

the largest scientific sugar laboratory on the European continent, to which are attached farms, plant breeding stations, pest breeding places and what not, all to subdue the soil.

The republic seems determined to keep right up-to-date with every agricultural advance and every scientific improvement that appears on the horizon and she hopes to compete the world's market.—Extracted from *Louisiana Planter*, April 21—1923.

M. R. R.

[From a perusal of the above account, we are sure, the readers will not fail to be struck as to how far backward we in Madras are as regards many of the items of progress this State—which was deeply involved in the world war and which has just emerged from the smouldering ruins of that conflagration—has shown. After years of hesitation, only two Agricultural Middle Schools have been started and we are still inclined to be sceptical as to their usefulness. In spite of the fact that the percentage of literates in our country is disgracefully low, and notwithstanding the general conviction that the ultimate cure to various social and economic evils lies in the spread of education among the masses, we are no nearer to the introduction of compulsory primary education. In fact, even independent bodies like District Boards and Municipalities are still hesitating to introduce such a measure even as an experiment. We trust, in the near future, our reformed councils will take up this most important question and make it an accomplished fact.

[Editor.]

Gleanings.

Advice to Engine owners. Do not forget that oil is cheaper than machinery and that the use of a spanner saves the bill for repairs.

Jour. of Agri. Dep., S. Australia, March 1923.

Insects and senses. Insects possibly have less sense than the higher animals, but probably more senses.

Nov. Zool. XXX 1923 p. 158. Y. R. R.

Insect Census. According to a very recent calculation made as to the number of known species of living insects, it is computed that there are in the world about 470,000, which fall into 327 families and 33 orders. (According to the old fashioned view there are only 8 orders of insects. e. g., Lepidoptera, Coleoptera etc.) [The number of the species may easily be trebled when the insect fauna is more thoroughly worked out.]

Entom. News., April 1923. Y. R. R.

Abnormalities in Plantains. Mr. Subrahmanya Kander of Velure (Salem Dt.) gives the following cases of abnormal formation in Plantains:—

1. In a field, he noticed quite recently an instance of a sucker three months old bunching. The plant in question bore a tiny bunch which consisted of only a single hand made up of five fruits.

2. Last year he further observed at Tirumalanamasamudram (near Velur, Salem District) a plantain tree producing two flower-buds from the same stalk, a phenomenon very unusual in the Plantain. It was expected to produce two bunches and was carefully looked after. It was specially manured and securely propped with bamboos, but unfortunately became a victim to a heavy gale in Chitrai (April).

He records, however, that he had heard of a report of a similar instance—actually seen by one of his friends—of two bunches being borne by a plantain tree near Thottiyam (Trichinopoly District).

On the eradication of certain weeds and specially Lavalā (Cyperus rotundus). "In this research there has been much progress. We have now proved that the plant can and does propagate itself

from seeds as well as tubers. Tubers germinate best when planted 9 to 18 inches below the surface. Below 2 feet there is little germination but some extraordinary cases were found of individual tubers being able to send shoots to the surface from a depth of 3 feet. Constant removal of the aerial parts indicates that in from 7 to 12 weeks the tuber producing these shoots is exhausted *and dies*. Exposure to the sun for ten days in May has also been proved to be fatal to the tuber. Spraying with chemicals has not yet given definite results and is being continued."

Annual Rept. Bombay Dept. of Agre. 1921—22, p. 95.

T. S. V.

Agricultural Research. Agriculture is subject to special hazards resulting from weather and climatic conditions, animal and plant diseases, and insect pests. These hazards reduce farming to a gigantic gamble. But methods of production can be adapted to the end of reducing losses from climatic and weather conditions to a minimum. Plant and animal diseases and insect pests can to a certain degree be controlled, but the means and method of reducing or controlling these hazards cannot be worked out on the farm by the individual farmer. The investment, even of the largest, is not sufficient to permit of the organization necessary for the study and formulation of these means and methods. A programme of agricultural development must, therefore, include provisions for an expanded and co-ordinated programme of practical and scientific investigation through State and National departments of Agriculture, and through Agricultural colleges and universities, directed toward reducing the hazards of climatic and weather conditions, and of plant and animal diseases and insect pests.—Report of the Congressional Joint Commission of Agricultural Inquiry, U. S. A. December, 1921.

Agricultural Gazette of N. S. W. Nov. 1, 1922.

K. U. M.

Is Research a re-search? We believe the organisation of research under the aegis of a responsible body of scientific advisors is a valuable national asset. Will such organisation interfere with the individual freedom of the research worker? Is there a danger that the extension of the team-principle and the laying down by a higher authority of precise research programmes may stifle what originality the worker may possess? The answer is, we believe, that there are men who work best in a team and men who prefer to work alone, and that there is ample room for both types. There are periods both in war and in peace when stocktaking of knowledge is essential if we are again to make advance into the unknown. The present is one of those times of national stocktaking in medical science. The very fundamentals of many departments of medical science require revision. A doyen of the chemical world recently referred to certain developments and proposals in biological chemistry as being simply re-search, with the accent and insistence on the first syllable.

The statement is both true and false. Simple reconstruction must inevitably form an integral part of modern research. Possibly the biological sciences, on which advance in scientific medicine mainly hangs, contain a greater proportion of inexact, un-coordinated, and incomplete statements than the so-called exact physical sciences. Every advance in the latter reacts on biology, necessitating re-search in some form or other. Co-ordinated investigations by teams is necessary in peace as in war, and the fruit will duly appear. The scientific investigation of deficiency diseases—a war-time necessity—has developed into something like a science of its own. The organised investigations on anaerobic bacteria—another war-time necessity—which was perhaps a very typical example of a re-search, has already borne abundant fruit in recent exact studies of such diseases as botulism and braxy.

WHAT OF THE NIGHT? THE MORNING COMETH.

J. C. G. L. *Nature* 31, III '23.

Fleas and Plague in India. It was believed sometime ago that the prevalent rat flea all over India was *Xenopsylla cheopis*. Rothschild, however, afterwards found that under that identification three very closely allied species—*X. cheopis*, *X. astia* and *X. brasiliensis*—had been confused, and Hirst pointed out that the distribution of plague in India and Ceylon corresponded well with the hypothesis that the real *X. cheopis* was alone an effective transmitter of the disease. He now reports (*Indian Journal of Medical Research*, Vol. X, 1923, p. 789) a full series of experiments confirming his earlier work, and showing that *X. astia*, the prevalent rat flea in Madras, will carry plague from one animal to another only with much more difficulty than *X. cheopis*, the rat flea of Bombay. Details of plague epidemics in Colombo, where plague has never become widely spread and where the fleas are mostly *X. astia*, with a few *X. cheopis*, bear out his thesis in a striking manner. It seems as if a considerable advance has been made in the epidemiology of plague which illustrates the fundamental importance of systematic zoology in these problems.

Nature, dated March 3, 1923.

"Cure-alls" for Live-Stock. It is remarkable how gullible many persons are when approached by agents or canvassers of some preparation reputed to be a cure for almost any ill that animal flesh may be heir to. So called "cure-alls" are constantly on the market, and are too often found on the shelf of the farmer, who, unfortunately, looks upon the purchase as a guarantee or insurance against any of the troubles to which his stock may become afflicted, and in time of trouble relies on such preparations—often to his future sorrow. Numerous cases have come under the Department's notice of very serious loss having occurred through too great reliance being placed upon such preparations, and it is hoped that this note may serve as a warning to stockowners to look with suspicion on any preparation reputed by the canvassers to be a cure for this, that, and the other ill. A little thought should brand any such assertion as ridiculous, seeing that each trouble has its own peculiarity, and therefore its own particular treatment.

New Zealand Journal of Agriculture, March 23.

The Dairy Cow's Nervous system. Another quality we are looking for in a dairy cow is a strong, highly developed nervous system, as such an animal is able to perform more labour beyond what would be expected from appearances. Such a cow will have a large, intelligent eye and a broad forehead, showing well developed brains controlling the nerves, and a strong, straight spinal cord. The spinal cord runs through the vertebrae from the head to the tail, and sends out from each vertebra branches that connect with the various organs of the body. Now, when the vertebrae are well apart and the back is straight, it shows that the animal has a strong spinal cord and is an indication of strong nerves.—C. Van Foreest, Journal Dept. of Agriculture, South Africa.

K. U. M.

Molasses mixture used in combating boll weevil. The use of a mixture of calcium arsenate, water and molasses has been proposed for the control of the boll weevil in several districts of the cotton belt. A press Bulletin of the Georgia Experiment Station, Department of Agronomy, in speaking of the method, states that there has not been very much work done with the molasses mixture and method. In some sections farmers have been successful with late applications, but generally speaking the Experiment Stations have not succeeded with this method except when applied early. The exact proportions used in the mixture seem to vary, a good mixture being approximately one gallon of water, one gallon of molasses, and one pound of calcium arsenate. The mixture is prepared by mixing the calcium arsenate with the water first and then adding the molasses. This amount will cover about two acres. The mixture is applied by dropping a few drops from a long-neck bottle with a hole in the cork into the bud of the cotton plants. These applications should be made just before the first squares appear. Repeat the application five or six times at intervals of about one week. If rain washes the mixture off, the application should be repeated at once. The advantage claimed for this method is the ease with which it can be applied. This brings us a new use of molasses and one that is meeting with more or less favor in sections of the cotton belt.

T. S. V.