

must not only be ready to grasp any special opportunities that come their way, but they must also be prepared to spend long hours in the burning sun, and frequently longer ones, after the sun has gone down if they would succeed. Whether the farmer actually does much manual work himself or not depends upon the size of the business. In any case the supervision must be of the closest, if leakage of time and money is to be prevented. With many farmers the cost of repairs and replacements are inordinately high, and the habit is to put the blame on the native. The farmer, however, who is constantly with his natives, whose supervision is efficient, and who is prepared to do a little repair work himself, does not find these costs such a burden. His figures will be low compared with those of the other farmer. The latter, when comparing his own figures with those of his more successful neighbour, says he cannot understand how it can be done. Close personal supervision constitutes the secret.

During the ploughing season many successful maize farmers get out with their ploughs at 4 a. m. and stay with them all day, not even returning for meals, in order to ensure that their ploughing shall be done thoroughly. The other farmer probably does not consider it necessary to get on the lands until he has had his breakfast, and he never misses a meal for the sake of thoroughness in his farming methods. To-day the path to success is a hard and narrow one. The easier one will likely lead to a heavier bond.

*Jour. Dep. Agr. S. Africa.* April 1923.

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## GLEANINGS.

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*The ways of Science.* The method of science is economy of thought. The aim of science is control of the future. Science shows how these new forces can be acquired and managed and what benefits can be derived from their employment. But science has no authority to ensure that the world will make proper use of its gifts. Men may employ them for their own destruction. In fact they do.

In short, science provides the motive power, but not the motive for the use of power. Consequently the scientist should not be blamed when we see his well-intended and valuable discoveries employed to increase the misery of the world instead of alleviating it.

Napoleon said:

"The true conquests, the only conquests that cost no regrets, are those achieved over ignorance."

But like territorial conquests the conquests over ignorance may curse the conquerors if they are improperly employed.

But we must not stop the advance of knowledge for fear of the consequences. In the warfare of man with nature there is no truce. Unless man can turn the forces to his own advantage he will be crushed by them. Unless man can establish his supremacy and superiority over the world of nature he will sink again to the level of the brute from which he has risen.

[Extract from the *Philippine Agriculturist* Vol. XII No. 5 of October 1923.]

*Nitrogen-fixing Bacteria in Leaf Nodules.* L. A., Boodle, in an interesting note in the *Kew Bulletin* (No. 9, for 1923, p. 346), directs attention to the little known phenomenon of nodules containing nitrogen-fixing bacteria occurring as a rule upon the leaves of some of the tropical Rubiaceae. The bacteria occur in the seed, between the embryo and endosperm so that the seedling is infected on germination. The bacteria then establish themselves in the leaf-buds, in a gummy secretion within the stipular sheath, and from thence enter the young leaves through stomata. The nitrogen-fixing capacity of these bacteria has been experimentally established by von Faber; Rao in India recently confirming this fact. It is interesting to learn that native practice in India and Ceylon values highly the leaves of species of *Pavetta* and *Chomelia*, which bear nodules harbouring these bacteria, for use as green manure.

*Nature*—10th Nov. 1923.

*Anti-Formin—for lice eradication.* Antiformin (a mixture of caustic soda and sodium hypochloride) is very effective in dissolving the chitinous envelope of the eggs of lice. An 8-10 per cent. solution effects this in 5-15 minutes, and the eggs on the hair can then be removed with a brush and comb. The method advised is to wash the hair with soap and water and then divide it into plaits of finger thickness. Pads wetted with the solution are placed on the parts of the skin covered with eggs and the plaits are wetted also. The whole head is then wrapped in a cloth for  $\frac{1}{2}$ -1 hour.—V. A. Jeney—JENA.

The Review of Applied Entomology—Vol. Ser. B. April, '23.

*Agriculture,—the foundation of all progress in a new country.* Sir David Orme Masson, Professor of Chemistry, Melbourne, devoted a substantial portion of his presidential address to the Second Pan-Pacific Science Congress which met at Melbourne on August 13th to Agriculture and allied industries. "Australia is as large as the United States of America but has a population only about one-twentieth as great." (United States of America has a little over 100 million persons.) It is a continent of huge distances and vast empty spaces held by a people who would not run two persons to the square mile if evenly distributed over its surface. A full utilisation of the land is a duty the Australians owe not only to themselves but to the whole mankind. Professor Masson's reference therefore to a few typical scientific problems of a practical kind, which have interested the commonwealth, have their lessons for India.

To quote his words—"The settlement of people on the land, the spread of pastoral industry and of Agriculture are seriously hampered by the aggressive character of many vegetable pests of foreign origin. One of them, the prickly-pear, is estimated to be now in occupation of some 24 million acres of Australian soil and to be spreading at the rate of one million acres a year. Australia has a much larger area under prickly pear than its total area under cultivation. Destruction by mechanical means or poison has been found very costly." Biological method of attack holds out more hopes but this means research by experts. "The Cattle industry is beset by many ailments which cost millions of pounds per annum. The cattle tick is responsible for untold damage. Similarly in the sheep country the blowfly pest causes enormous loss."

Yet another field where progress hitherto made should serve as a stimulus for further work is according to Sir Masson, the increase of harvests and the extension of area available for cultivation by the selection and breeding of new varieties of plants. Agricultural experts estimate that an increase of one bushel an acre on the average yield of wheat would represent a gain of 2.2 million pounds to Australia, while an addition to the wheat belt in average breadth by the introduction of more drought resistant varieties would enormously increase the nation's wealth,

V. M. A.

*Destruction of Ants.* Ants are at times a very great pest in green-houses, and the following method of destroying them, recommended by Mr. W. B. Gurney, Assistant Entomologist of the Agricultural Department of New South Wales, may be of interest to our readers. A bait is made with 9 lbs. of sugar, 9 pints of water, 6 grams of crystallised tartaric acid, 8.4 grams of benzoate of soda, 15 grams of sodium

arsenite (or 25 grams of commercial sodium arsenite) and 1½ lb. of honey. All the ingredients, except the sod. arsenite and the honey, should be boiled together slowly for thirty minutes and allowed to cool. The sodium arsenite is dissolved in half a pint of hot water, allowed to cool, and subsequently added to the cool sugar syrup, and the whole well stirred. The honey is added last, and the bait mixed thoroughly. Mr. Gurney placed the bait in small tins with the lids fitted on to keep out dust and rain, but with the sides of the tins bent inwards to form openings that allowed the ants ready access to the poison. Each tin was furnished with about four ounces of the bait, a quantity that lasts for about a month without fermenting. Sufficient rag or sponge to absorb practically all the bait was put into the tins so that the ants could obtain a foothold and feed on the bait in large numbers. The value of this bait lies in its slow action as the poison permits the ants to return again and again before they are killed, thus allowing time for them to carry some of the bait to the larvae and queens in the nests.—Gardeners' Chronicle Vol. LXXIII, No. 1901.

From the *Tropical Agriculturist*, Nov. 1923.

*A Japanese Fertilizer.* A new and unique method of increasing crop yields comes from Japan. It consists of a product called "promoloid," based upon colloidal silicate of magnesium. The makers state that "it is not a manure, but an agent which accelerates the growth of vegetables, improves their taste, colour and form, and enables an unusually fine crop to be realized."

The following explanation of the origin of the material is given by the manufacturers. Some districts in Japan are noted for the early production of vegetables of the best quality, such yield being limited to certain tracts of land. The crop in neighbouring soil, under similar conditions of planting and cultivation, is distinctly inferior. These limited areas of specially productive soil are found in widely separated parts of the islands. A careful analysis of the soil from each of these districts disclosed the fact that colloidal silicate of magnesium was common to all of them. It seemed likely that this element contributed to the exceptional yields from these soils.

After some research, the manufacturers claim to have succeeded in making a chemical composition of colloidal silicate of magnesium. They state that their product has been subjected to field tests by disinterested farmers, and has proved to have distinct value in increasing the yield and quality of crops. They have now invited the agricultural colleges to make an official test of the material. "Promoloid" is sold in a liquid form, and is to be diluted with water before being applied to the soil.

Nothing is known of this material except the statements of the manufacturers. Nor does it follow that the same results could be obtained from its use in this country as in Japan. The land in that country is volcanic in origin, and probably contains substances not found in soils of many other countries. But the story of the discovery of the product is interesting, and the research it involved is creditable to the Japanese.

*Ind. Scientific Agriculturist, Nov. 1923.*

### HOUSEHOLD HINTS.

For rough wood-work nothing beats earth oil for darkening, cleaning, and even polishing, the only trouble is that it has to be very well rubbed in, or for weeks clothes are smudged with it. It is better for new wood than paint or varnish, as it keeps off insects and keeps the grain open so that it is less likely to get dry rot and perish. For furniture an excellent polish is made from equal parts of raw linseed oil, vinegar, and turpentine. Plain kerosine oil takes off stains and finger marks, but does not leave polish after the first week. Vinegar mixed with lukewarm water is good as a wash before polishing. It is also useful in cleaning brass and steel, mixed with common salt. To clean ivory-ornaments, beads etc. and to make it retain its delicate colour and lovely sheen, a South African tip is—wash the ivory in tepid water with a good soap, using a soft small brush to clear all the crevices; while still wet put in the sun; dip in soapy water several times during the day; do this for three days, then wash in clean water and dry.

(Extracted from "Musings of a Mofussil Memsahib")

*Ind. Sc. Agriculturist, Nov. '23.*

### REVIEW.

*Mysore Agricultural Calendar (English) 1924. Bangalore, Government Press—Price annas two.*

We have been favoured with a copy of this very useful publication. This year's Calendar has kept up the standard of those of previous years and contains articles on subjects which are of vital interest to ryots in the Mysore territory. The silk industry, the potato and the sugarcane crops, the parasitic diarrhoea of sheep and measures against fungus diseases are some of the important subjects dealt with therein, besides which there are the monthly notes and various other useful hints and suggestions. The contents bespeak the earnest efforts of the Mysore Department of Agriculture to bring home to the cultivating public the benefits of scientific knowledge and the general get-up of the booklet with its fine half-tone pictures leaves little to be desired.