out jeopardy to public health adds significantly to confidence that the use of nuclear explosives in large excavation projects such as the trans-Isthmian sea-level canal is feasible.

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Note

1. The data from these studies are being prepared for publication in technological reports.

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Transfer of the "Sex-Ratio" Factor in Drosophila willistoni by ingestion

Abstract. Thirty-nine females from a normal strain of *Drosophila willistoni* were kept in bottles containing a drop of a supernatant of a macerate of "sex-ratio" females of the same species. Two of these females acquired the "sex-ratio" condition and transmitted it to their progenies.

Some females of several species of *Drosophila* produce unisexual, or almost unisexual, progenies consisting of females and few or no males. This "sex-ratio" (SR) condition, which is dependent on the female and not on the male with which she is mated, has been studied by several workers. Poulson and Sakaguchi (*1*) have shown that in *Drosophila willistoni* this kind of sex ratio is caused by the presence in the bodies of the females of a microorganism which is apparently a species of *Treponema.* The same has been demonstrated in *D. paulistorum* and *D. equinoxialis* by Malogolowkin (*2*). Poulson and Sakaguchi found that the maintenance of the microorganism depends upon the genotype of the host.

Intra- and interspecific transfer of the sex-ratio condition by injection (*3*), and "cure" by temperature treatment of the flies (*4, 5*) were obtained in several species. In order to discover the mechanism by which this character maintains itself in natural populations, Magni (*4*) tried to transfer the factor to normal females of *D. bifasciata* by having different proportions of normal and SR females develop in the same food medium. The results were negative.

Our report describes a new method of transfer of the factor from SR strains of *D. Willistoni* into normal strains of the same species.

One hundred virgin females from a normal strain were kept in ten sterilized bottles (ten females in each bottle) without food for 7 hours. A drop of the supernatant, obtained by L'Héritier's technique (*6*) from a macerate of females of the SR strain was placed in each bottle. Some of the flies immediately approached the drop and fed on it. After 17 more hours, the surviving flies, 54 in number, were crossed in pair-matings, in vials containing banana-agar medium. Thirty-nine of these flies were fertile (pair-matings are not always successful in *D. willistoni*), and 37 gave normal proportions of sexes.

The other two (E18 and E42) acquired the "sex-ratio" condition, which they transmitted to their progenies. The offspring of these two females were counted until the fourth generation. Despite the appearance of females which did not show the "sex-ratio" condition, the "sex-ratio" was maintained in some of the females. The percentage of males produced by the two females, E18 and E42, at different times after the ingestion of the macerate of sex-ratio flies is shown in Table 1.

As a control experiment, the same number of flies were given the supernatant prepared from a macerate of normal females of *D. willistoni.* Among the 100 females used, 49 survived and the 35 fertile matings produced progenies with a normal proportion of both sexes (Table 2).

Table 1. Percentages of males produced by the two females, E18 and E42, at different times after they had ingested the macerate of sex-ratio flies.

Time after ingestion (days)	Flies counted (No.)				Males (%)	
	E18		E42		E18	E42
	F	M	F	M		
1–20	25	14	17	15	35.8	43.7
20–43	40	11	56	34	21.5	37.7
43–53	16				0	

Table 2. Results obtained in F_2, F_3, F_4 of *D. willistoni.*

Control group	Total No. of flies		Females tested (No.)	Unisexual progenies
	F	M		
		Fly E18		
F2	266	91	15	8
F3	291		14	14
F4	249	16	18	14
		Fly E42		
F2	110	53	9	2
F3	69	8	5	4
F4	144	90	13	6

The causative agent of the "sex-ratio" condition in *D. willistoni* can, consequently, be transferred to a normal strain of the same species by allowing flies to ingest the supernatant from a macerate of females from SR strains.

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Direct and Transcallosal Induction of Touch Memories in the Monkey

Abstract. A monkey, after corpus callosum transection, will fail to recall through one hand tactual tasks that he has learned through the other hand. However, if a monkey has already learned a task through one hand, destruction of the corpus callosum does not greatly affect his subsequent recall of that task through the other hand. It is concluded that task learning through one hand develops separate memory trace systems in both hemispheres.

The normally occurring transfer of training between the hands is supported by the corpus callosum in primates (*1*). In the absence of the corpus callosum, tactual experience and tactual learning seem to occur independently through the two hands. In an animal in which the commissure is intact, transfer of training between the hands suggests that memory trace systems may be established in both hemispheres even when there is restriction of tactual learning through one hand. The possibility exists, however, that mnemonic effects may be induced only in the hemisphere related to the "trained" hand and that subsequent performance through the "untrained" hand is sup-