available phosphate in certain Indian soils—at times only one fiftieth to one twentieth of the amount usually regarded as necessary for fertility—have been under investigation. So, too, have been the low values of available potash in certain other soils. In this connection efforts have been made not only to correlate potash-deficiency with disease in animals and plants, but also to utilize the ash of at least one proclaimed weed as a means of adding potash to the soil, and incidentally as a partial set-off against the cost of eradication. Botanical work has included, in addition to survey operations, much that is of immediate economic importance. One notable instance is afforded by the device of a method of selfing cotton, which is not only simple, but is also said to have proved successful. Much sound work has been done with indigo, jute, opium, rice, sugar and wheat on agricultural lines, and with grasses, as well as trees, on forestry lines.

On the physical side we find that researches in solar physics have included an investigation of the displacement of the lines given by the electric arc. This study has supplied interesting results, and led further to a determination of wave-lengths in the spectrum of the planet Venus with results that are of promise. In geology, besides survey operations, useful economic work has been done in connection with the output of wolfram. Three new meteorite falls—all chondrites—have been reported for 1916–17 from northern India. The most notable item of economic geodetic work for the year has been the taking of hourly readings of a tide-gauge at Basra, erected in connection with military requirements. The constants deduced from the reductions of these readings have been transmitted to the National Physical Laboratory at Teddington, to admit of the tracing of tidal curves for 1917–18. Important also has been the compilation of a list of the plumb-line deflection stations of India and Burma.

The work undertaken in connection with plant- and animal-pathology has been useful and varied. In this relationship an item which deserves attention is an account of practical tests of the use of hydrocyanic acid gas for the destruction of vermin. While less successful than might be desired in the case of houses, this method has proved satisfactory as regards railway carriages and ships.

Appended to the report is a memorandum on work done for India at the Imperial Institute. A striking item in this memorandum is the record of a sample of Assam-grown flax, valued in London under war conditions in December, 1916, at £150 per ton, which was found to compare favorably with the medium qualities formerly received from Belgium.

Perhaps the time is approaching when a body, similar in its functions to this Indian board, may be brought into being so as to ensure for the scientific departments of our various Crown Colonies that correlation of effort which, as this report testifies, already so happily attends the operations of the different scientific departments of the Indian government.—*Nature.*

SCIENTIFIC BOOKS

Plant Genetics. By John M. Coulter and Merle C. Coulter. The University of Chicago Press. 1918. Pp. 214.

As the authors state the book is neither a technical presentation of genetics nor a general text, but is the outgrowth of a course of lectures designed to give general students of botany a brief introduction to the subject of genetics. This has been attempted in some 200 small pages with numerous diagrams. It is written for younger students than the books on genetics which have so far appeared. Necessarily a minimum of illustrative material has been used and the complex features are omitted altogether or are only briefly alluded to.

An account of the earlier theories of heredity and a discussion of the inheritance of acquired characters opens the book followed by several chapters on Mendelism. The simplicity of the examples of the various types of Mendelism and the diagrams to illustrate them is a real achievement. Some misrepresentations of facts are to be noted here which are hardly

excusable even on the plea of pedagogical necessity. For example in the treatment of Mendel's pea hybrids the "wrinkled-smooth" seed character is given as similar in time of expression to the "tall-dwarf" plant character which in inheritance is one generation later in its apparent effect so that the statement that first generation dihybrid plants will all be tall and smooth-seeded individuals would be quite confusing to the beginning student if he repeated such an experiment for himself. For the purpose of illustrating the behavior of a dihybrid it serves the authors' purpose but there is certainly no lack of material which could be used equally well to illustrate this point without alteration of the actual facts.

The work of East, Shull, Emerson, Blakeslee and many others is freely drawn upon in bringing out the different phases of the subject. The chapters of chief interest to the geneticist are those on Parthenogenesis and Vegetative Apogamy, Inheritance in Gametophytes, and the Endosperm in Inheritance. A number of facts in regard to sex determination in plants have been gathered together. All these subjects have usually been scantily treated in books on genetics.

In the opinion of the writer the authors were not wise in including the complex subject of sterility in an elementary book of this kind especially as it is treated in the chapter on self-sterility. The beginning of the chapter emphasizes the importance of self-sterility as a means of insuring cross-pollination while the remainder is largely devoted to Belling's work on semi-sterility which has no significance in this connection. No clear distinction is made between the different types of sterility which would seem desirable if the subject is to be discussed at all. A chapter is devoted to the subject of hybrid vigor and the book closes with an able summary of the theoretical points involved in a consideration of the chromosomes as the bearers of the hereditary determiners.

Throughout there is shown a first-hand unfamiliarity with the genetical experiments discussed. In spite of this handicap a really useful book, for those not primarily interested in genetics, has been produced which shows the authors' ability to coordinate many different, specialized fields of investigation and to put the results into an easily read form. The book is designed to fill an important place which would justify more care in the choice of material and in its presentation. The practise followed of giving few facts and discussing them in all their important relations to each other and to other fields of biology is perhaps the most valuable feature of the book.

D. F. JONES
CONNECTICUT AGRICULTURAL EXPERIMENT STA.,
NEW HAVEN, CONN.

THE POWER SITUATION IN THE UNITED STATES

Two of the most important domestic problems facing the United States at the present time concern the supply of power necessary to maintain the industrial activities of the country, and the adequacy of transportation to move the raw materials and finished products involved in these activities. As the coal consumed in the United States engages over a third of the freight capacity of our railroads, and more and more coal is being used, the result is a growing burden upon transportation which must be relieved. The power problem and the transportation problem, therefore, are really different expressions of a single fundamental issue. In this connection the United States National Museum, Smithsonian Institution, has just issued a 50-page Bulletin, entitled "Power: Its Significance and Needs," which gives an analysis of the whole situation and presents a plan whereby the problems of water-power, coal-supply, and transportation may find a solution. This contribution is by Chester G. Gilbert and Joseph E. Pogue, of the Division of Mineral Technology, and is Part 5 of Bulletin No. 102, the Mineral Industries of the United States, which has already dealt constructively with such matters as coal-products, fertilizers, domestic fuel and petroleum.

Quoting from the conclusions of the authors of this Bulletin, it is stated: