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work. Now that we have gained this experience it would be a pity for Australia to lose the advantage of it. It is as well to be reminded of a resolution passed at the Eighth International Geographical Congress in New York—'That it is very desirable that the experience gained by men of science and officers in the recent Antarctic expeditions should be turned to account by following up without delay the successes they have obtained.'"

Dr. Mawson explained that he had spent the first half of last year in Europe, discussing the subject with the leading Polar explorers, and enquiring into all the details requisite for an Antarctic expedition to aim at the scientific and economic investigation of that great unexplored mountainous coast lying due south of Australia. This portion of the Antarctic continent was to be cherished by Australians, not only because of a special claim upon Australia on account of its proximity, but for the reason that of the whole coast line of Antarctica no other part held forth such advantages for the collection of scientific data and for industrial pursuits. Sir Ernest Shackleton aided in the preliminary steps, the first act being the public notification of the intention of an expedition to visit this area. This was done in March last, thereby securing the region against competition on a basis of etiquette. Arrangements for co-operation in the scientific work had been discussed with Captain Scott, now exploring that portion of Antarctica adjoining the area referred to on the east. In the first instance Sir Ernest Shackleton had hoped to command an expedition to this area, but private reasons prevented him, and he had arranged to support Dr. Mawson in the inauguration of this Australasian expedition.

"No period in the history of Polar exploration," the speaker went on, "has been so favorable for the accomplishment of great achievements as is the present, for of recent years marked improvements in equipment have been made, culminating in the motor sledge, just invented. The dispatch of an Australian expedition will be an important episode in our history, for it is an undertaking which at least will stimulate the spirit of maritime enterprise, which is an indispensable element of national greatness. If ever in the history of Australia an expedition is to set out under such favorable circumstances and with a future so well assured of success it must be immediately. No time is to be lost. The ground has been bespoken, and Sir Ernest Shackleton, by frequent references in the London press, is keeping it secure from foreign intervention. So surely as it lapses for a moment foreign nations will step in and secure this most valuable portion of the Antarctic continent for themselves, and for ever from the control of Australia. (Applause.)

Dr. Mawson announced that he was fully prepared for the expedition. "Preliminary arrangements have been made," he explained, "to set out from Australia at the end of November, 1911. The work will take 17 months, one winter and two summers, or possibly two winters and three summers. The expedition will return before the realisation of one of the greatest scientific events in the history of Australia, that is, the meeting of the British Association for the Advancement of Science—(applause)—to take place in Australia in 1914, at the invitation of the Commonwealth Government, a grant of £10,000 having been put aside for the entertainment of the oversea visitors. The importance to Australia of being able to present the results of such an expedition at that meeting cannot be over-estimated. (Applause.) The large amount of money required is a great barrier to enterprise. It will mean a total sum of about £40,000. This is, however, no insuperable obstacle. Indeed, many wealthy Australians would not feel the loss of the whole amount, and thereby ensure greater results by freeing the organisation of anxiety. In smaller sums it would not require the co-operation of many individuals to secure, as Mr. says, the doing of deeds that would build for themselves an everlasting name and produce books full of the stir and achievement of a new era of effort and progress greater than any in the past. There across the waters is the vast continent beckoning in the words of service—

Long have I waited lonely,
Shunned as a thing accurst,
Monstrous, moody, pathetic,
The last of the lands and the first.

"Can our scientific societies remain content to allow distant countries to poach on their inherited preserves? Can Australians remain heedless of this land of great potentialities lying at our doors? Can our national conscience remain unstirred in the face of achievements to be accomplished, achievements such as have ever formed girders in the constitution of nations." (Loud applause.)

SCIENCE AND AGRICULTURE

Quite appropriately, considerable attention has been devoted to agriculture at the Science Congress now sitting in Sydney No subject is of greater importance to Australia, and the pursuit of utilitarian ends is a marked feature of present-day organisations for the advancement of knowledge Professor William Angus, until recently Director of Agriculture in this State struck the right keynote when he observed concerning the work of the delegates that "they were called upon not only to carry out their special duties as scientists, but to undertake the further duty of guiding and directing public opinion just into those channels from which would come the greatest benefit to the industry." In the present state of development it is desirable to bring the results of scientific enquiry and experiment to bear on almost all branches of production and manufacture but nowhere is this more emphatically necessary than in connection with the tilling of the soil. The business of the progressive agriculturist is to increase the productivity of the land. This is obviously a large undertaking, for it opens up many different avenues of work. Mr. Angus referred to the importance of the use of fertilisers. So abundant are the evidences of the advantages to be derived from the application of artificial manures that even the most conservative of farmers have generally been convinced that they can add greatly to the value of their holdings by the adoption of up-to-date methods in this regard. But even the use of fertilisers to yield the results desired must be guided by knowledge. "No event in Australian agriculture has had such wide effect," Mr. Angus remarked, "as the application of phosphates in cereal production." No one will be likely to question this statement, for it is a matter of general observation that high-grade lands have been rendered more productive, and inferior soils have become capable of returning splendid profits as the result of the use of this form of manure But the problem is not mastered by simply accepting the elementary proposition that phosphates should be used. Questions of soil constituents, rainfall, general climatic conditions, the rotation of crops, and depth of ploughing have all to be considered in relation to the form and quantity of manure to be used.

There is little doubt that dry-farming will in the near future receive a much larger share of attention in the Commonwealth than has as yet been bestowed upon it. In America the development of this system has practically added new provinces to the wheat-growing areas. Enormous tracts of country which a few years ago were comparatively worthless are now yielding handsome returns to enterprising farmers who are treating them on the one-crop-in-two years system. Enough has been done in this State to demonstrate that, with such modifications as local conditions may suggest, the method can be successfully applied to certain classes of South Australian land Still this branch of agriculture is only in its infancy. What has already been done will doubtless help to stimulate further activity. Before the resources of the more arid class of country are exhausted research work, as suggested by Mr. Angus will have to be systematically carried on by trained experts, and the proposal that it should be extended to all the dry areas of Australia has much to commend it. In America most careful observations are made, and records are circulated Conferences of practical farmers at which Government and other experts attend, do much to make accumulated knowledge available to settlers, and advice is easily obtainable regarding the tried and approved methods of cultivation and the results obtained. And the expenditure is proving a profitable investment. If Australia is to become the greatest granary in the world, as ought to be the case within the next quarter of a century, we shall require to learn how to make the best use, not only of our high-grade, well-watered lands, but also of those portions of the drier areas on which wheat can be successfully grown if the soil is treated scientifically. Experiment only can demonstrate the possibilities of the districts of limited rainfall. Much could be done, as Mr. Angus pointed out, by the agricultural section of the Science Association if members in the different States would co-operate and work on lines arranged by it.

Australia has made contributions of some consequence to the world's knowledge in respect to farming. A number of varieties of wheat have been evolved by workers in the Commonwealth, and some of these have come into favor, locally at any rate, because of their suitability to Australian conditions, their blight-resisting qualities, their abundant reproductive properties, and their excellence for milling purposes. Mr. George L. Sutton (wheat experimentalist at the Cowra Government farm) dealt in an admirable paper, entitled "The realisation of the aims of William J. Farrer, wheat-breeder," especially with "Federation" wheat. The strong white varieties obtained by experiments in crossing, he pointed out, had the advantage of being prolific, and the farmer need no longer fear the ravages of a rusty season. Along this line of scientific work alone there are endless possibilities, for no one supposes that the limit of perfection has yet been reached or that it is likely to be for a long time to come, if indeed it ever can be. One series of triumphs only prepares the way for further achievements. Moreover, varying conditions of climate, moisture, and soil make it desirable that the choice of seed should be as wide as possible, so that satisfactory results may be assured. An immense field is open to the scientific investigator in the evolution of new and improved varieties. Mr. H. W. Potts (principal of the Hawkesbury Agricultural College), dealing with "The Australian aspect of agricultural education," made some valuable suggestions. He believes that good results may be looked for as the result of nature study and elementary agricultural training in primary schools. Australia, he rightly observes, possesses "natural advantages of an unusual nature, and, given a trained population, our lasting prosperity is assured." All through the Commonwealth there is an evident desire to mould the school systems to the requirements of the country. It is not to be expected, of course, that primary schools will turn out boys already developed into practical farmers, any more than that they will qualify them as lawyers or engineers. But the young people may receive their first stimulus for the study of any calling while undergoing elementary training. It is a hopeful sign of the times, as Mr. Potts points out, that so many teachers are taking pains to qualify themselves in nature study, for this lies at the foundation of all successful agriculture, and if properly understood must tend to develop the spirit of scientific enquiry which is desirable in every walk of life.