

Similar experiments have been made with other crops, as, for instance, potatoes, and the importance of such experiments is, as stated further on in the book, "because only such knowledge as this can show how economical or how wasteful our methods of tillage may be, and how nearly we are realising the largest profits which are possible to the business."

The conditions of rainfall under which irrigation is practised in different parts of the world are discussed, and the means of "conserving the moisture of the subsoil" by proper tillage pointed out. An excellent account is given of the depth of root penetration in the soil, which is illustrated, as is the rest of the book, by some very good and instructive engravings. A short account is given of sewage irrigation; and the idea that the milk of cows fed on sewage produce is in any way detrimental is disposed of by quotations from Sir Henry Littlejohn, and from Mr. Spier, the Scottish Dairy Commissioner. Methods of diverting streams for irrigation are carefully described and fully illustrated, as also are the methods of applying the water to the ground. In Part ii. (a small portion at the end of the book) the necessity for soil drainage is insisted on, and the methods of carrying it out are described.

The book altogether is very readable, although the spelling of some of the words seems curious to an English reader. It is also well printed, and the only misprint noticed is on p. 403, where the word "denitrification" is used instead of "nitrification." W. H. C.

*The Refraction of the Eye, including a Complete Treatise on Ophthalmometry. A Clinical Text-book for Students and Practitioners.* By A. Edward Davis, A.M., M.D. Pp. 431. (New York: The Macmillan Co., 1900.)

THIS volume should prove a valuable addition to the library of the ophthalmic surgeon, for though several books on retinoscopy have been published, this is the only work on ophthalmometry yet written in English.

It comprises a description of Javal and Schiötz's modification of Helmholtz's ophthalmometer, together with full instructions in the use of the instrument; the necessity of forming a clear mental picture of the state of the eye from the results of an experiment being rightly insisted upon.

One hundred and fifty illustrative cases are included in the text, and a comprehensive index has been appended, so that the student can readily find a parallel to any case which may give him trouble. One hundred and nineteen diagrams, including a clear and well-drawn woodcut of the ophthalmometer of Javal and Schiötz, are distributed throughout the text.

Although the advantages which may be gained by the use of the ophthalmometer are insisted upon, the author has taken great pains to indicate the limitations of its usefulness. By its aid we may determine with accuracy the radii of curvature of the cornea in various meridians; but the author endorses the generally accepted opinion that there is no definite relation between the curvature of the cornea and the refractive condition of the eye, as far as hypermetropia or myopia are concerned. Myopia usually depends upon an elongation, and hypermetropia upon a shortening of the axis of vision. Strangely enough, in cases of extreme myopia, a somewhat flattened cornea is generally met with. Nevertheless, in cases of simple hypermetropia and myopia, the ophthalmometer eliminates the question of corneal astigmatism. The routine of examination followed by the author is (1) use the ophthalmometer; (2) use trial lenses and test cards; (3) use the ophthalmoscope; (4) if after two tests on different days the result is still unsatisfactory, employ a mydriatic and use the retinoscope in addition to the other tests. It is stated that (1) to (3) suffice for 99 per cent. of uncomplicated cases.

In the use of test glasses, it is recommended that a

series of positive lenses, gradually increasing in power, should first be employed. By this means spasmodic accommodation is avoided. The fact that the use of atropine can so often be dispensed with is of great importance, since many men might hesitate to have their eyes examined if this necessitated a temporary cessation of their business duties.

A number of instructive cases are included, showing the serious results which may follow on the prescription of unsuitable glasses for a patient. Not only severe pain and inability to use the eyes for any length of time, but even personal disfigurement may be produced. Thus a case is recorded (p. 307) of a patient whose eyes were being forced into a divergent squint by the use of prismatic glasses. After a careful examination, the prisms were discarded and suitable lenses were ordered, with the result that, after two weeks, complete comfort and the possibility of working with satisfaction were enjoyed for the first time for many years.

Altogether this book gives us a good idea of the vast advantages to the human race which have resulted from the optical researches of Helmholtz, culminating in the invention of the ophthalmometer and the ophthalmoscope.

E. E.

*A Key to the Birds of Australia and Tasmania, with their Geographical Distribution in Australia.* By R. Hall. Pp. xii + 116; plate and map. (Melbourne: Mullen and Slade; London: Dulau and Co., 1899.)

WERE it nothing more than a synopsis of Australian birds, with just sufficient in the way of description to enable the different species to be easily recognised, this well-printed little "Key" would be to a great extent of merely local interest. But since the author has very wisely made geographical distribution its leading feature, the work appeals to a much wider circle of students than would otherwise have been the case.

In his Report on the Zoology of the Horn Expedition, Prof. Baldwin Spencer recently divided Australia into three zoological sub-regions; namely, (1) the Torresian, embracing the northern and eastern districts as far as South Queensland; (2) the Barsian, comprising eastern New South Wales, Victoria and Tasmania; and (3) the Eyrean, including the remainder of the mainland. These sub-regions are further split up into "areas," and the fact that bird-distribution accords with such a parcelling-out of the continent from other lines of evidence affords important testimony in support of Prof. Spencer's views. It is noteworthy that the South Queensland area forms the headquarters of the Australian Passeres, a fact for which there must surely be some adequate physical reason, if only it could be discovered. The total number of species recorded is 767, among which the black emu is believed to be extinct; and, so far as we have been able to verify them, the diagnoses of the various groups and species seem well adapted to their purpose. The work appears singularly free from errors and misprints, and ought to be in the hands of every Australian bird-lover.

R. L.

*Pages Choiesies des Savants Modernes.* By A. Rebière. Pp. viii + 620. (Paris: Nony et Cie, 1900.)

THIS is a series of extracts (translated into French when not written in that language) from the works of eminent men of science. It appeals mainly to the general reader, and the best that can be hoped of it is that it may induce some members of this class to study the works of one or other man of science seriously. A scientific writer does not appear to the best advantage in "tit-bits" selected from his works; and, except as a possible stimulus, the value of such a miscellany as this cannot be reckoned very high. The portraits, of which there is a considerable number, will probably be found, by scientific readers, the most interesting feature of M. Rebière's compilation.