

and the high mortality observed is suspected. Field studies are still in progress.

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THE ROUTE OF INFESTATION AND THE SITE OF LOCALIZATION OF LUNG-WORMS IN MOLLUSKS

THE proper study of the pathogenesis of the lesions in the lungs of vertebrates infested with lungworms is only possible, if we know the infestive stages of these parasites. From an economic point of view these stages have to be known to enable us to provide means for their control. Previously we demonstrated that a large group of lungworms of ruminants develops in certain pulmonata.^{1,2,3,4} In the present work we wish to point out the route of infestation and the final site of localization of the parasites in their intermediate hosts.

The first stage larvae of these nemas, when brought in contact with the proper snails or slugs, bury themselves in the furrows of the sole of these intermediate hosts. A few hours later they may be seen entering the epithelial lining of the sole, after which they disappear in the layers of the muscular connective tissue of the foot. The pores of the foot glands facilitate this invasion, which takes place throughout the field of the furrows of the sole. The longitudinal sulci, if present, are preferred places of entrance. About twenty-four hours later the larvae coil up and the beginning of the formation of a parasitic tubercle is visible. Serial sections in transverse, sagittal and horizontal directions disclose that the nodules are restricted to the muscular connective tissue, which lays between and just above the foot glands. No further migrations can be observed. In the course of a few weeks the enclosed larvae molt twice and grow considerably. These larvae represent the in-

festive stages. The propagation of the parasites depends upon the ingestion at this stage of the intermediate hosts by the definite host. First stage larvae swallowed by the mollusks perish. Larvae entering the pedal cavity gland are rarely found.

The observations demonstrate that the localization of lungworms infesting mollusks is quite different from that observed for tapeworms or trematodes under similar conditions. They disclose a new type of infestation of mollusks with parasites of vertebrates.

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A SPECIFIC CONTAMINATION FOR THE PRODUCTION OF PSEUDO-RADIOACTIVITY

SOME years ago I was confronted by what seemed artificially produced radioactivity. After the impingement of high velocity electrons on a platinum plate in vacuum, this plate subsequently seemed to emit high velocity electrons. The rate at which this pseudo-emission took place decayed to half value in about five days. The two apparent elements of radioactivity were discharge against high voltage and exponential decay thereof.

The simple experiment warrants reporting only to save others from this false trail. There was formed on the platinum plate a hydrocarbon deposit about 20 molecules in thickness. The impinging electrons became entangled in the hydrocarbon deposit, and of course bound equal positive charges. The apparent releasing of high velocity electrons was only the manifestation of the release of the bound charges, entangled in the hydrocarbon deposit.

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SCIENTIFIC APPARATUS AND LABORATORY METHODS

A SIMPLE AUTOMATIC PUMP

IN some work with the heart-lung preparation, an automatic pump was necessary in order to circulate a varying flow of blood against a pressure of 100 to 200 mm of mercury, in a system closed to room air. The pump here described meets these requirements and is simple in design and can be constructed without special parts. With the materials listed below, it can be assembled in 45 minutes.

¹ A. and M. Hobmaier, "Ueber die Entwicklung des Lungenwurmes *Synthetocaulus capillaris* in Nackt- und Schnirkelschnecken," *Muenchener tieraerztl. Wochenschrift*, 80: 36, 1929.

² A. and M. Hobmaier, "Limax und Succinea, zwei neue Zwischenwirte von *Muellerius* (*Synthetocaulus*) *capillaris* des Schafes und der Ziege," *Muenchener tieraerztl. Wochenschrift*, 80: 23, 1930.

1—6" length of 1" glass tubing.

3—Rubber stoppers, No. 7.

1—Small bottle, diameter of mouth 1".

1—Toy balloon, $\frac{3}{4} \times 3$ ".

5—3" lengths of 3 mm glass tubing.

Dental Rubber Dam.

The pump follows conventional design except for the substitution by a rubber balloon for the usual

³ A. and M. Hobmaier, "Life History of *Protostrongylus* (*Synthetocaulus*) *rufescens*," *Proc. Soc. Exper. Biol. and Med.*, 28: pp. 156-158, 1930.

⁴ A. and M. Hobmaier, "Elasphostrongylus *odocoilei* n. sp., a new lungworm in Black Tail deer (*Odocoileus columbianus*). Description and life history," *Proc. Soc. Exper. Biol. and Med.*, 31: pp. 509-514, 1934.