Distribution of Hookworm Disease in the United States,"(4) attached to which will be found a very comprehensive bibliography of general literature relating to ankylostomiasis in various quarters of the globe.

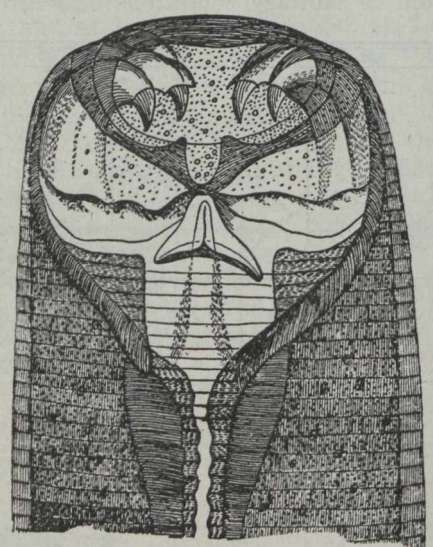
Recent continental writings are more voluminous, and apart from the monumental works of Perroncito, Leichtenstern, Looss, and other eminent European authorities, which are purely medical treatises, reference may be made to the published report of the Commission appointed by the German authorities to enquire into the Westphalian epidemic, and to various articles that have been contributed by medical correspondents to "Glückauf," the semi-official organ of the Westphalian coal operators.

But the most recent and perhaps the most important contribution from the standpoint of the mining engineer is a work published in 1906 by Drs. Calmette and M. Breton, of the Pasteur Institute at Lille(5), which covers with painstaking detail the whole subject, and the authors state in their preface was in part written especially for the benefit of the mining profession. Attached to the work is a comprehensive collection of official documents issued in various countries bearing on the disease, and a chronological index to all literature relating to ankylostomiasis from 1878 to 1904. The work has received the fullest appreciation in England and on the continent, and the authors have been honored at the hands of several learned societies in recognition of their labors. It is to be hoped that the book will some day appear in an English translation. A very free use of the text has been made in the following notes.

As will be gathered from a study of the natural conditions most favorable to the life cycle of the ankylostome, it is chiefly to be found in tropical and sub-tropical countries, and is more especially associated with low-lying and damp localities. In the temperate zones it will as a rules be found only where these conditions are artificially produced. Broadly speaking, the parasite will be found to occur normally on either side of the Equator, between the fortieth parallels (see illustration). Within these limits the disease may be endemic, and the population may be affected as a whole, as in Egypt, where it is stated no social class is immune, or in Porto Rico, where practically every inhabitant is more or less infected. Outside these limits the occurrence of the disease in anything approaching an epidemic form will as a rule be incidental to industrial operations in the course of which an artificial environment is created which is favorable to the propagation of the parasite; such conditions as, for instance, occur in the neighborhood of large brick kilns, in hot, moist, unsanitary mines, and in deep tunnelling. The persons affected, therefore, are likely to belong to distinct industrial classes, and the disease will assume the aspect of a trade malady (Berufskrankheit).

The disease is not new, and Sandwith states that the symptoms of a malady described in an ancient Egyptian papyrus, written so long as 3,450 years ago, leave no doubt that this sickness was well known to the physicians of that far-off day. The first recorded description of the ankylostome itself was given in the year 1838 by Angelo Dubini, who discovered the worms in the intestines of a young Italian peasant who had died in the hospital at Milan.

According to the various authorities cited by Dr. Calmette, ankylostomiasis is endemic over the whole of Egypt, Abyssinia, Ethiopia, along the shores of the Red Sea, and in fact over the African littoral generally. It is fairly widespread among the natives of British Central Africa, which, considered in connection with the fact that ankylostomiasis is common among the agriculturists of Southern China, suggests the advisability of preventive measures in the deep mines of the Rand. In Asia it is found over that portion of the continent extending from India through Cochin China and Siam to China and Corea. It is found in Japan, particularly round Nagasaki, in Formosa, and throughout the whole of the Malayan archipelago. In Australia it exists in the northern portion of the Island, especially in Queensland. In America it affects practically all the continent lying between the fortieth parallels. The American



Dorsal view of interior end of the Old World Hookworm greatly enlarged.

species differs in some respects from the Old World ankylostome, but these differences are only minor, precisely the same symptoms being produced by their presence in the human body. Full particulars of the extent of the hookworm disease in the United States may be gathered from Dr. Stiles' report before referred to. Dr. Stiles made a visit to the Southern States in the winter of 1902, studying the disease on the ground, more particularly in the Carolinas, Georgia and Florida, and found the disease widespread, particularly in sandy districts. In his report he writes: "Speaking in general terms, however, the facts at my disposal at present seem to indicate that, taking the Southern Atlantic States as a whole, uncinariasis must be considered as one of the most common and widspread maladies . . . Among the whites of the rural sand districts uncinariasis is apparently the most common disease found." He further states: "In all probability further study will show that in Mexico, Central America and parts of South America, hookworm disease is more important and more common than in the United States." Speaking of the economic bearing of the hookworm disease, Dr. Stiles draws a very depressing picture of the poverty and mental backwardness among the "poor whites" of the infected districts, and to quote further, he says:

(1) Home Office Cd. 1318—1902. Price 4d.
(2) Home Office Cd. 1843—1903. Price 2d.
(3) Trans. Inst. Min. Eng., pages 183-201, 1904; Trans. Inst. Min. Eng., pages 196-211, 1905.
(4) Hygienic Laboratory Bulletin, 1903, No. 10.
(5) L'Ankylostomiase (Anémie des Mineurs), Mason et Cie, Paris, 5 fr.