Gottheil, a very finely illustrated article, afterward published in book form—that we have become more active possibly in reporting cases and speaking about it.

I have employed for the past fifteen years various known surgical measures, and beginning with pyrogallol have continued to arsenic, going through them all, including electrolysis, which has been mentioned. I believe all are good in some cases. I have used electrolysis about the eye on small epitheliomata with excellent results, with very little scarring, and as far as I know now without return. I can say with Dr. Corlett, that those which I operated on to a finish with electrolysis have not up to the present time returned to my office. Whether they remained cured or not I can not say absolutely. Where the disease has gone deeply, arsenic is the best remedy, for the reason of its elective influence.

DR. W. S. GOTTHEIL, New York City.—I am glad to hear Dr. Stelwagon take the position that he does with reference to the treatment of cutaneous cancers, and so admirably defend a position which I believe to be absolutely correct. Entirely too much deference has been paid to the opinion of surgeons on these points. We have no excuses or apologies to make at all. We believe that we can prove that better results, both as regards permanent cure and cosmetic effect are gotten from the caustic treatment of the very great majority of cutaneous carcinomata than obtained with the knife. I can recall cases treated as long as fifteen years ago, and still under occasional observation, in which the results have been absolutely satisfactory, and in which the scarring is so superficial that a close inspection is required to see it. Some of these were quite extensive; and while I have never hesitated to use the various caustic agents over the necessary area, however large, I have never seen a case of arsenical or other poisoning result.

Arsenic is the most appropriate agent in the great majority of cases. Near the natural openings, or on the mucous membranes, nitric acid or the acid nitrate of mercury, or the potash, etc., is preferable. Only in a very few cases, where for any reason the chemical agents are inapplicable, should the knife be employed. The notoriously large number of returns after its employment should lead us to restrict its field as much as possible. I am a firm advocate of the principles of treatment that Dr. Stelwagon has laid down.

DR. R. A. McDONNELL, New Haven, Conn.—The use of caustics on the skin is generally prefaced by an apology for not using the knife. If we have once made up our minds to use a caustic, then it seems to me that the caustic selected should be one that will act deeply, promptly, and without too long-continued pain. Caustic potash has those qualities. After the use of caustic potash in a very considerable number of cases of skin cancer, I wish to add my testimony to its excellence for this purpose.

TENIA FLAVOPUNCTATA.

WITH DESCRIPTION OF A NEW SPECIMEN.*

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The patient from whom the specimen that forms the basis of this report was obtained was a woman aged 40, born in Syria, and admitted to the ward of Dr. A. V. Meigs, at the Pennsylvania Hospital, on Jan. 11, 1899. Owing to her inability to speak any but the smallest amount of English, her past history could only be obtained with great difficulty. The complaint for which she was admitted was a pain in the right side of the abdomen, dating back about three years. This pain was found later to be due to a suppurating hydatid cyst of the liver, from which she finally died. There is nothing in the history in connection with the parasite that I show except that shortly after admission she passed a segment of a tapeworm measuring 16.5 cm.

in length. This was given me for identification by Dr. Meigs, and it is through his kindness that I report the case.

The specimen was handed to me in 70 per cent. alcohol, and presented the characteristics which will be described later. The patient died from septic poisoning on February 4, and I had the opportunity of performing the autopsy. The only point of interest in connection with the specimen was that on opening the intestines there was found a second specimen of parasite 2.5 cm. above the ileocecal valve. The parasite was living when found, actively moving, and with a small knot quite tightly tied 15 cm. from its lower extremity. The head was plainly seen. On examining both specimens it was evident that we had to deal with a cestode differing from those ordinarily seen in this country.

The total length of the section of worm passed during life was 16.5 cm. The smaller segments, at what appeared to be a point near the neck, measured 3 mm. transversely by 2 mm. in length; at the larger end the breadth of the segments is 7 mm. and the length 1 mm. In most of the segments there is seen at one edge a little elevation extending in from the edge about 1 mm., corresponding, apparently, to what has been spoken of in some specimens as the yellow spot. These little elevations do not form a complete series, as occasionally there is found a segment where the elevation is on the opposite side of the segment. There is no appearance about the worm of a true yellow spot. On dehydrating segments in absolute alcohol and clearing in oil of cloves there is seen in each of a series of 7 segments a dark line less than 1/10 of a millimeter in thickness extending inward toward the center of the segment to a length of 3 mm. These dark lines have a rather brownish color in contrast to the yellow color of the rest of the segment. Even with a low power it can be seen that there are no branching uteri, but that running up to near the periphery of each segment there is a dark area, which on magnification proves to be an egg sac. The dark brownish line spoken of does not always run inward from the corresponding side of neighboring segments; thus in the 7 segments spoken of it extended inward from one side in 5, from the opposite side in 2. Thus, beginning at one end in the first segment the line ran from the left-hand edge as the specimen was held; in the second from the right-hand edge; in the third from the left-hand edge; in the fourth from the right-hand edge; in the fifth, sixth and seventh from the left-hand edge. With a higher power this brownish streak is found to be evidently a canal. In some specimens this is more clearly defined than in others, and in some the inner extremity seems to terminate in a bulbous enlargement. The main portion of the body of the segment is seen to be made up of a thin-walled sac filled with eggs. In many of the segments the brownish streak mentioned above can not be seen, either with the naked eye or under the microscope.

The specimen obtained after death was 27 cm. long and different in its appearance from that passed during life in no way except for the presence of the head and of a short neck, and for the difference in color. The specimen passed during life was of a brownish-yellow color, while that found at autopsy was almost pure white with a faint-yellow tinge. A closer examination shows that this specimen consists of a head and of a short neck separated from the former by a slight constriction, and of a segmented body. The head is distinctly black at the tip, the color being shown to have

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a distinctly purplish tinge on a magnification of 10 diameters. It is flattened from side to side and measures 1 mm. by 0.5 mm. The disposition of the pigment in the head is rather peculiar, it being arranged somewhat as are the leaves of a four-leaf clover, as though each division represented the sucking discs seen in other tenia. No distinct cupping can, however, be seen. Just below the head there is a distinct constriction. The neck is short and broad, measuring about 1 cm. in length by 1.5 mm. in breadth. At a distance of 1.5 cm. from the head distinct transverse striations can be seen with the naked eye, the markings evidently indicating division into proglottides. The segments differ in no wise from those described above that were taken from the specimen passed during life, except for the fact that the brown transverse streak is visible in very few of the segments. On clearing with oil of cloves after dehydrating in absolute alcohol, there is seen to be the same arrangement of the egg sac that is present in the other specimen. In none of the segments of either specimen is there present any branched arrangement of the egg sacs, nor is there any central clumping, such as is seen in the *bothriocephalus latus*. It is evident, therefore, that this is not a variety of tenia ordinarily seen in this portion of the world, nor is it an example of *bothriocephalus*. In trying to identify this specimen I have come to the conclusion that it must be an example of the rare parasite, *tenia flavopunctata*. This has been described but six times as occurring in the human subject.

Weinland¹ describes a specimen which was supposed to be *bothriocephalus*, which was voided by an 18-months-old child, and came into the possession of Ezra Palmer, Jr. He describes a yellowish spot clearly visible to the naked eye situated about the middle of each joint. Six different specimens were comprised among the segments examined by him. No specimen showed the presence of either head or neck. The whole worm measured between 200 and 300 mm. in length. The segments full of eggs were oblong in shape with the transverse diameter longer than the longitudinal. The yellowish spot was found to lie near the middle line in the anterior part of each joint. It was found to be the testicle, which appeared under the microscope as a globular gland with a long, slender canal reaching out to the side of the joint. He states that the genital openings were situated all on one and the same side of the worm, a condition that is not present in the specimens that I report. The description of the uterus is as follows: "There is no main stem in the midst with lateral branches, but on the contrary the eggs are crowded over the whole joint. It sometimes appears as if they were arranged in straight lines along the joint, but this is certainly owing only to the regular lines of muscular contractions." "From a careful dissection of the young joints we should judge that it—the uterus—consists of globular blind sacs, located here and there in the joint, connected by fine tubes terminating finally in the vagina." The eggs are said to be very large and under a low power to appear as transparent balls with a yellow dot in them, while with a higher power three distinct egg shells were to be made out. He suggests the possibility that the cystic form of the tapeworm dwelt in an insect which had been swallowed by the child.

Leuckart examined segments of Palmer's specimen, which were sent him by Weinland, and figures of the segments accompany the article on this parasite in his work on the parasites of man. In the segments

which he examined he could distinguish nothing but a large number of eggs with their clear enveloping wall, and a club-shaped organ occupying a transverse position near the anterior border of the joints.

The second specimen was that described by Leidy.² In this case the worm was obtained from a 3-year-old child after the administration of *santonin*. The child was a native-born citizen of Philadelphia. The specimen is described as consisting of a dozen fragments which reached the length of about a foot or fifteen inches, or more, and were supposed to belong to three separate parasites. No head was present. The widest portion of the body of the specimen was 2.5 mm. in diameter. The joints or proglottides were described as being proportionally short, and the breadth was said to exceed the length several times. The pair of longitudinal vessels was said to be extremely well marked. The ripe joints were of a pale-brown color from the presence of contained eggs. Other joints smaller than those of the ripe ones were seen mingled with the others. The egg-cavity is described as being a simple sac bounded by thin walls of the joints. In the segments containing eggs nothing could be made out in regard to the structure of the generative apparatus, but in those without eggs he describes a narrow, clavate organ which he suspected to be the seminal receptacle. This organ is described as lying near the fore part of one side of the joints, commencing with its thick end near the median line and proceeding outwardly, somewhat tortuous and tapering, along the anterior border of the joints. The joints without eggs also showed scattered here and there from two to five rounded or oval bodies which were supposed by Leidy to be testicular. The longest fragment among the specimens examined by Leidy was 13 inches in length. This was supposed to represent a nearly complete worm, as the joints were very much smaller than the main portion. Leidy made a careful study in regard to the proportions and relations of the segments. All the segments were without eggs. The description of the eggs in his specimen was that they were raw-sienna colored, mostly spherical, and usually measuring .072 mm. in diameter. Embryos were described as oval and measuring .04 by .032 mm., and were provided with six hooks, arranged in three pairs. He states that previous to the specimen described by him the only example of *tenia flavopunctata* was that of Weinland. Leidy's specimen did not exhibit the yellow spot. In his specimen, as in that described by Weinland, the parasite was found in this country, and in both cases voided by children. In the latter respects my specimen differs from these two, inasmuch as it was found in an adult and in one who was a Syrian and had been but a short time in this country.

In the same year Parona³ described an instance of the occurrence of this same parasite in the fecal matter of a child aged 2 years. He found a few eggs of the *ascaris lumbricoides* and some resembling those of *T. solium*. After the administration of a dose of oil, two specimens of cestodes were obtained and a like number after the administration of *filix mas*. The four specimens were identical in character and measured from 12 to 20 cm. each. They looked like a small tenia with head, neck and body. The head was very small, the neck short and terminating after 3 or 4 mm. in the body, in which appeared distinctly the lines between the proglottides. The cuboidal head measured .5 mm. in diameter, with four oval cups of a diameter of 112 by 88 microns, and were placed above and obliquely. There was no rostellum and no ring of hooklets. The head passed

into the neck with a slight constriction. The length of the neck was 2 to 3 mm. The strobiles were short, trapezoid and with rounded angles. The proglottides are described as always broader than long and measured at least .5 mm., while the largest were 3 mm. in length. The width of the proglottides varied from .5 mm. near the neck to 4 mm. at the lower extremity. The mature proglottides were rich in eggs accumulating in the end of the segment and partly hiding the course of the ovarian duct. This duct was described as being somewhat club-shaped with its most slender part toward the margin of the proglottis. Parona states that it was always on the same side of the worm and appeared to be of a yellowish color. He notes the absence of a branching uterus. He describes the eggs as being found freely in the feces of the child, and as of oval shape and intense yellow color, and measuring 58 by 68 microns. The proscolices were of a distinctly oval shape, possessing hooklets and showing active movement. The eggs were described as being like those of the *T. solium*, the shell of double contour and one-third thicker than that of the last-named parasite. The description of Parona's specimen would apply almost precisely to the specimens that I present. These specimens described by Parona were made the subject of an article by Grassi⁴ in which he notes the resemblance between the specimens of Parona and the *T. leptocephala* of the mouse and rat. He explains the variation of Parona's specimens from those mentioned as being due to the changes occurring after the death of the parasite. He states that the arrangement of the genital organs, length of the tenia and the size of the proglottis are similar in the two worms. Grassi has advanced the view that a parasite so rare in the human species might be looked on as not having the human body as its regular host and its identity with ordinary parasites of other hosts should be in each case carefully investigated.

Adolf Lutz⁵ mentions the fact that Blanchard had collected only four cases, those of Palmer, Leidy, Parona and Grassi, the first mentioned being that described by Weinland. Lutz had brought to him in 1893 a specimen of tenia voided by a child after the administration of *santonin*. The specimen included the head. Four somewhat large sucking discs and a poorly developed rostellum without hooklets were present. The segments numbered 960, among which some were sterile. There was most resemblance between this and Weinland's specimen. Owing to the statement made by Grassi that a similar parasite infests the rodents he investigated the intestinal contents of the rats and mice in San Paulo, and found that frequently there was present a cestode which corresponded on the one hand to the *T. leptocephala* and on the other hand to the specimen obtained in the human subject. He therefore agrees with Grassi that the rat is the usual host of the *T. flavopunctata*. While making his investigations he found in the examination of the feces of a child aged 2½ years, born of foreign parentage but growing up in San Paulo, the eggs of a cestode resembling those of *T. nana*. In order to still further study the question as to the identity of the *T. flavopunctata* and the parasites found in the rat, he made a more complete study of the parasitic contents of the rats found in St. Paulo, examining the excrement from time to time for eggs, and found in one animal kept a long time after the discovery of eggs in the excrement two examples of the *hymenolopis diminuta* (*T. flavopunctata*), and a larger number of small tenia corresponding to the *hymenolopis nana* (*T. nana*). In a 4-year-old girl born in San Paulo examina-

tion of the stools discovered the presence of somewhat numerous eggs resembling those of *hymenolopis nana*. After the administration of an anthelmintic he found a very large number of small tapeworms, about 10 per cent. of which showed a head. These evidently were examples of *hymenolopis murina*.

It would seem from Lutz's article that there is little if any connection between the various parasites found by him in the rat and the supposed *T. flavopunctata* derived from his first patient. His description of the parasites found is quite brief, but in that of the parasites found in the rat there is not sufficient description to identify his specimens with the *T. flavopunctata*. The specimen that I present herewith is of such a size that it is inconceivable that the mouse or the rat could share with man the privilege of being the host of this parasite, unless in these animals the worm attains a far less size than is the case in the human being. It may be that the supposition of Grassi is correct and that the rare examples of the *T. flavopunctata* in man are in reality instances of infection by one of the parasites having as its usual host one of the lower animals, and showing different developmental characters when dwelling in the human intestine. Proof of this is not definitely furnished in Lutz's article.

Zschokke⁷ has described a specimen which he found preserved in a museum of the veterinary school at Alfort. It consisted of two pieces measuring 18 and 20 cm. in length, and of numerous shorter fragments and separate joints. The preparation had been for a long time in the Alfort museum and was supposed to have been obtained in the latter part of the last century. The parasites were very opaque, hard and fragile, and it was difficult to investigate their internal structure.

Choledkowsky⁸ has described a tenia (*T. Brandti*) found by him in the intestines of hogs and cattle which bears some superficial resemblance to the *T. flavopunctata* as regards the relative length and breadth of the segments and the arrangement of the genital outlet. There is, however, a totally different arrangement of the egg-sacs, which in the specimen described by him form a branching organ resembling that of the beef and pork worm, whereas all authors agree in stating that the eggs of the *T. flavopunctata* are contained in a large thin-walled sac.

It seems to me that the specimens presented herewith must be looked on as examples of the *tenia flavopunctata*. The rarity of this parasite in the human being makes it, I believe, worthy of report, especially in order that others may be on the watch for other instances. Whether it is merely an accidental parasite of the human being and has its ordinary habitat in the intestine of some other animal during its sexually mature period can not be definitely stated.

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Pathogenesis of Sympathetic Ophthalmia.—I. W. Selenkowsky has established that toxins generated by bacteria in one eye may be carried to the other eye and induce a sympathetic inflammation. He injected filtered toxins of the *staphylococcus aureus* into one eye of numerous animals with positive results of inflammation in the other eye in every case. —*St. Petersburg Med. Woch.*, October 6.