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The sex ratio of mice from alcoholized fathers.

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Bluhm[1] and Danforth,[2] using somewhat different experimental methods, have reported a rise in the sex ratio of mice from alcohol treated fathers. However, these ratios are based on small numbers (182 ♂ : 149 ♀ Bluhm; 210 ♂ : 164 ♀ Danforth) and, although the probable errors of the deviations from the control ratios (+10.60 per cent ±2.03 and +5.36 per cent ±1.99) may be taken to mean that random sampling alone is not responsible for the results, various other possible influences besides alcohol, such as season, mother's age and parity, have not been eliminated by the methods of these investigators. Moreover, Gyllenswärd's[3] more completely controlled experiments with alcoholized male mice show as great a change in the opposite direction (—10.4 per cent ±3.4), and MacDowell and Lord[4] have called attention to the fact that when all question of the modification of the sex

[1] Bluhm, A., *Arch. Rass. Gesel. Biol.*, 1924, xxvi, 1.

[2] Danforth, C. H., PROC. SOC. EXP. BIOL. AND MED., 1926, xxiii, 305.

[3] Gyllenswärd, C., *Bidrag Till Fragan om Alkoholverkningars Ärftlighet.*, Stockholm, 1923.

[4] MacDowell, E. C., and Lord, E. M., *Anat. Rec.*, 1925, xxxi, 143.

ratio by prenatal mortality was removed by using only complete litters (so judged by the number of the corresponding corpora lutea) the primary sex ratio given by litters from heavily alcoholized fathers and normal mothers (50.3 per cent males, based on 308 mice) showed no significant deviation from the primary sex ratio from normal parents (49.9 per cent males, based on 523 mice).

The present report gives the sexes of 2133 mice from normal mothers by fathers given completely anesthetizing doses of alcohol fumes five days a week, beginning at the age of four weeks and continued over a year, to the end of the experiment; and 2322 mice from the same normal mothers by normal fathers, brothers of those treated. The treatment was given by inhalation, in one pint milk bottles; for each treatment 3 cc. 95 per cent alcohol was poured on a piece of absorbent paper which was placed in the bottle with the mouse, a regular milk bottle cap inserted and the bottle inverted. The time necessary to produce complete anesthesia varied; 45 minutes for the mice of four weeks, for adults, depending on the condition of the atmosphere and the mouse, one to two hours. The control males were bottled in the same way at the same times, but with no alcohol.

Comparability of the treated and control fathers was obtained by using four males from the same litter as the unit experiment; two of these, chosen by a system ensuring random selection, were treated, the other two used as controls. Uniformity of conditions of gestation and other influences of the mothers was ensured by mating each female (16-20 in each experiment) alternately with a treated and control male. All females were from the same inbred line and within two weeks of the same age, three to four weeks older than the males in the experiment. The females in each litter were equally divided between treated and control males for their first matings; subsequent matings by the other males in rotation, controls always alternated with treated males. The young were killed and sexed on the day of birth and the mother mated at once with the next male. Four unit experiments were undertaken in which males from the Bagg albino line were used, and four experiments in which males from the Dilute-brown line were used.

Table I gives a summary of the results with the probable errors for the deviations from a 1:1 ratio. The totals from the four experiments with the Bagg albino males show a slight excess of

males from the controls and a slight excess of females from the treated fathers. The four experiments with the Dilute-brown males give a slight excess of females from the controls and a slight excess of males from the treated fathers. In no case does the deviation from equality even approach statistical significance. Unless some unrecognized influence has not been controlled in these experiments the results seem conclusive that the treatment of the males with heavy doses of alcohol fumes has not modified the sex ratio.

TABLE I.

	From treated fathers			From control fathers		
Line of father	No. of mice	Per cent males	Deviation from 50 %	No. of mice	Per cent males	Deviation from 50 %
B. alb.	1261	48.69	-1.31 ± 0.95	1283	51.60	$+1.60\pm0.94$
D-br.	872	50.57	$+0.57\pm1.14$	1039	49.76	-0.24 ± 1.05
Total	2133	49.46	-0.54 ± 0.72	2322	50.77	$+0.77\pm0.70$

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The vitamin content of oysters.

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A twofold interest is connected with a study of the vitamin content of oysters. They constitute an important and an extensively used item of food. Furthermore, the material upon which they feed consists largely of diatoms and minute organisms, marine forms of life to which have been traced the origin of the fat-soluble vitamins found so abundantly in certain fish liver oils, such as that of the cod.[1]

So far as we are aware, no work has been hitherto reported on the vitamin content of oysters with the exception of that pub-

[1] Hjort, J., *Proc. Roy. Soc.*, Series B, 1922, xciii, 440; Drummond, J. C., and Zilva, S. S., *Biochem. J.*, 1922, xvi, 518.