

vertebrates, as the neurones of the accelerating nerve act like preganglionic cholinergic units, whereas the neurones of the pacemaker act like postganglionic adrenergic units. Nothing is known, however, about the nature of the inhibitor of the arthropod heart system.

B. J. KRIJGSMAN
NELLY E. KRIJGSMAN

Zoology Department,
University of Cape Town.
Jan. 10.

Fungoid Infection in *Ectocarpus granulosus*

IN a recent communication, Dr. A. A. Aleem¹ has directed attention to a seldom recorded species of phycomycete, *Eurychasma Dicksoni* (Wright) Magnus, which was found near Plymouth parasitizing *Ectocarpus granulosus* Agardh. During the spring and summer months of 1945, 1946 and 1947, I observed this fungus on a number of occasions infesting *E. granulosus* that had colonized test panels suspended in the sea from a raft at Millport, Isle of Cumbrae. These panels were immersed at a constant depth of two feet in a fairly sheltered and fully marine environment.

The main period of *Ectocarpus* settlement and growth on panels at this site extends from March to September and includes the species *E. granulosus*, *E. Hinksiae* Harvey, *E. Sandrianus* Zanard, *E. confervoides* Le Jol and the closely related *Pilayella littoralis* Kjellm. There was no indication that the fungus was affecting the general seasonal picture, nor was it recorded from any other species of *Ectocarpus*.

I am indebted to Miss Jane L. Smith for confirming the identity of *E. granulosus*.

MARCUS W. H. BISHOP

Animal Research Station,
Huntingdon Road,
Cambridge.
March 20.

¹ Aleem, A. A., *Nature*, **165**, 119 (1950).

'Let-down' of Milk in the Sow

A CONSIDERABLE amount of work has been carried out in recent years on the problem of the 'let-down' of milk in the cow; but, so far as we are aware, nothing has been published on any such work on the sow. From the lactational point of view, the sow differs from the cow in several ways; she has, for example, an exceptionally strong control over the release of her milk. While the normal cow lets down her milk easily, it is normally impossible to obtain by hand any milk from the sow unless let-down is first artificially induced by the intravenous injection of an extract of the posterior pituitary lobe¹. In addition, it is necessary to rope the sow during the process of obtaining the milk, and consequently the condition of co-operation which normally exists in the routine milking of the cow does not obtain.

A preliminary experiment has just been completed with the object of determining whether a yield and time of milk-flow response could be established for four different doses of oxytocin, namely, 1, 3, 5 and 10 units ('Pitocin', Parke, Davis and Co.).

Four gilts were used, and each was injected daily, six times a week over a period of four weeks, commencing on the eighth day of lactation. Each gilt, therefore, received a total of twenty-four injections,

six of each of the above four doses. The various doses were randomized in order to discount for any trend in milk-yield due to advancing lactation. Each day, after a natural suckling had been completed, the litter was removed, and the 'artificial' milking was carried out two hours later. The two front teats only were milked. The results are summarized in the accompanying table.

| Dose (units of oxytocin) | 1 | 3 | 5 | 10 | |
|---|-------|-------|-------|-------|-------|
| Yield of milk/udder (ml.) | 41 | 78 | 82 | 104 | |
| Time of milk flow (sec.) | 80 | 131 | 135 | 179 | |
| Rate of flow of milk (ml./min.) | 31 | 36 | 36 | 35 | |
| Fat and solids-not-fat % | Fat | 7.02 | 7.54 | 7.51 | 7.34 |
| | S-n-f | 10.76 | 10.82 | 10.87 | 10.80 |
| Time between end of injection and start of milk flow (sec.) | 11.6 | 11.2 | 10.3 | 9.9 | |

All the figures in the table are means of 48 readings, except those relating to fat and solids-not-fat, which are means of 24 readings. At each milking the milk from the two glands was bulked before a sample for analysis was taken. (We are indebted to Dr. S. J. Rowland for carrying out the analysis.)

The results indicate that, under the conditions of the experiment, the amount of milk a sow releases is related to the concentration of oxytocin in the blood. The length of time of the flow of milk appears also to be related to the amount of this hormone in the blood.

The range of the figures for fat and solids-not-fat in the samples obtained was too wide for any conclusions to be drawn as to average composition, and further work is required to determine whether the composition of the milk is in any way related to the amount obtained. Further experiment is also required to determine whether there is any correlation between the rate of flow of milk and the amount of oxytocin in the blood.

These results justify further investigation into the let-down phenomena in the sow, and experiments on a number of problems are planned. Those in progress deal with (a) the establishment of a dose, and time of flow, response to the administration of very small quantities of oxytocin, (b) investigations into the response to large doses of oxytocin (larger than 10 units), (c) correlation of the amounts of milk obtained by piglets when suckling with those obtained by hand milking after the artificial induction of let-down. A full report of these investigations will be published elsewhere.

R. BRAUDE
K. G. MITCHELL

National Institute for Research in Dairying,
University of Reading.
March 23.

¹ Braude, R., Coates, M. E., Henry, K. M., Kon, S. K., Rowland, S. J., Thompson, S. Y., and Walker, D. M., *Brit. J. Nutr.*, **1**, 64 (1947).

Aryloxyaliphatic Acids as Systemic Fungicides

A SYSTEMIC fungicide may be defined as a fungicidal compound which is readily translocated as such in the plant, rendering the tissues penetrated toxic to fungi. It is immaterial whether the fungus is killed at the point of penetration or not, for the toxic effect of a fungicide depends on its concentration, and a compound does not cease to be a fungicide because it is present in sublethal amounts. Outstanding work on the treatment of vascular disease, in particular Dutch elm disease, by compounds translocated in the host has been carried out by Horsfall² and his