

THE EFFECT OF THE SERUMS OF VARIOUS ANIMALS UPON DIFFERENT SPECIES OF CERCARIAE

Species of cercariae	Group of cercariae	Vertebrate serums						
		Man	Rat	Cat	Herring gull	Water snake	Green frog	Bullhead fish
<i>Cercaria of Schistosomatum douthitti</i> ³	Schistosome	o	o	o	o	+	+	
Undescribed cercaria	Schistosome	⊕	+	o	⊕	+	+	
<i>Cercaria elephantis</i> ⁴	Schistosome	+	+	o	+	+		
<i>Cercaria physae</i> ⁵	Strigeid	+	+	o	+			+
<i>Cercaria of Diplostomum feticaudum</i> ⁶	Strigeid	o	⊕	o	⊕	⊕	+	⊕
<i>Cercaria of Diplodiscus temperatus</i> ⁷	Amphistome	+	+	o	+	+	+	

+ : all cercariae killed ; ⊕ : some cercariae killed ; o : no cercariae killed.

that the serums of many animals have a definite cercaricidal action, the parasites readily losing their characteristic activity and finally becoming so distorted in shape and appearance as the result of contact with the serum that they could not be recognized as cercariae. The substance in the serum responsible for the cercaricidal action is inactivated by heating or desiccating the serum and is quickly lost by the serum in storage.

The relative potency of the cercaricidal action of a serum can be estimated by determining the greatest dilution of serum in physiological salt solution which, added to an equal volume of a suspension of cercariae, kills all the organisms after the mixture is incubated for 1 hour at 37° C. A total volume of fluid of 1 cubic centimeter containing from 25 to 75 cercariae generally proves satisfactory in the test.

Serums of representatives of all classes of vertebrates manifest the cercaricidal action, the following, among others, having been tested for the property: mammals—man, cat and white rat; birds—domesticated duck and herring gull (*Larus argentatus smithsoniaensis*); reptile—water snake (*Natrix sipedon sipedon*); amphibian—green frog (*Rana clamitans*); and fish—bullhead (*Ameiurus nebulosus*). All these serums, save that of the cat, were found active against at least some species of cercariae, although the cercaricidal titers varied between broad limits. For example, against a strigeid, *Cercaria physae*,¹ the titers of human, rat, cat and duck serums were, respectively, 1:48, 1:192, zero and 1:24. Representatives of each of the different groups of cercariae tested proved susceptible to the action of the serum, although they differed much in their susceptibility to specific serums. If, finally, conclusive evidence can be adduced for the

existence of a relationship between the cercaricidal action of the serum and the resistance of a given vertebrate to infection with a specific cercaria, the cercaricidal test with serum would assume importance in the selection of vertebrate hosts in experiments to complete trematode life histories.²

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² To be published in *extenso* in the *Journal of Parasitology*.

³ Cort, *Jour. Parasitol.*, 1: 65, 1914.

⁴ Cort, *Jour. Parasitol.*, 4: 49, 1917.

⁵ Cort and Brooks, *loc. cit.*

⁶ *Idem.*

⁷ Krull and Price, Occasional Papers of the Museum of Zoology, University of Michigan, Ann Arbor, No. 237; 1, 1932.

BOOKS RECEIVED

GOURLEY, JAMES E. and ROBERT M. LESTER. *The Diffusion of Knowledge*. A list of books made possible wholly or in part by grants from Carnegie Corporation of New York and published by various agencies during the years 1911-1935. Pp. x+314. Carnegie Corporation of New York.

HASLETT, A. W. *Unsolved Problems of Science*. Pp. xi+316. Macmillan. \$2.00.

HUEY, EDWARD G. *A Child's Story of the Animal World*. Pp. 355. Illustrated. Reynal and Hitchcock, New York. \$3.50.

JAFFE, BERNARD. *Outposts of Science*. A Scientific Book Club selection. Pp. xxvi+547. 44 plates. 33 figures. Simon and Schuster. \$3.75.

KRAFFT, CARL F. *The Mechanistic Autonomy of Nature*. Pp. 120. 25 figures. Author, Washington, D. C. \$1.00.

LOWELL, A. LAWRENCE. *Biography of Percival Lowell*. Pp. ix+212. 6 plates. Macmillan. \$3.00.

MOULTON, FOREST RAY. *Consider the Heavens*. Pp. xi+332. 55 plates. 15 figures. Doubleday, Doran. \$3.50.

¹ Cort and Brooks, *Trans. Am. Micros. Soc.*, 47: 179, 1928.