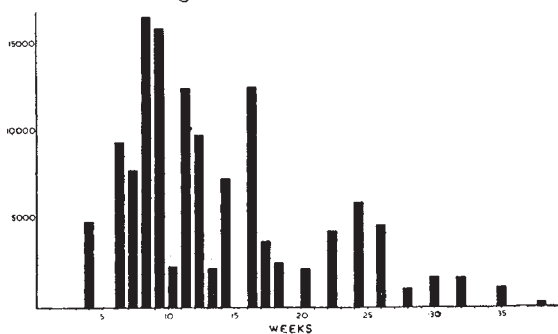


### Phenomenon of Protection in Infections of *Trichostrongylus retortaeformis*

Two preceding communications<sup>1</sup> discussed the phenomena of host resistance in infections of *Trichostrongylus retortaeformis* in the rabbit. Two separate mechanisms were described, self-cure and the inhibition of larval development.

It now appears that there is a third mechanism of resistance which prevents infective larvæ from establishing themselves. In a series of recent experiments, rabbits were infected with *T. retortaeformis* larvæ three times a week. For the first three weeks the doses of larvæ administered increased but thereafter they remained constant. The rabbits were now receiving the equivalent of a lethal dose each week. In spite of this, however, no effect was discernible on their health or live-weight gain.

Individual members of the group were killed at regular intervals, and it was found by the estimation of their worm burdens that the number of inhibited third-stage larvæ first rose for approximately eight weeks and then fell, the rate of fall decreasing meanwhile. This progressive diminution in the numbers of inhibited larvæ was very similar to that described in an earlier letter as occurring when a large number of larvæ become established in a previously infected animal as a result of the administration of a single dose. The faecal egg-count of the regularly infected rabbits discussed in this communication also followed a similar course and showed the same periodicity as that which was previously seen following the administration of a single dose of larvæ.



Number of inhibited larvæ recovered postmortem from regularly infected rabbits

It appears therefore that, under the conditions of these experiments, after the eighth week, although infective larvæ were still being regularly administered, both the decrease in the number of inhibited larvæ and the course of the faecal egg-count were similar to those encountered where larvæ have been established by a single dose. It appears, therefore, that the larvæ administered after the eighth week were unable to establish themselves and that the subsequent course of the infection refers entirely to the larvæ administered before that time.

Stoll, in 1929, reported that lambs exposed to repeated infection with *Hæmonchus contortus* were able to throw off the worms and thereafter were refractory to re-infection. These phenomena he named self-cure and protection. It is suggested that the term 'protection' may correctly be used for this third mechanism of resistance to *T. retortaeformis*.

J. F. MICHEL

Veterinary Laboratory, New Haw,  
Weybridge, Surrey. May 11.

<sup>1</sup> Michel, J. F., *Nature*, **169**, 881, 933 (1952).

### 'Rabbit-Gait' in the House Mouse

IN October 1952, during the classification of mice from a *fused* (*Fu*) stock, a mouse was observed with a gait closely resembling that of a rabbit. Since then, from two other matings in the same stock, four more animals behaving in a similar way have appeared. The five mice, the parents of which walk and run normally, seem to fall into two distinct classes: (a) those which can only move their hind legs simultaneously, and (b) those which move their hind legs simultaneously when running but independently when walking; in every case movement of the front legs is normal. Class (a) has a *Fu*/+ female and a *Fu*/+, *T*/+ (*T* - *brachyury*) male, and class (b) has two females and a male all *Fu*/+, *T*/+.

The data suggest that the condition described above is determined genetically and is closely associated with *fused*. This hypothesis is now being tested and a fuller account of the work will be published later.

S. A. MALLYON

Department of Genetics,  
44 Storey's Way,  
Cambridge.  
May 6.

### Circulation in *Lacerta viridis*

USING radiological methods, Prakash<sup>1</sup> has recently investigated the mode of action of the heart of the lizard *Uromastix hardwicki* and has concluded that there is very considerable mixture of the blood from the two auricles in the partially divided ventricle.

At the same time we have been making a preliminary radiographic study of the heart and circulation of *Lacerta viridis*.

As is well known, in the lizards both auricles open to the dorsal side of the interventricular septum. Thus blood from the right auricle on its way to the right ventricle (cavum pulmonale) has to traverse a portion of the left ventricle. Under such conditions, it is most likely that some degree of mixture of the blood from the two auricles will take place. Again, it is well known that the right division of the ventricle is smaller than the left so that equal volumes of blood cannot possibly be pumped to general and pulmonary circulations at the same time, and we must conclude that some mixture in the ventricle is unavoidable. Nevertheless the preliminary experiments we have made lead us to the conclusion that a marked degree of separation of arterial and venous blood is achieved in *Lacerta viridis*.

In decerebrate lizards, injections of the radio-opaque medium 'thorotrast' have been made both through the posterior vena cava and through the pulmonary vein. In posterior vena cava injections the thorotrast is seen to pass through the heart into the pulmonary arteries, and in the few experiments so far made the 'dye' cannot be seen in the carotid vessels or right systemic arch. There is a slight element of doubt as to whether in one instance 'dye' can be seen in the left systemic. On the other hand, 'dye' injected into the left auricle by way of one of the pulmonary veins is clearly seen to emerge in the carotids and both systemic arches. No sign of it has been seen in the pulmonary arteries.

It is proposed to continue and extend these studies; but in the meantime it seems desirable to record that