oceanography. Limnology owes its name to Prof. F. A. Forel, whose standard monograph on the Lake of Geneva is recognised as a model in this branch of inquiry. The present volume deals more particularly with the geographical and physical sides of the question, touching but very lightly on the more difficult subject of biology; it summarises the methods of observation which experience has shown to be the best, including descriptions of the instruments used, the improvements recently introduced in them, and the principal results hitherto obtained. The occurrences of *seiches* are attributed partly to the sudden cessation of wind which had been previously blowing over the lake, and partly to small differences of pressure at various points of the lake (acting on the water as on the mercury of a barometer); it is, however, pointed out that although it may be possible to indicate some of the causes that produce *seiches*, it is very rare that the particular cause of any individual *seiche* can be precisely determined. An appendix contains a list of the positions and areas of the principal Italian lakes. The author admits his especial indebtedness to Profs. Forel and Delebecque, to whose works, and to those of Prof. Chrystal and others, frequent references are made in the compilation of this useful manual.