A Note on the Jassid Bugs of Paddy.*

Introduction.

PADDY (*Oryza sativa*) is subject to the attack of about three dozen insect pests of which eight or nine, such as the paddy stem borer (*Schœnobius incertellus*, W.), the paddy swarming caterpillar (*Spodoptera mauritia*, B.), the rice bug (*Leptocorisa acuta*, Th.), the rice grasshopper (*Hieroglyphus banian*, F.), the rice case-worm (*Nymphula depunctalis*, Gr.), the paddy gall-fly (*Pachydiplosis oryzæ*, W.), the rice Hispa and Leptispa, are major pests. The Jassid bugs of paddy, however, come under the group of minor pests. Normally they do not do much harm to the plant but, in certain years, cause fairly serious damage.

Jassids—What these are.

Jassids are plant bugs belonging to the sub-order *Homoptera*, order Rhynchota. These have sucking type of mouth parts and two pairs of wings. They have an incomplete metamorphosis. Eggs are laid on the tender portions of the plant and the young ones which hatch out—nymphs—and also the adult bugs suck the juice of the plants and, if found in large numbers, the affected portions fade and dry up as a result of the attack.

Species of Jassids affecting Paddy.

Four species have been known to affect paddy in the Madras Presidency. These are the green-spotted Jassid (*Nephotettix bipunctatus*, F.); the white Jassid (*Tettigoniel spectra*, D.); *Erythroneura subrufa*, M., and *Deltocephalus dorsalis*, M. Of these, the first two are found in almost all paddy areas while the third one is commonly noticed in North Malabar and the last in the Northern Circars.

Control Methods.

Collection of nymphs and adults with hand-nets or bags have been found to be successful against the pest. The use of sticky winnows is yet another method advocated in some places. Light traps have also been tried especially against the green-spotted Jassid. The use of tobacco dust mixed with lime has given successful results against nymphs.

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October 29, 1935.

* In view of the recent outbreak of *Jassid* pest of paddy in Godavari delta, this account given by Mr. C. Cherian will be of interest (Ed.).

A Note on the Locust Position in North-West India and Baluchistan during the Current Year—1935.

EXPERIENCE gained during the last three years has shown that the multiplication of the Desert locust is entirely dependent on favourable rainfall in its breeding areas. During the winter and spring of 1934–35, early, wide-spread and heavy rains were received throughout the winter-rainfall areas of Baluchistan and Persia, and many of the coastal areas, such as Jask, Gwadar, Pasni and Ormara, recorded more than 10 inches of rain between December 1934 and April 1935. In the wake of such favourable rainfall, the locust was noticed to begin egg-laying early in February, and by April 1935 adult locusts of the new generation were found to have come into existence in fairly large numbers.

In the hinterland of Mekran, two cases of damage to *Jowari* crops by bands of gregarious hoppers were reported in June and July respectively, and on investigation, it appeared as if the hoppers had come into existence as a result of concentrated egg-laying in the sandy areas close by, by individuals of the first generation, that had been produced in the coastal areas and had, later on, migrated into the interior of Mekran. The adult locusts emerging from the infestations mentioned above are reported to have disappeared after acquiring wings. Since the interior of Mekran becomes an area of high temperatures and low humidity during July, August and September, it is presumed that they flee from such uncongenial conditions in search of better environmental conditions elsewhere.

By about the second week of July, a sudden increment in the numbers of locusts was noticed in several different places almost simultaneously: for example, at

Pasni, Gwadar, Ormara and Sonmiani along the Mekran Coast, in a large number of places in Sind, especially in Dadu, Sukkur, Hyderabad, Karachi and Tharparkar Districts, in Nushki and Kachhi in Upper Baluchistan, in the Khairpur and Bahawalpore States, and in many parts of Marwar, Jaisalmer and Bikaner States. In most cases, the incursion appears to have occurred as an imperceptible immigration of individuals, though in a few places swarms of small size were also reported. It is also noteworthy that a great proportion of the locusts collected after this incursion was found, on biometrical analysis, to show elytron-femur ratios pertaining to the *transiens* and *gregar* types, whereas the individuals found before this event in Sind and Rajputana deserts were mostly of the *solitaria* facies.

There was general rainfall in Western Rajputana and in the Thar portion of Sind during July, and oviposition by locusts was noticed to some extent in these areas in July and August, but during August and September rainfall was greatly restricted. On the other hand, in most parts of Sind and Baluchistan subject to the influence of the monsoon, there was a complete failure of rains, and consequently there was no breeding.

The new generation of locusts made their appearance in September in the desert areas of Sind and Rajputana, but though widely scattered over a large area of desert, locusts were found on the whole to be in comparatively small numbers. Their biometrical ratios, moreover, were noticed to be mostly of the *solitaria* type. Observations made so far appear to indicate that this year's incursion—presumably from a western source—has fizzled out and that at present there is no ground for anticipating the formation of swarms.

During the year 1926, a similar incursion, though presumably of a greater magnitude, occurred at about the same time of the year, and as a result of very heavy summer rainfall throughout Baluchistan, Sind and Rajputana, the resultant breeding was so extensive as to start the last great Locust Cycle of 1926–31. One wonders what might have happened if the current season's monsoon had been heavier and more prolonged.

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Locust Research Station,
Karachi,
November 1, 1935.

Obituary.

Major Robert Ferguson Stirling (1886—1935).

IT is with deep regret that we have to announce the death, from heart failure on 16th August last at Nagpur, of Major Robert Ferguson Stirling, Director of Veterinary Services, Central Provinces. By his death at the early age of 48, India has lost one of the pioneer Veterinary workers in this country.

Born in 1886, he qualified with distinction as Member of the Royal College of Veterinary Surgeons from the Dublin Veterinary College. Soon after, he accepted an appointment in the Rhodesian Veterinary Service where he lay the foundations for his future interest in tropical diseases of animals. In fact, his thesis for his Fellowship of the R.C.V.S., which he took in 1912, was on the control of East-Coast Fever of cattle.

On the outbreak of the Great War, he joined the Royal Army Veterinary Corps and found active service in France. His army service called for high praise from his superior officers and particularly from Major-General Sir John Moore, K.C.M.G., etc., the then officer commanding the Veterinary personnel of the British Expeditionary Force in France. An appreciation of the late Major Stirling's work published in the *Veterinary Record*, London, by Sir John, is read with pleasure by many of the friends and colleagues of the deceased officer.

He joined the Civil Veterinary Department in C.P. in April 1920 and except for a short break when he was called on to officiate as Pathologist at the Imperial Institute of Veterinary Research, Muktesar, he continued to be in C.P. first as Deputy Director and subsequently as Director of Veterinary Services, C.P. In the latter capacity for well over seven years, he brought into his work scientific and organising capacity of a high order which had been the pride and envy of his colleagues and friends.

His scientific talents which found early vent in the study of East-Coast Fever in cattle, later developed with the limited opportunities for an administrative officer