

Wheat Supply and Demand.¹

THE three issues of "Wheat Studies" noticed here form the preliminary instalments of a monthly series which the notice states is "designed to give a sound, impartial review of the world wheat position and outlook, based upon careful analysis of the various elements in the situation, with due recognition of economic conditions in exporting and importing countries." Numbers 1 and 3 form a continuous record of the vagaries of the wheat market over a period of seventeen months, when the market situation changed from that of being a buyers' to that of a sellers' market, thus allowing of contrasting conditions being compared equitably under almost uniform conditions of exchange and dietary habits.

No. 2 is a bibliography of the sources of the data upon which the main thesis is based.

The cause of low prices in 1923-24, the rise toward the end of the year, the reasons for export by Soviet Russia though crops were insufficient for home needs, and the cause of a marked increase in Oriental demand are all passed under review, and in a quite untechnical manner are explained.

Many interesting and important facts are deduced from the mass of statistics handled by the authors. Dietary changes due to better conditions among the artisan class since the War are having a significant influence upon the *per capita* consumption of wheat. In Great Britain the direction is downward, more meat being eaten, but in Scandinavia the same underlying cause promotes an upward movement owing to the falling off in rye consumption.

Figures are quoted showing that imports are not governed so much by the state of the home crop as by the state of the market. Abundant crops at home and abroad in 1923-24 were accompanied by a large increase in imports into Great Britain. Japan and China were attracted by low prices and consumed a quantity of wheat which is not likely to be a standard demand under the conditions which developed at the end of 1924. One of the most interesting sections of the survey is that explaining the effect of crop prospects changes, political disturbances of the nature of presidential elections, and geographic considerations such as the closing of navigation on the Great Lakes, on the course of wheat prices at Liverpool, Winnipeg, Chicago and Buenos Aires. A remarkably close correlation can be traced in almost all cases.

The series is the result of team-work, and very little time elapses between the data becoming available and the publication of the analysis. Under such conditions the readableness and accuracy of "Wheat Studies" are all the more praiseworthy.

¹ "Wheat Studies of the Food Research Institute, vol. i. (Stanford University, California). No. 1, The World Wheat Situation, 1923-24: a Review of the Crop Year; No. 2, Current Sources concerning Wheat Supplies, Movements and Prices: a Select List with Comments; No. 3, Developments in the Wheat Situation, August to December 1924.

Symbiotic Micro-organisms.

IN an article in *Scientia* (April 1925) Prof. U. Pierantoni, of Turin, who has taken a leading part in the investigations on physiological symbiosis, points out that recent researches in this domain have revealed the existence of micro-organisms which are not only useful but also, in the majority of cases, necessary for the life of the superior organism in which they occur, and they are transmitted from parent to offspring. These researches have also made known a new category of organs—termed mycetomes—which owe their functions to the presence in the

protoplasm of their cells of symbiotic organisms, so that these by their specific activity determine the action of the organ. These symbiotic organs are glands the protoplasm of the cells of which, instead of elaborating products of secretion, foster micro-organisms which produce secretions useful to the organism.

The author states that the useful species of micro-organisms outnumber the pathogenic species. Among the examples of symbiotic organs to which Prof. Pierantoni refers are the luminous organs of cephalopods (*Heteroteuthis*, *Rondeletia*, *Sepiolo*) which he has investigated, and the luminous organs of certain fishes (*Anomalops*, *Protoblepharon*) investigated by Prof. E. N. Harvey. He points out that these organs are simply cutaneous invaginations which harbour the micro-organisms, and that the thin walls in contact with rich vascular networks protect the cultures while the blood provides the nutrient material required by the micro-organisms. The latter multiply and produce continually new luminous substances which replace those expelled from the organ to the exterior by muscular action under nervous stimulation. In some cases, reflectors and refractors are formed from the neighbouring tissues; these render the light emitted more brilliant.

Another important group of symbiotic organs is the mycetomes in the wall of the intestine and associated organs—*e.g.* in larval and adult insects which feed on wood and blood, and in ticks—which elaborate ferments that facilitate the digestion of wood, cellulose, chitin, etc. A third group of these symbionts is chromogenic. The author observed in 1912 that in certain homopterous insects the symbiotic organ exhibited a bright colour which he attributed to the contained micro-organisms. Other investigators have recently found that the red lac of India produced by the coccid *Tachardia lacca* results from the activity of a micro-organism, allied to the *Blastomyces*, which has been isolated and cultivated. The absorption spectrum of red lac exhibits an affinity with that of carminic acid (from cochineal, also the product of a coccid) and of the red products of the chromogenic *Bacillus prodigiosus*. Prof. Pierantoni believes that we are only at the beginning of a line of inquiry likely to be rich in results in pure and in applied science.

University and Educational Intelligence.

BIRMINGHAM.—Applications are invited for the Walter Myers Travelling Studentship in Pathology, value 300*l.* Information concerning the studentship can be obtained from the Dean of the Medical Faculty of the University. The latest date for the receipt of applications is September 1.

BRISTOL.—In connexion with the recent meeting of the British Medical Association at Bath, the honorary degree of LL.D. has been conferred on Sir Humphry Rolleston, Bart., Regius professor of physic in the University of Cambridge and president of the Royal College of Physicians.

DURHAM.—At a meeting held on July 27 the Council of Armstrong College, Newcastle-upon-Tyne, appointed Prof. J. W. Bews, of Natal University College, Pietermaritzburg, to be professor of botany in succession to Prof. M. C. Potter, retired. Dr. Bews is a native of the Orkney Islands, and was educated at Kirkwall and at the University of Edinburgh. He has been a lecturer in botany at the Universities of Manchester and Edinburgh, and since 1910 has been professor of botany at Pietermaritzburg. His publications include "Grasses and Grasslands of South Africa" (1918), "Flora of Natal and Zululand"