

Gleanings.

Twenty years of cotton Research in Egypt: Looking back over these twenty years, one cannot but feel regret that more was not done with the results obtained. Lack of concentration and sustained attention was due in part to the overweighting of the technical sections with accessory staff, which in turn involved distracting administrative responsibilities for the senior scientific officials, conducted within the limitations of rigid governmental rules and regulations. Promotion for good service was hard to obtain. The scientific worker devoted to his subject was too fully occupied to have the time for acquiring the necessary influence. Publication of results was very uneven and the war made matters hopeless; brevity is usually a sure indication of clear thinking and scientific value, but the tradition of the East put a premium on prolixity and the emphasis is on words rather than on work. The acquisition of status and power over fellow officials is too often valued far above scientific reputation and experimental ability and it is yet to be realised that for real progress in science it is essential to have a stiffening frame of professional scientists as distinct from professional officials (W. L. Balls (1948) *Emp. Cotton Growing Review* 25. [T. R. N.]

New Treatment for Cattle Disease: Glaxo Laboratories, who a year ago pioneered the massive dosage technique in the penicillin treatment of bovine mastitis, have announced an important advance in the treatment of this widespread disease. By combining procaine with penicillin rapid and complete eradication of bovine mastitis, it is claimed, can be achieved, with only two injections within 72 hours, instead of the four or five previously necessary with ordinary penicillin. This is the first time in veterinary medicine that procaine-penicillin has been used in the treatment of bovine mastitis.

The great advantage of the new preparation is that procaine-penicillin, supplemented by a strong water-repellent agent, aluminium stearate, results in an extensive prolongation of penicillin activity in the milk system and associated tissues by reducing the number of treatments per quarter to a minimum. The veterinary surgeon is thus able to give greater personal attention to herd treatment, and the cost per head is less. The preparation, which is non-irritant, leaves the milk free from discoloration. The yield is also unaffected by the process, which ensures only a minor disturbance to the animal. —[B. F. 958]

Scientific Grain Storage New Methods of Combating Infestation: Several successful methods for combating infestation in the storage of grain are mentioned in the first report now issued on pest infestation research in Britain. One of these is the "carbon dioxide" method for estimating the infestation of a given sample of grain. This consists of bottling a sample and incubating it for a short period, generally 24 hours, after which the carbon dioxide content of the air between the grains is measured. The grain itself produces a negligible amount of carbon dioxide in such a time, but the insects produce a measurable quantity. Broadly, the concentration of carbon dioxide found is proportional to the number of insects present inside the grain. It was also demonstrated that insects could and did cause grain to heat through the formation of "hot spots".

The report says that there was a great need for a fumigant as toxic to insects as hydrogen cyanide, which would not be so easily absorbed. Such a fumigant was found in methyl-bromide. The first full scale trials were made on empty bags on barges. Bagged shellnuts were then treated and also groundnuts in shell which were loose in barges. The treatment of bulked materials in barges had always been considered impracticable. Work on warehouse sprays was undertaken in view of the necessity of disinfecting the building in which insect free foodstuffs had to be stored. The main difficulty was ensuring a reasonably long toxic life to the insecticide film deposited on the wall. A method was developed for pre-treating surfaces to be sprayed which gave a greatly increased duration of toxicity. The report covers some years' work by the Pest Infestation Laboratory of the Department of Scientific Research and is published by the British Stationery Office. [B. F. 1483]

New Farm Implements: Two new farm implements, a potato planter and a fertilizer distributor, both costing well under £ 100 (Rs. 1,333), have been developed in the United Kingdom. Both are automatic and operated by a tractor, the driver needing no other labour. The two-row potato planter comprises a sport-welded steel hopper containing baffles and an inverted V bottom. The drive is by a wavy-edged wheel. By means of sprockets and chains, motion is transmitted to two disc wheels which collect the potatoes into pick-ups on the perimeter, each comprised of two prongs and a lip, and drop them into furrows prepared by two ridging bodies. Potatoes can be planted at a space of 15, 20, 24 and 30 inches at the rate of six to eight acres per day. The fertilizer distributor, claimed to be the first mounted distributor in Britain, has a capacity of 3 or 4 cwt., and sows from 1 to 30 cwt. per acre. An unusual feature is the main drive which is by a chain from a sprocket mounted by three studs on the near-side wheel hub of the tractor. The machine weighs well under 6 cwt. [B. F. 1415]

Vitamins and Social Dominance: A chronic deficiency of vitamin B has a profound influence on social dominance and behaviour. This has been established by experiments on dogs, hens, mice canaries and cattle. Chronic vitamin B, deprivation in dog litters effect the order in which the puppies go to the food pan, the tendency to retaliate when bitten by others, and the relative or absolute immunity of any animal in the group from attack by other animals. In one litter of four male and one female pups, the least dominant animal, a male was severely bitten and so regularly driven away from the feeding pan, that it had to be isolated in a separate cage and given a special diet, which included milk and raw beef. The other animals were placed on a diet of water canned dog food and a type of dry dog chow. After three weeks the isolated animal was again placed in the cage with his litter mates and none the previous social dominance was reversed. He became the dominant animal of the litter after several fights with each of his litter mates. After a week of this, an increasing loss of appetite followed by symptoms of "flight disease" was noted in those animals which had been fed for several weeks on commercial dog food ration. Commercial dog foods are usually anthelated and vitamin B, being heat labile is destroyed as a result. 600 I units of vitamin B were injected subcutaneously in all five animals daily for four days. A number of fights ensued between the litter mates and the previous dominant male resumed his ascendant position in the social hierarchy. The male which had originally been the lowest and after the special diet highest in the order of dominance ended as the third highest in the social group of litter mates. The solitary female pup was the lowest in the new order of dominance which remained so for two months, after which no further observations were made. Similar dominance shifts associated with vitamin B, deprivations have been noted, though not in such detail, in other litters as well. (Science 105, March 1947, p. 52. T. R. N.)

