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Relation of Age and Breed to Susceptibility in Leucosis of Fowls.*

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The transmissible avian tumors discovered by Rous and his associates are not transferable to birds other than fowls. The similar tumor of Fujinami, however, has been successfully transmitted to ducklings (Fujinami, Gye). The infectious diseases of fowls caused by a filterable virus, such as fowl pest and fowl pox, are readily transmissible to several species of birds. Leucosis of fowls is, according to Ellermann and Bang, not transmissible to guinea fowls, doves and turkeys.

An investigation was undertaken to determine the relative susceptibility of various breeds of fowls to transmissible leucosis and the possibility of transmitting leucosis to birds other than fowls. It was first necessary to determine the influence of age on susceptibility to transmissible leucosis.

Three groups of Barred Rock chickens, each containing 6 members, were injected with 0.6 cc. blood of a leucemic fowl. The fowls of one group were about 4 months of age, of the second about one year and of the third over 2 years of age. The result of these inoculations is shown in Table I.

TABLE I.

Approximate age of fowls	No. injected	No. of inoculations		Average period incubation	Successful inoculations	
		Successful	Unsuccessful		Recovered	Died
4 months	6	4	2	days 22	0	4
1 year	6	4	2	46	2	2
Over 2 years	6	2	4	48	1	1

This table indicates that older birds are less susceptible to transmissible leucosis than younger birds and that the period of incubation is shorter in the younger birds.

All the breeds of the domestic fowls that were tested were susceptible to transmissible leucosis. The fowls used for these tests

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were 4 to 5 months old and were inoculated intravenously with 0.6 cc. of leucemic blood. Of 6 Barred Rocks, 4 acquired leucosis; of 6 White Leghorns, 4; of 6 Rhode Island Reds, 2; of 6 mixed breed, 2. In another series of inoculations of 6 Bantams, all acquired leucosis.

Of the gallinaceous birds, other than domestic fowls, the Guinea fowl was tested and all of the 10 young Guinea fowls that were injected resisted the inoculation. Likewise unsuccessful were the attempts to transmit leucosis to 12 pigeons.

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Fate of Leucemic Blood of Fowls After Transfusion.*

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Leucemic blood was transferred into healthy animals and the fate of the immature leucocytes was followed in the circulating blood and in the blood forming organs of the recipient. Such a study might reveal whether leucemia is the result of multiplication of the transfused immature leucocytes in a susceptible host. In addition, the fate of the transmissible agent in the blood of the recipient was studied because it was assumed that if leucosis were secondary to infection, the infective agent might be recovered from fowls that exhibited no leucemic blood changes.

The fate of transfused leucemic cells. Six young chickens were transfused with 20 to 35 cc. of the blood of fowls with severe myeloid leucemia, after 13 to 35 cc. of blood had been removed from the circulation of each recipient. Following transfusion, there was an immediate increase of the leucocyte count. Leucocyte counts of the blood of donors and recipients, mixed *in vitro* in proportions estimated to be those in the recipients, gave values from 2 to 3 times as high as those found in the recipients 30 minutes and 1 hour after transfusion. Figures for red cells and hemoglobin in the mixtures, on the other hand, agreed roughly with the figures found in the transfused animal. This observation indicated that leucocytes had been removed from the peripheral circulation. There was a slight further fall in the leucocyte counts during periods

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