by each of nine *Rhizobium* strains known to be effective in symbiosis with all species, in an experiment of factorial design: species (4) × strains (9) × replications (3). Plants were grown under controlled conditions in glasshouse sand-culture units. Four disinfected seeds were planted in each pot and inocula were applied to seeds in uniform quantities. Root systems were inspected after a period of plant growth of 50 days.

Three distinctive attributes of nodulation pattern were observed. Crown nodulation (C) was distinguished as any nodulation located on the tap root above the first lateral root. Tap-root nodulation (T) was distinguished as any nodulation on the tap root anywhere below the first lateral root. Lateral root nodulation (L) was distinguished as incidence of any nodules on lateral roots. Each attribute was not always represented in each replication of four plants. The frequencies of attribute incidence on the four species are given in Fig. 1, where the highest possible frequency is 27 (on the basis of 27 culture-unit replications).

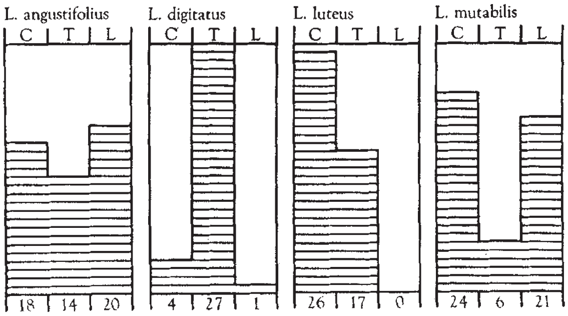

Fig. 1. Frequency of 3-nodule distribution attributes on four lupin species in effective symbiosis with nine *Rhizobium* strains

There was no detectable effect of *Rhizobium* strain in this experiment. Analysis shows that the three species *L. digitatus* ($\chi^2 = 24 \cdot 383^{***}$ on 2 d.f.), *L. luteus* ($\chi^2 = 37 \cdot 820^{***}$ on 2 d.f.) and *L. mutabilis* ($\chi^2 = 10 \cdot 941^{**}$ on 2 d.f.) exhibit preferential siting of nodules, but there is no evidence that *L. angustifolius* ($\chi^2 = 1 \cdot 079$ N.S. on 2 d.f.) does so.

Comparing patterns on the different species shows:

L. luteus vs. *L. angustifolius* ($\chi^2 = 21 \cdot 069^{***}$ on 2 d.f.)
,, ,, *L. digitatus* ($\chi^2 = 18 \cdot 171^{***}$,,)
,, ,, *L. mutabilis* ($\chi^2 = 25 \cdot 864^{***}$,,)
L. digitatus ,, *L. angustifolius* ($\chi^2 = 26 \cdot 986^{***}$,,)
,, ,, *L. mutabilis* ($\chi^2 = 43 \cdot 792^{***}$,,)
L. mutabilis ,, *L. angustifolius* ($\chi^2 = 4 \cdot 065$ N.S. ,,)

These results show that legume species may exhibit preferential and differing nodulation patterns under uniform conditions, and that this may apply intragenerically on annuals of similar rooting habit.

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A Bivalve Gastropod

In the course of a collecting trip to Torquay, Victoria, in quest of marine molluscs, I had the great fortune to take alive that most peculiar bivalve, *Edenttellina typica* Gatliff and Gabriel. Much to my surprise I observed that the animal was that of a gastropod and apparently congeneric with the recently described *Tamanovalva limax* Kawaguti and Baba from Japan[1]. Even more surprising is the fact that I also collected, along with the above species, a second species of bivalved gastropod which although of the same group is undoubtedly of a different genus; shell and animal characters indicate many differences, but there is still a helicoid apex on the left valve only. Both species were collected on a species of the green seaweed *Caulerpa*, where it lives, as the Japanese authors indicate, among the roots.

The internal anatomy of both species has yet to be investigated, but it is hoped to publish preliminary descriptions as soon as possible.

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[1] See *Nature*, **185**, 749 (1960).

GENETICS

A Mosaic of *Drosophila* consisting of 1X, 2X and 3X Tissue and its Probable Origin by Mitotic Non-disjunction

The renewed interest in abnormal distributions of chromosomes leads me to place on record an unusual mosaic individual of *Drosophila melanogaster* found in 1933 while working at the California Institute of Technology. A 'strange gynander' appeared among the offspring of a cross between a female which carried the dominant bristle gene Minute-n (M-n) on one X-chromosome and the recessive eye colour gene carnation (*car*) on the other, and a male which carried the recessive body colour gene yellow (y) on its X-chromosome.

No part of the gynander had Minute bristles. Its abdomen was of the female type. The whole right eye and the upper half of the left eye had carnation colour and the right foreleg possessed a sex-comb, characteristic for the male. The lower half of the left eye had normal eye colour but an abnormal, rough surface caused by irregular arrangement of the ommatidia. The left foreleg had no sex-comb. In contrast to the right wing, which was normal, the left wing was short and abnormal. The specimen was shown to C. B. Bridges, who pointed out that the roughness of part of the left eye and the abnormality of the left wing were traits characteristic of a super-female. The fly had had occasion to mate with its *car* brothers. It produced the following types and numbers of offspring: females, wild 35, *car* 36; males, *y* 20, *car* 20, wild 21, *y car* 8. Apparently the ovaries were of the genotype $+car/y+$.

In *Drosophila*, most gynanders are the result of elimination, during an early cleavage mitosis, of one of the two X-chromosomes of a female zygote[1]. In consequence, two unlike daughter cells are produced, one with a representative of each of the two X-chromosomes and another with only one X-chromosome. The mosaic recorded in this communication consisted of three types of cells, of the X-chromo-