

1831, and *Naidium* by O. Schmidt in 1847. In 1875, Beddard combined them under the prior name. In 1900, Michaelsen restored them as separate genera, and again combined them in 1909. These two genera are more alike than any other two genera in the family Naididae, and than many species in some of the genera. They differ only in the development of the prostomium, which varies widely within the same species, and in the presence of bifid setæ in the dorsal bundles of *Naidium*. This is no more reason for keeping them apart than it would be to make *Nais tortuosa* and *N. parviseta* separate genera, because the latter has bifid setæ in the dorsal bundles. Michaelsen, in recombining the two species, gives no reason for so doing; but Walton (*American Naturalist*, Vol. XL, 1906, p. 705) says:

The absence of any tentacular process in *Naidium osborni* suggests that until a species is found in which the process is well developed and in which the dorsal bundles contain biuncinate setæ, the genera may be considered distinct.

Walton prophesies the finding of such a species, and apparently suggests the inference that when such a species is found the genera need no longer be considered distinct. This species has been found and will be more fully described in a later paper on the Naididae. It was found at the University of Virginia in the spring of 1909, in an aquarium stocked from a small pond in the neighborhood. It differs from *Pristina breviseta* of India only in length, being considerably shorter, not exceeding 8 microns in length, but is otherwise identical and it seems best not to establish a separate species to receive it. In the American forms of this species the tentacular process varies greatly in length. In one individual it was not developed at all, in others it was developed to a length of several microns, and intermediate lengths are numerous. There are always, however, the bifid needle-like setæ in the dorsal bundles. But if we are to make this a generic character, why not make the presence of serrations on the capilliform setæ a generic character? And while we set off those forms with the bifid setæ in the

dorsal bundles and no well-developed tentacular process, what shall we do with *Pristina dadeyi*, which has neither tentacular process nor bifid dorsal setæ? Michaelsen's recombination of the two genera, therefore, is confirmed by the finding of this form, and it is correct to include under the head of *Pristina* all the species hitherto described under the heads of *Pristina* and *Naidium*, whether the prostomium be tentacular or not, whether the capilliform dorsal setæ be serrated or not, and whether the dorsal bundle contain a bifid needle-like seta or not. These characters are found in parts which vary greatly and the great resemblances among the various species in the position of the setæ and of the internal organs are more important.

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CONCURRENT INFECTION BY FIVE SPECIES OF INTESTINAL WORMS, INCLUDING SCHISTO- SOMA MANSONI

INSTANCES of the presence of two or more species of parasitic worms in one person are common and many such are on record. To cite some of the more recent literature, Garrison and Stiles, '06, in an examination of 3,457 persons, found that thirty-five harbored two species of intestinal parasites and that one was infected with three species. The Porto Rico Anemia Commission, in the course of its very extended studies, found frequent instances of double infection, not rarely triple infection, and, in two cases, determined the presence of four distinct species. Piraja de Silva, '09, working in Bahia, Brazil, reports several similar cases of quadruple infection. A case which has recently come to my attention is of interest not only as an extreme case of concurrent infection but as one of the few known instances of the occurrence of the blood-fluke, *Schistosoma mansoni*, in the United States.

On May 3, a local physician sent to me, with the request that I make a blood examination, a Porto Rican who exhibited obscure symptoms suggestive of filarial infection.

The patient, who was a young man twenty-five years of age, had been in this country for five years, except for three brief visits home. The fresh blood was carefully examined and smears to be stained were made, but on account of the well-known periodicity in the appearance of filariæ in the peripheral circulation, the patient was requested to return at night.

In the meantime, the blood smears were stained with the Nocht-Jenner-Hastings stain and examined for possible malarial parasites. None were found, but there was a marked eosinophilia (20 per cent.), such as is often due to infection by parasitic worms.

When the patient returned, a search for blood filariæ was made, with negative results. On account of the eosinophilia, a sample of the feces was then examined microscopically. In this were soon found the large, characteristic eggs of *Schistosoma*, a very few of *Ascaris lumbricoides*, and many larvæ of *Strongyloides stercoralis*, the Cochin China diarrhea worm.

When the result of the examination was reported to the physician in charge of the case, the usual treatment with purgatives and anthelmintics was adopted. Unfortunately, the patient made no effort to save the specimens dislodged, except that a sample, taken some hours after the treatment, was sent me. In this sample the three species above mentioned were present, the number of larvæ of *Strongyloides stercoralis* being much larger than in the first sample. In addition, there were found a small number of the eggs of the hookworm, *Necator americanus*, and of the whipworm, *Trichuris trichiura*. I afterwards learned that following the medical treatment, a full-sized *Ascaris* had been voided.

Thus this patient harbored five distinct species of parasitic worms, differing from the two cases reported by the Porto Rico Anemia Commission by the presence of the larvæ of *Strongyloides stercoralis*. Excepting those of *Schistosoma*, the eggs of the various parasites were but few in number.

The many eggs of *Schistosoma* were all

lateral-spined. In view of the discussion as to whether this type of eggs is from a species distinct from *Schistosoma hæmatobium*, a careful examination of the urine was made. No eggs or traces of them were found, although it is here that the typical, terminal-spined eggs of *Schistosoma hæmatobium* are most readily demonstrated. Neither was there any history of bloody urine, or evidence of blood corpuscles in the fluid—symptoms commonly associated with the presence of the ova of *Schistosoma hæmatobium* in the urinogenital system. This is in agreement with the evidence recently brought forward by Sambon, Holcomb and others to show that the West Indian and South American schistosomiasis is due to a distinct species, which also sometimes occurs in association with the better-known species in Africa. To this species with lateral-spined eggs, Sambon, '07, gives the name *Schistosoma mansoni*.

The few records of the occurrence of *Schistosoma* in the United States are all, like the above, of imported cases. Most of them are recorded from transient visitors, or from soldiers returning from South Africa, and refer to infection by *Schistosoma hæmatobium*, terminal-spined eggs having been found in the urine. WM. A. RILEY

SOCIETIES AND ACADEMIES

THE ELISHA MITCHELL SCIENTIFIC SOCIETY

THE 29th annual meeting of the society was held on September 27 in Chemistry Hall, University of North Carolina, with the president, Dr. W. B. MacNider in the chair. The following officers were elected:

President—Dr. E. V. Howell.

Vice-president—Professor P. H. Daggett.

Permanent Secretary—Dr. F. P. Venable.

Recording Secretary—Dr. J. M. Bell.

Editorial Committee—Dr. W. C. Coker, Professor A. H. Patterson, Dr. J. M. Bell.

The following new members were elected: Dr. W. H. Brown, Messrs. T. R. Eagles, J. W. Lasley, J. G. Beard, A. M. Atkinson, C. S. Venable, J. E. Smith, W. C. George.

JAMES M. BELL,
Recording Secretary

CHAPEL HILL, N. C.