be sufficiently large to fit the laryngeal opening closely so as to prevent aspiration, and also to cause enough of the inspired air to pass through the anesthetic container. If it is desired to reduce the amount of dead space, it may be done by placing a suitable exit valve in the tube near the mouth.

If it is desired to mix a gas with the air in varying proportions, it is only necessary to place a three-way cock of the kind described at the juncture of the gas stream with the air stream.

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Hybridization in a mutating period in Drosophila.

By **T. H. MORGAN.**

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In the fourth generation of a pedigree stock selected for the absence of a black shield on the thorax, a few individuals appeared having dark specks on the sides of the thorax below the base of the wings. Thirty-two individuals with specks appeared to 167 without specks. Again from one set of the latter a new brood was obtained that gave 19 present to 286 absent, or 1 to 15. Isolated, the new type bred true. These were mass results, and might have been due to a few individuals in the culture transmitting the specks on the wings, while the majority of the individuals might not transmit this character. Isolated females, not virgins, gave the following proportions:

Absent.	Present.
18	2
24	0
31	0
24	0
31	6

Here the results might have been due to a single female pairing to more than one male before isolation. Therefore, virgin females and males were isolated in pairs from the same stock. The following records are typical results.

Absent.	Present.	Absent.	Present.	Absent.	Present.
37	15	49	14	20	1
3	1	31	5	7	1
21	0	91	0	33	1
23	0	69	0	12	8
63	16	21	18	46	7
49	0	23	1	38	0

From a Mendelian point of view, two classes of broods are expected, if the absent type be the dominant and the present type (specks). The recessive offspring of a pair should be either all without (DD × DD or DD × DR), or 3 absent to 1 present (DR × DR). Two groups, in fact, appear; but when the specks occur, the number of individuals having them departs far from expectation in many cases.

When a fly with specks present is bred to one with specks absent the Mendelian expectation is either all with specks present (DD × RR) or half with and half without (DR × RR). The following cases show considerable departures from expectation.

Absent.	Present.
28	0
48	56
63	3
65	0

The second generation of the last combinations when 100 per cent. absent was obtained, should give the 3 to 1 proportion.

Several other mutants of these flies are under observation. A male in which the red pigment of the eye is totally absent has produced in the first generation, by his sisters, 162 red eyed to one white eyed fly. The results show that the character is germinal, but reappears at present in only a very small percentage of the first generation.

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The chromosomes in the parthenogenetic and sexual eggs of phylloxerans and aphids.

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An examination of the ovarian parthenogenetic and sexual eggs of aphids and phylloxerans has shown that the synapsis stage is entirely omitted in the parthenogenetic eggs, both male- and female-producing; while on the other hand the sexual eggs pass through a synapsis period, *i. e.*, a period when the chromosomes contract to one side of the nucleus reappearing later in the reduced number. These observations show that the full number of