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Immunity of the White Rat to Superinfestation with Cysticercus Fasciolaris.

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The only previous report of acquired immunity to cestodes is that of *Taenia solium;* Brumpt[1] states that its presence in the intestine of man prevents added infestation. The experiments here reported demonstrate that one or more larval tapeworms in an advanced stage of development in the liver of the white rat confer a degree of immunity to subsequent infestation. The data are from 2 sources: incidental cases from experiments in which artificial immunity to *C. fasciolaris* was demonstrated,[2] and experiments designed to test acquired immunity directly.

During 4 years' work we have found from time to time rats which harbored one or more huge cysts, as a result of accidental infestation before purchase or in the laboratory. These were discovered at autopsy, 42 days after stock rats, used as controls to artificially immunized rats, were fed by stomach tube with equal amounts of a uniform suspension of onchospheres. Large numbers (21 to 370) of developing larvae (usually 5 mm. in diameter) were found in the liver of control rats, except in the occasional one which had been accidentally infested some months before. In

[1] Brumpt, E., (text-book) 1922 426.

[2] Miller, H. M., Jr., PROC. SOC. EXP. BIOL. AND MED., 1930, **27**, 926.

these only one huge cyst was present, with small numbers (0-31) of minute dead ones in some cases.

Two lots of rats were experimentally infested on June 6, 1930. Half were again fed onchospheres on October 23 and half on November 7; in each case control rats received equal numbers of onchospheres. Four animals from each lot, and the same number of controls, were autopsied 42 days later, on December 4 and December 18. The remaining animals were reserved for other purposes. The autopsy findings show that the eggs of the second feeding developed in the uninfested control rats and were entirely inhibited in the rats containing 6 months old cysts.

	CONTROLS	PREVIOUSLY INFESTED RATS	
	Average No. of Cysts	Average No.	
		6 Month Cysts	Minute Dead Cysts
Lot 1	113	22	0.25
Lot 2	124	24	0.75

It may be concluded, therefore, that infestation with *Cysticercus fasciolaris,* of from 3 to 6 months' standing, protects the rat host against superinfestation. Experiments are under way to determine whether very large feedings of eggs will override the protection; whether a few very old cysts will furnish as much protection as a large number of younger ones; whether the immunity will disappear, and at what time, after the worms are removed from the huge cysts.

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Observations on the Formation of Wheals. IV. Influence of Calcium Concentrations upon Histamine Wheals.

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We[1] reported that an unidentified substance could be extracted from the skin of dogs which is capable of augmenting histamine wheals. We have now identified this substance as calcium in a certain zone of dilution and only within this zone, as follows:

The proteins in the water extract were precipitated by alcohol. The alcoholic filtrate was evaporated and the residue extracted with

[1] Weaver, W. K., McConnell, F. H., and Alexander, H. L., PROC. SOC. EXP. BIOL. AND MED., 1930, **27**, 486.