treated groups. The mice were all young and thrifty; average weight, 18 grams. The three series were inoculated with carcinoma ten days later. The record of the tumors resulting from these inoculations shows a definite immunity in the series treated with homologous blood, but practically no difference between the normal controls and those receiving injections of their own blood.

These findings, then, indicate that immunity against transplantable cancer in mice is, at least, not regularly induced by injections of an animal's own tissues. A larger series would probably be necessary to determine the existence of individual variations in the reaction of animals to such injections.[1]

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Another case of sex-limited heredity in poultry.

By C. B. DAVENPORT.

[*From the Carnegie Institution of Washington.*]

To the four or five described cases of sex-limited heredity in poultry another is added.

The Jungle-fowl and its derivative, the Brown Leghorn, have the hackle and saddle feathered "laced" with red. The upper wing coverts of the cock are also red, forming the "wing bar." In the Dark Brahma, on the other hand, the red is not formed on the hackle and saddle and is nearly absent on the wing bar of the male, so that the red is replaced by white.

If, now, a male Dark Brahma be crossed with a female Brown Leghorn, or if the cross be made in the opposite direction, all sons are white-laced; but the wing bar is red. Thus, in these sons the white lacing is dominant but the white wing bar appears to be recessive. The most important point, however, is that the sons derived from the reciprocal crosses are practically indistinguishable.

With the daughters this is by no means the case. When the father is white-laced, the daughter is also; but if the father is red-

[1] A second set of experiments has been done which shows a slightly larger percentage of resistant animals among those immunized with autogenous tissue than among the normal controls. The difference, however, is not sufficiently striking to influence the conclusion drawn from the first experiments.

laced the daughter is likewise; *i. e.*, the daughter's lacing comes from the father's side of the house only.

The explanation is simple on the assumption that the lacing is linked with the sex-chromosome, following the scheme of transmission of the sex-chromosome as worked out by Stevens, Wilson and Morgan. While the male of poultry must have two somatic sex-chromosomes the female has only one. Therefore, while all sperm possess a sex-chromosome, only half of the eggs do. In the fertilized egg or zygote that has only one sex-chromosome, this is derived from the father and the zygote becomes a daughter. Hence the daughter "inherits" from the father only.

The hybrids have been bred together and a second generation has been obtained. When the hybrid male is mated to a white-laced hybrid female all the sons are white-laced while half the daughters are white-laced and half red-laced. But when the hybrid male is mated to a red-laced female half of the sons are white-laced and half red-laced while half of the daughters are white-laced and half red-laced as in the reciprocal mating. This result accords with the hypothesis.

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The gastric and pancreatic secretions of the newborn.

By **ALFRED F. HESS.**

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I have been able by means of a simple duodenal catheter to obtain for the first time access to the duodenum in the living infant. This has enabled me to investigate the secretion of the upper part of the small intestine. This catheter is, in brief, merely a Nelaton soft rubber catheter No. 14 (F). That I actually do reach the intestine is proved by X ray photographs which I show.

The present report concerns solely newborn infants, which had never obtained any nourishment. I have found some interesting conditions not only as concerns intestinal secretions but also regarding the secretion of the gastric juice. It is noteworthy that there have been no previous investigations in this regard; in fact I have been able to find note of only one test of the gastric secretion of the newborn before it has been given food.