A LECTURE ON THE TREATMENT OF THREADWORM.

Delivered at the Medical College of the Middlesex Hospital.

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GENTLEMEN,—If, in the curative treatment of ascarides, or oxyurides, as they are more properly termed, you cannot expect an amount of success equal to that which ought to be obtained in the case of tapeworms, it is at least some satisfaction to know that the worst of cases may be overcome by perseverance in the application of appropriate remedies in combination with the employment of hygienic measures. In the case of children, these troublesome little threadworms are not difficult of eradication, but with adults it is far otherwise. The condition of grown patients, advanced in years, is often such as not only to prevent the administration of sufficiently active drugs, but also such as to render even the best remedies practically inoperative, so far as the parasites themselves are concerned. Patients also will come to you, especially ladies, requesting both immediate and permanent relief; some of them, at the same time, taking care to impress upon you the impossibility of their swallowing active aperients or cathartics.

It is instructive to notice the variety of results obtained by experienced practitioners in the treatment of threadworm. Some give the matter up in hopeless despair of affording more than a merely partial benefit, whilst others allege that they are always successful. One writer in the *Boston Journal* for 1859, tells us, as the result of forty years' experience, that he has never known assafoetida and aloes to fail in their treatment; and others have asserted as much in reference to the employment of various preparations of steel. For my own part, I may say that I have ransacked the *Pharmacopœia* for permanently effective remedies, but I have satisfied myself that no single drug, or any combination of drugs, can be employed with any certainty of perfect success. You cannot find any remedial agent that exerts what may be called a specially poisonous or specific action upon the threadworm. However, in the case of the large roundworms, that is, the ascarides properly so called, the action of santonine is almost that of a genuine specific. It is, indeed, a valuable lumbricifuge; but, as an oxyurifuge, I confess I am at a loss to understand why its action is so much extolled abroad. I have used it extensively, and can only report unfavourably of its action in oxyurides. On the other hand, all the larger kinds of nematode worms are readily poisoned by it.

As to the time-honoured employment of injections of infusion of quassia, or of lime-water enemata, or of others containing salt, castor-oil, santonine, and what not besides, all that can be said of them, in the case of adults, is, that they undoubtedly afford partial relief; but, in view of contributing to a permanent cure, they avail nothing. Even the employment of long elastic syringe-tubes will not enable patients to reach the true seat of the helminths; and one cannot but perceive the inconvenience, to say nothing of the danger, of recommending their use. I see by a statement, reproduced in a recent number of the *London Medical Record* (vol. i, p. 747), that Professor Mosler recommends the employment of large enemata for the treatment of entozoa in general, and for the expulsion of oxyurides in particular. In the case of imperfectly expelled tapeworms (which he believes to possess the power of anchoring themselves afresh in the colon after expulsion from the small intestine), he even recommends the use of milk-and-water enemata up to the amount of three pints. I will only digress so far from the matter immediately before us, as to say that I have repeatedly expelled heads of tapeworms from the colon without giving injections; and I must say that I cannot bring myself to believe in the supposition of any true re-anchorage occurring in cases where the head of the worm has been dislodged from the smaller bowel. In this connection, you will not have forgotten the case of the young daughter of a physician, where I had only the upper part of the head itself left to operate on, and yet I succeeded in dislodging it. The four suckers were so slightly connected, that they separated from each other in the water of the phial during gentle agitation. The case was one, the treatment of which had previously baffled several experienced medical practitioners.

Notwithstanding recent investigations, and the clearly enunciated conclusions based on them, I find that all our ordinary manuals, hand-

books, vade-mecums, and such like generally useful treatises, continue to encourage the old and erroneous notion that the threadworms reside in the rectum and sigmoid flexure of the colon. Thus, even a writer in the *Lancet* of last year (February 10th, 1872, p. 185), says:—"As oxyures infest the lower bowel, they are best reached by enemata." Of course, if this were the whole truth, the injections of quassia and salt, recommended by Mr. Date, would alone suffice to get rid of the parasites. The fact is, however, that the entire length of the colon is the territory inhabited by the threadworm, the cæcum itself constituting the parasites' true head-quarters. Knowing this, therefore, to be the case, and likewise understanding, as we now do, how these entozoa originally gain access to their human bearers, it is clear that we are in a position to treat the threadworm helminthiasis on thoroughly rational principles. Injections, as I have said, cannot be conveniently employed to wash out the contents of the arch of the colon and cæcum, and therefore we must, in the main, rely upon the operation of medicines taken by the mouth. From the very first, I have insisted upon this mode of procedure, employing injections only for the purpose of dislodging such oxyurides as have been driven down to the lower bowel. When it comes to the question of the choice of drugs, you will find that a great variety of medicinal agents may be used with good effect. Some seem to answer better in particular cases than in others. Speaking generally, I give a preference to active saline cathartics repeated for several days in succession, followed by the use of cold water enemata. Small doses of chloric ether and sulphate of iron are eminently serviceable additions, and the same may be said of aloes, with or without assafoetida. In cases where these drugs are objected to, I have employed various active mineral waters with good results. Bitters of all kinds are useful, and patients who object to salines will swallow any reasonable amount of the infusion of gentian and other pure vegetable tonics. As a rule, oxyurifuges should be administered in the form of copious draughts, and the oftener they are repeated, for a short interval, the more effective will they prove in the end. The rapid passage of the drugs through the bowel will, if several times repeated, carry most of the parasites sufficiently low down to be within reach of the clysters; and the prevention of the return of the parasites to the upper part of the colon is one of the practical points worth looking to. The employment, therefore, of enemata, after the exhibition of remedies by the mouth, cannot fail to prove beneficial.

I am free to admit that, do what we will, some cases prove obstinate and apparently incurable. How are you to account for this? Is it really true that the disorder may baffle your best efforts? In one sense, it may be that you can never succeed; in another sense, you may have been successful without knowing it. What is the probable explanation? I think it is as follows. Real cures are oftener effected than is commonly supposed. Thus, many patients will say that they have not seen a threadworm for the space of six weeks, or even for three months, when, all of a sudden, their enemies return. In these cases, I believe that fresh invasions have taken place, the patients having in the interval swallowed new germs, or more strictly eggs, derived from oxyurides infested either themselves or some other persons. Obviously, therefore, if you accept my assurances on this score, it is part and parcel of adequate treatment to recommend such prophylactic measures as shall be likely to reduce the liability of re-infection within the lowest possible limits. Clearly, it avails little to effect a perfect cure, if, within the space of a few weeks, and time after time, the disorder be contracted afresh.

In this view, I am in the habit of enforcing the utmost attention to cleanliness, not only as regards the person of the patient himself or herself, as the case may be, but also in respect of household arrangements. Frequent lavements, purity of the water used for drinking and other domestic purposes, local washings after defæcation, frequent changes of linen, especially bed-clothing, the removal and beating of the bedroom carpets, washing of the floors, particular care in the selection and cleansing of dessert-fruits and fresh green vegetables used as salads, etc., avoidance of the latter, as food, as much as possible—in short, every kind of procedure which shall operate to prevent the re-introduction of the eggs of these very common entozoa. Carry out these indications more or less completely, and you may then have the pleasure of finding that, in some cases at least, a permanent cure has been effected. Of course, in not a few instances, it is absolutely useless offering advice of this character, since some obstinate individuals will only condescend to take a vermifuge that can be lodged within the circumferential limits of an ordinary pill, whilst others will stoutly object to employ those hygienic measures, upon the adoption of which so much success depends. No doubt, the carrying out of certain of these precautions may be attended with inconvenience; nevertheless, so far as my experience goes, the daily performance of local ablutions is, after a while, quite sufficient to prevent any recurrence of the disorder.

In conclusion, I will only add the expression of my deliberate belief, that the close attention now given to sanitary matters by our medical officers of health and others cannot fail, before long, to effect a considerable diminution in the prevalence of certain kinds of parasites and their associated parasitic diseases.

ON THE MEDICAL SERVICES OF THE NAVY AND ARMY FROM THE ACCESSION OF HENRY VIII TO THE RESTORATION.

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BEFORE the reign of Henry VIII, England possessed nothing worthy of being called a fighting navy. That which best deserved the title was the flotilla of the Cinque Ports, which rose to importance under the later Saxon kings, and retained supremacy on the narrow seas under the Normans and Plantagenets, satisfying their warlike necessities up to the reign of Edward III, whose wars for the throne of France demanded a fuller national naval organisation, to include every seaport of the kingdom. Then the merchant navy of England was impressed for the king's service, to convey men, stores, and provisions to France; and, although many great naval fights are recorded, as that of Sluys, which opened France to the invader in A.D. 1340; Winchelsea, which freed our coast towns from hostile incursions in 1340; and Rochelle, which preluded the withdrawal of the English army from France in 1372; yet, strictly speaking, those battles were fought by land forces embarked in ships, which were simply laid alongside the enemy by the mariners. Naval affairs were in small request in the wars of the Roses; but Edward IV prepared for the invasion of France by the same means as Edward III. He possessed, however, ships of his own, which, in times of peace, he chartered for gain to merchants, after the practice of the Senate of Venice, whose great carricks thus employed were annual visitors to the shores of England and Flanders. It is important to notice that these Italian vessels carried surgeons, with a physician, so early as A.D. 1320 (*cf.* Arch's Venet., in State Calendars, published by Br. Mus.); and, as this was provided for on trading voyages, it follows, *à fortiori*, that the same vessels, when engaged in war, would have the same regard paid to their wounded by the Senate of Venice.* It would appear that these very vessels ultimately became the models for our first Royal Navy under Henry VIII, whose predecessors had on several occasions pressed them into their service when lying in our harbours. The other republics of Italy would observe the same rules in their ships and galleys; and M. Jal (*Arch. Navale*, vol. ii, p. 333) adduces a proof that *master surgeons* were sometimes present in Italian fleets at an early date, accompanying the admiral in his ship or galley similarly to the physician. This is found in a MS. dated A.D. 1337, in the library of the Doria Palace at Genoa, being an agreement (or indenture) between Philip de Valois and Anton d'Oria to furnish forty Genoese galleys, each armed with two hundred and ten men, among whom there would be, according to Italian practice, a "barbiero" and a "barbieroto", or a surgeon and his mate; in addition to which, it was specified that the admiral should have with him a "maestro di chirurgia" of his own country, whose monthly pay from the King of France was to be "10 golden florins a month"; while the noble admiral was paid 100 florins, of which eight weighed one ounce of gold, the equivalent of £3:17:6 of our currency. Multiplying that sum by twenty-five, for the difference of the worth of money, we find the Italian master surgeon to have received, relatively to the pay of Philip Beauvais, surgeon of Edward the First's army in Scotland, A.D. 1300, £1,562, against £841:13:4 a year of our present currency.

It cannot be doubted that certain medical arrangements were resorted to by the English as soon as a Royal Navy of exclusively fighting ships was formed, and in their merchant-ships engaged in the Levant trade which sprang up in the days of Henry VII.

As to the quality of these surgeons, it would be as inconsistent to

suppose that they were the master surgeons of London of their day, as it would be to expect that in our day the *élite* of the surgical profession would adopt a sea-life. Nevertheless, there is reason to believe that some men of good surgical repute devoted themselves to sea-service so early as the reign of Queen Elizabeth.

When that great monarch Henry VIII grasped the idea that the power of his kingdom would be best shown in the character of his navy, he began to carry it out in accordance with precedent with regard to manning the ships built in his dockyard by Italian shipwrights. We have seen that, in the decay of the feudal system, our kings formed armies for foreign service by legal agreements with the territorial lords, which were styled "indentures", by which they engaged to raise forces under their command, for which they received the king's pay. The earliest instance of such a practice in naval affairs is found in the reign of Henry VI, A.D. 1460, when Sir Baldwin Fulford, Kt., contracted with the king to supply "1000 mene, well and sufficiently arraied and harneysed for the warre, and competent number of ships for the same," on the daily pay of 2s. for himself and 6d. for the masters, and 2s. 3d. a week for the men. The first fleet of Henry VIII was manned on the same principle: the ships belonged to the king, who entered on an agreement by indenture with a renowned sea-captain, Sir C. Howard, to man them, receiving from the king their gross pay in advance, and distributing the same. That memorable indenture specifies only two classes of seamen—masters or captains, and common men—and shows their respective rates of pay. Consequently, it is certain that the surgeons in that fleet were rated and paid as common men. As far as concerns their pay, this practice continued until the reign of Charles I; and, as concerns their rating, it was unaltered until A.D. 1704, when surgeons first received the rank of warrant-officers, in common with pilots, boatswains, gunners, and carpenters. The low rate of pay offering no inducement to the medical men of that day to serve in the Royal Navy, it was supplemented, according to the custom of the army, by a donation of *twopence a man per month*, in consideration of which the surgeon was bound to provide the instruments of his calling, together with surgical remedies, exclusive of drugs for the treatment of medical cases. This donation from the seamen became in part—*i. e.*, as much as the surgeon could make it so—a perquisite of the surgeon; and in 1672 it was made, in proportion of one-half, his by right as an emolument, and in 1704 entirely so, until 1805. According to modern ideas, this was an undignified, and would be a degrading, plan of payment for services rendered, but it was not thought so when first instituted; and it may have been of very ancient date, when personal services were ordinarily rewarded by those who benefited by them. As an early and very high example of this, we find in the Black-Book of the Admiralty (*Circiter*, 1360, Edward III, 11th clause): "And for that the admiral is the governor of the mariners, and ought to govern and maintain them in all their laws and customs, and defend them from all injuries against all; and, if there should be need to sue for their wages and to obtain payment, the said admiral shall have and take from each pound paid of wages to the mariners, 4d. for which 4d. the admiral ought by night, at his mast-head, all the time that he is on the sea, to carry two lanterns, so that all the fleet may know and understand by the light the course of the admiral, the which course they shall keep," etc.

In this we recognise the personal offices of the admiral towards the seamen, the manner in which he was rewarded for these responsibilities, and the material he was bound to provide to ensure the safety of those sailing under his orders.

Now, to compare small things with great and noble, if we consider the personal offices of the surgeon to the wounded of the crew, and the material he had to provide for their benefit, it may be readily conceived that the established rule of rewarding personal services by gratuities from those receiving them would be extended to those who had the cure of the bodies or the souls of the mariners, who received the same daily pay from the king as the mariners themselves; and thus it came about that, as soon as ships carried priests and surgeons, their daily pay was supplemented by the gratuities of 4d. a month for the former and 2d. for the latter, in recompense of personal services to be rendered them. The most learned naval archaeologists have confessed that the origin and date of this custom are sunk in the obscurity of the Middle Ages; and therefore I must propose this as only a probable explanation of a difficult subject. It was convenient to the king's treasury that the seamen should bear these burthens, voluntarily assumed; and in the case of surgeons it was not annulled before 1805, and in that of chaplains till 1812. In the navy, the sum was deducted from the wages as they accrued; and surgeons joining ships were permitted to draw money in advance, *by imprest*, to enable them to furnish their surgical chests; while in the army it would seem to have been paid by the soldier on receiving his pay into the hands of the surgeon.

* The antiquity of the practice of carrying in ships an attendant on the sick, is proved in chap. 264 of the *Consolato del Mare*, or nautical laws of the Mediterranean in the Dark Ages, where the "Metge", the old Catalan corruption of "Medicus", is mentioned; but no allusion to the "barbiero" is found there.

B. Crescenio, pontifical engineer, in his *Nautica Mediterranea*, p. 94 (Rome: 1607), one of the best authorities on all relating to nautical affairs of the Middle Ages, states, at p. 94:—"Vi è un Medico in tutta l'armata, e in ciascuna galea un Barbiero, chi governa gli ammalati conforme dal Medico gli viene ordinato." And Pantero, in his *L'Armata Navale*, p. 126, 1614:—"Il barbiero come ufficiale molto necessario per curar gl'ammalati et efferiti deve esser molti sicuro, et esercitato nell'arte de la chirurgia."