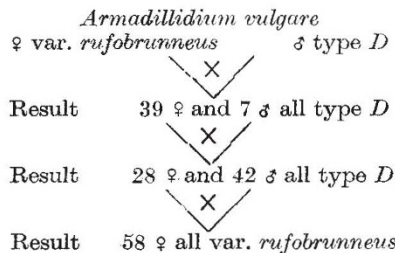


Briefly the facts are as follows: I crossed a female specimen of *Armadillidium vulgare* Latr. var. *rufobrunneus* Clge. with a male specimen of Howard's type *D*, with the ultimate result that I obtained a brood of 39 females and 7 males all referable to the type *D*. A female of this brood was crossed with the male parent and in due course I obtained a brood consisting of 28 females and 42 males, all referable to Howard's type *D*. A male and female of this brood were crossed, with the result that a brood was liberated consisting of 58 females all referable to the variety *rufobrunneus* Clge., most of which died within two days of liberation from the brood pouch.

The above-mentioned facts may be briefly summarized as follows:



I should here like to express my best thanks to Dr. H. W. Howard and Dr. Hamilton E. Quick for their kindness in supplying me with material.

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Hereditry, Development and Infection

PROF. J. B. S. HALDANE'S¹ letter on Dr. Darlington's² interesting and provocative article calls for two comments. First there is, I think, no published evidence to show that reversion from climber to bush type in roses is due to an agent transmitted from the stock (incidentally it may be noticed that Crane and Lawrence's³ account of their experiment on p. 178 of their book does not mention the type of stock on which the buds were grafted). Even assuming that the difference between the climber and bush type is due to a change in a plasmagene, the reversion of a percentage of the buds might be due to the somatic sorting out of two different types of plasmagenes such as sometimes happens with plastids.

Secondly, at least a few British geneticists have been interested enough in the work of Lysenko and his colleagues in the U.S.S.R. for them to try experiments similar to those of the Russian workers. As no results have been published, one can only conclude they were negative. Thus I personally have experimented with the narrow-leafed rogue of peas^{4,5} which Darlington⁶ suggests is due to a plasmagene (seeds of type and rogue were kindly given to me by Miss C. Pellew for this work). Grafts of type on type, type on rogue, rogue on rogue and rogue on type were made in the seedling stages, and the length and breadth of stipules at flowering time measured. No effect of stock on scion was found.

H. W. HOWARD.

Plant Breeding Institute, School of Agriculture,
Cambridge. Oct. 17.

¹ *Nature*, 154, 429 (1944).

² *Nature*, 154, 164 (1944).

³ "Genetics of Garden Plants", 2nd ed. (London, 1937).

⁴ *J. Genet.*, 5, 13 (1915).

⁵ *Proc. Roy. Soc.*, B, 91, 186 (1920).

⁶ "The Evolution of Genetic Systems" (Cambridge, 1939).

Inheritance of the Keel in *Potamopyrgus Jenkinsi* (Smith)

THE keel, when present in the aquatic and parthenogenetic mollusc, *Potamopyrgus Jenkinsi* (Smith), can exist in many degrees of strength. It may vary from the faintest of lines on the shell to a well-marked spinous keel, this latter being the aculeate variety of Overton.

Robson¹ found that colonies may be all smooth, all keeled, or the two forms may co-exist. The keeled forms may persist for years in the same locality, though the proportion keeled may vary from year to year, sometimes dwindling to zero. Boycott², who also worked on this character, found strongly keeled (aculeate) colonies rather rare. Juvenile keeled snails from the field, grown to adult size in the laboratory, were indistinguishable from wild-born adults. He also found many grades of development in the keel, and the occasional occurrence in *Nature* of the discontinuous development of the character when the keel fades off to give a smooth body whorl.

Both Robson and Boycott bred keeled snails in the laboratory. Robson, using keeled snails and fresh water of different chemical compositions and brackish water, obtained only perfectly smooth offspring. Boycott, using aculeate snails from a freshwater colony near Criccieth, obtained some keeled snails (mostly faintly keeled). However, conditions did not permit any definite conclusions to be drawn about possible causative conditions, except that keeled offspring more often appeared in the 'bad' conditions of open-air aquaria or in cultures kept in rusty tins. In recent years, similar experiments have been repeated, and in fresh water the few positive results have, like Boycott's, been inconclusive.

In 1943 a locality was found near Christchurch, Hants, where smooth snails live in a small freshwater stream and aculeate snails in the brackish water stretch of the same stream. These aculeate snails, bred in jars with brackish water of salinity 0.175 per cent and algal-covered pebbles from their native brackish stream (called keel-inducing conditions below), yielded 100 per cent aculeate offspring. Under similar conditions keeled and smooth snails, kept together in the same jar, yielded both keeled and smooth offspring. These experiments have been successfully repeated and amplified this year, and some of the main results are summarized, pending opportunities for carrying out more precise work.

A glass jar was immersed in the brackish stream at Christchurch for the second half of April 1944. This jar, filled with stream water and using keeled snails as parents, yielded both smooth and keeled offspring. A precisely similar experiment, using a jar immersed for part of May, gave only smooth *F1*. A jar set up with keel-inducing conditions and three snails—one perfectly smooth and the other two with barely perceptible keels—yielded an *F1* of smooth snails and snails with a well-developed keel. Under similar conditions, ten smooth snails from a hundred per cent smooth colony yielded only smooth offspring. Experiments were also made by keeping snails, offspring of keeled parents, under keel-inducing conditions for varying periods of the first part of their lives and then transferring them to smooth-inducing conditions. A batch thus kept for the first 28–35 days of their lives before transference yielded seven individuals, only one of which was keeled. Similarly, of twelve snails kept 35–42 days before transference to smooth-inducing conditions (and