

1792 (H)

To
The Reverend Gerardus Arnold Rutgers
from his sincere friend
The Author —

A N
INAUGURAL DISSERTATION
O N
Worms of the Human Intestines.

SUBMITTED TO THE EXAMINATION
O F T H E
Rev. WILLIAM LINN, D.D. P. T. President;
A N D T O T H E
TRUSTEES AND FACULTY
O F
QUEEN'S COLLEGE, NEW-JERSEY;
FOR THE DEGREE OF
DOCTOR of MEDICINE,
WITH THE RIGHTS AND IMMUNITIES THEREUNTO
APPERTAINING.

By HENRY M. VAN SOLINGEN, *Hon. M.D.*
OF NEW-YORK. *1792*

— MISERIS SUCCURRERE DISCO.
VIRG.

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—1792.—

TO THE REVEREND
WILLIAM LINN, D. D.

President, P. T. of Queen's College, New-Jersey;

A N D,

Minister of the Reformed Dutch Church in the City of New-York;

W H O,

From assiduous Attention to the Duties of his sacred Profession,
and by his eminent Learning and Piety, has contributed to

The Advancement of Religion,

AS WELL AS

The Good and Peace of Mankind:

T H I S

D I S S E R T A T I O N

I S I N S C R I B E D,

With every Mark of Respect,

By his obliged,

Humble Servant,

The AUTHOR.

TO THE REVEREND

WILLIAM LINN, D.D.

President, &c. of Queen's College, New-York:

A. D.

1840

W. H. D.

Two thousand five hundred and thirty

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Worms of the Human Intestines.

INNUMERABLE are the causes that give rise to diseases incident to man: some of them, whilst they appear innocent, and portend little danger, are, at the same time, both serious in their nature and termination. For the truth of this, we need only advert to the instance of *human worms*; the consideration of which I propose to make the subject of the following dissertation.

EVERY part of the human body has indeed been known to be affected with worms; but it is only those infesting the intestinal canal that are particularly to be considered here. Their division is generally into three kinds—*Ascarides*, *Lumbricus teres*, and *Tænia*, or *Lumbricus latus*.

Of

Of the ASCARIDES.

THE ascarides, Galen has defined, as “being small worms, generated chiefly in the lower part of the intestines.” They are of a small size, and pointed at both extremities. The head, in most, is not easily detected. Their colour is generally white, but in some it has been found changed by the fœces. They abound in great numbers in the colon and rectum, and are frequently thrust out with the excrements. Baglivius* informs us, he knew a young man, who, being suddenly attacked with diarrhœa, voided an hundred. They excite an intolerable itching, especially about the verge of the anus, tenesmus, and other troublesome symptoms.

THE ascarides have a great resemblance with those worms which we frequently see in cheese, in point of colour, figure, and size. Professor Van Dœveren† believed them to derive their origin thence; and Van Sweiten‡ knew a man, who, as often as he ate white cheese, two days after felt a troublesome itching about the anus, occasioned by the ascarides.

BUT

* Epist. ad Andry, p. 698.

† Dissertat. Inaug. p. 31.

‡ Com. in Ap. p. 1359.

BUT cheefe worms are found to differ widely from ascarides. They undergo a change in their form, which the ascarides do not—They are blunted at the extremities, and the ascarides are sharp.

Of the LUMBRICI TERES.

THE lumbrici teres, or round and long worms, with which children are usually troubled, are (by Hippocrates called *ελμινς τρογγυλας*, by Celsus *Teres*,) commonly about six inches long, and sometimes a foot; but the male is generally smaller than the female. They are of the thickness of a goose-quill. Their colour is white, and both extremities terminate in a point.

THE number present in the bowels at a time is very various, sometimes only one, two, or three. But if we may judge from the surprising number of eggs which have been seen in them by means of the microscope, we will not be astonished at the amazing number of worms present in some persons, which we find related by some authors. Clericus mentions the case of a boy and girl, who were killed by taking arsenic, having upwards of an hundred of the *teres lumbrici* in their intestines.

Gabucinus

Gabucinus saw one hundred and seventy-seven that were voided at one turn by a girl; and, to come nearer home, a woman in this city, a patient of mine, passed, in four and twenty hours, considerably more than an hundred, and most of which were pretty long.

Of the TÆNIA.

THE *tænia*, or *lumbricus latus*, by some is called the *Solitary Worm*, because it has been believed to be always alone. Hippocrates called it *Tænia*; hence its denomination, *Tape-worm*.

No species of intestinal worms is more destructive to human nature, or more difficult to be totally destroyed: It sometimes equals in length the whole intestinal canal; the breadth of it is various, both in the same worm, and in different worms.

It consists of a great number of joints, simply connected together; and these joints are so articulated, that the extreme edges of the preceding come over the subsequent. The extremity whereon the head is set, is smaller than the other, and
some

sometimes not an eighth part so broad: the joints towards the head are considerably shorter than towards the tail, and they seem gradually to grow longer from the head.

THE colour of the tænia is very white, being mostly turgid with chyle.

FOUR species are enumerated by Linnæus. The first is distinguished by small orifices, or mouths, placed alternately on the margin of each joint, and is called *Solium Andrii*, *Lumbricus latus Couleti et Vermis cucurbitinus Plateri*.

THE second differs in having two openings on one side only of a joint, and is called *Tænia vulgaris Andrii*, *Tænia primi generis le Clerc*.

THE third has only one foramen to be discovered in the side of a joint, and this species Linnæus mentions to have been very rarely found.

THE fourth, and last species, has two little mouths in the margin of each joint, one opposite to the other.

VAST quantities of this worm are voided by patients for several years together; it is rarely

ever seen whole. We have upon record instances of many yards having been voided at a time.* Olaus Borrichius, a celebrated physician of Copenhagen, of the last century, tells us of a patient of his who passed eight hundred feet of this sort of worm, in several pieces, in the space of a year.

DOCTOR Tyson, of London, had a similar instance of great quantities of this worm being voided for several years together, in pieces from two to six yards in length; which all put together would exceed the length of that of Borrichius.

BUT though the exact length of this worm cannot be ascertained, yet it is undeniable that it is prodigiously long, as appears by those pieces mentioned above. The illustrious Van Döeveren relates the case of a young man, who ejected a broken piece of the *tænia* that measured 40 cubits.†

IN the Philosophical Transactions we have a description of a part of this worm that contained 507 joints; and, to conclude this part, we shall instance one other case that the illustrious Boerhaave

* Doctor Buxton, a physician of this city, has in his possession, a broken part of a *tænia*, 24 feet long, and with its head complete.

† A cubit is 18 inches.

haave describes, which he says measured 300 cubits, and consisted of 21,600 joints.

It is unknown, as yet, whether each joint separately constitutes a whole animal. It is wonderful that each part possesses the same power within itself as the whole animal : * it supports life, moves, and adheres to the other parts. Some injections, tending to ascertain this truth, seem to prove that those many joints we see in each tænia constitute only one worm. †

Of the ORIGIN and NOURISHMENT of INTESTINAL WORMS.

THE various opinions which have been handed down of the *origin* and *nourishment* of worms, are not expected to be presented in so small a work as this. Some ancient authors believed them to arise from putridity, ‡ and others to have been coeval with the body. Galen, writing upon this subject, says, “ That those worms do not arise from a seed, but from putrid matter.” The celebrated physician, De Lisle, observed in his
own

* A similar instance is in the Polypus.

† Doctor Monro's Works.

‡ Galen.

own daughter, a child eleven weeks old, whole nests of worms; and the mother, as yet, had afforded no other kind of nourishment but that of the breast. Hence he concludes the worms to be congenial with the body. The eminent physician Van Dœveren, collected many observations of fœtuses that had worms in the intestines whilst yet in the mother's womb. It is however believed to be a universal law of nature, "that every animal is generated from an egg." This appears especially to be the case, since eggs have been discovered in the ovaria of viviparous animals.—From the great variety of opinions delivered to us concerning the generation of worms, it will not be wondered at, that the most learned men in natural history have found so much difficulty upon the subject. In Baglivius we read of worms seen in the pericardium equalling in length the whole palm of the hand.

Du VERNEY tells us of a child, five years old, that constantly complained of a pain about the root of the nose; she kept her bed with a slow fever—convulsions at length seized her, and she died: after her death a worm was found in the longitudinal sinus of the brain, five thumbs breadth long, and not unlike an earth worm.

SWAMMERDAM,

SWAMMERDAM, who was so skilful and quick-fighted, after carefully considering all things, confesses “it is the most difficult thing in the world to explain by what means worms are generated in living bodies, &c.—I acknowledge,” says he, “for my part, that I have met with so few satisfactory experiments in this matter, that I have not yet any thorough knowledge of the subject: although I have seen many worms, and worms of various forms, in the living and moving bodies of terrestrial as well as aquatic and ærial animals, but I cannot, in this matter, come to any solid and certain determination.”

WHEN worms are present in the intestines, they, no doubt, must be nourished, as they are supported and grow; and this nourishment is afforded by our aliment. Some are of opinion that they live upon the chyle; and others think they live not only on the chyle, but on the blood likewise.—Van Dœveren mentions a *tænia*, which a friend of his saw expelled, where a drop of blood was issuing from the orifice, or mouth. We have likewise a description of a worm* a foot and a half long, and an inch and a half diameter, which was voided by the anus; it was full of blood, and, for several days after its expulsion, the person lost,

to

* Med. Ess. and Obs. vol. ii. p. 336.

to appearance, some pounds of blood. The worm was dead, and made up of a number of rings like the earth-worm.

It appears they draw nourishment sometimes from the substance of the stomach and bowels, for we very frequently discover them in the cavity of the abdomen, and a perforation made into the intestines. Heister opened the corpse of a boy, seven years old, who had been troubled for some time with grievous pains of his abdomen; and although he had an excellent appetite, yet he apparently died of emaciation. In the abdomen was found a quantity of yellow water, which being absorbed, he discovered many round and long worms; and though the body was opened the day after its death, he found only one living worm among the great number present. The small intestines were perforated with many holes, and contained yet many more worms, but every one dead.* We have the history of a young woman's case who had suffered under many diseases, and died in consequence of worms; her abdomen was found abounding with them. In other cases not the intestines alone were perforated, but the heart and liver were eroded.—The late Doctor Bond,† of Philadelphia,

* Morgag. Let. xxxiv. Art. 36.

† Med. Observ. vol. i. p. 72.

Philadelphia, relates a case of a Quaker lady who had considerable part of the liver eroded by a worm.*

Of the CAUSES of WORMS.

INFANTS labour more frequently and grievously under worms than adults; hence arise in them other diseases: their intestines being replete with a glutinous matter from the nature of their aliment, which affords a nidus for worms. It is daily to be noticed that children of the poor, far more often than others, labour under this complaint, on account of the want of proper food.

MANY crude indigestible vegetables, immature fruits, legumina, sweets, cheese and fresh fish, tend exceedingly to produce the pituitous matter which favours their production, particularly in persons of debilitated habits.

THE season of the year favours much the predisposition to worms. It is mentioned by Van Swieten,† that it was observed at Beziers, in the
year

* I am informed the celebrated Doctor Monro shews preparations of intestines which were actually eroded by worms.

† Com. in aph. 1362.

year 1730, to have seized many in the manner of an epidemic. Although worms were frequent at other seasons among the inhabitants, yet, in that year, persons of both sexes, of all ages and constitutions, were afflicted with them, and that to such a degree as to prove mortal to some. Remedies were administered in vain, if not given very strong and powerful, that the worms might be forced out, either upwards or downwards—many of which came alive from the body.

The SYMPTOMS of WORMS.

IT is not surprising that worms produce so many evils, if we only consider the great sensibility of the intestines, which exceeds that of almost every other part; and the sympathy, which subsists between them and every other part of the body: Then, if we consider the uses they are destined to in the animal œconomy, with the affections that are attendant on worms, as fordes, gnawing pains, spasms, flatus, tormina, &c. it will sufficiently appear that this disease is at times exceedingly distressing.

THE numerous symptoms which are attendant on worms in the bowels, affect much more sensibly

bly infants than adults, which is plainly enough understood by persons who are acquainted with the animal œconomy. These are as follow:— The abdomen becomes hard and distended with air, rumbling noise takes place frequently in it, fetid breath, nausea and vomiting; the appetite is at times impaired, then again it is ravenous and insatiable; heart-burn, hiccup, and transient pains of the belly, which are severe and lancinating when the stomach is empty: a cessation or remission of these pains after taking of food, great thirst and paleness of the countenance. The adnata of the eyes is tinged with a leaden colour—the inferior palpebræ become tumid, are circumscribed with a bluish ring, and the pupils are dilated;* an itching of the nose—the upper eye-lid becomes enlarged, as if inflated—frequent starting in sleep, and grinding of the teeth—febrile symptoms occur throughout the day, with pain of the head, and sometimes delirium—an involuntary discharge of saliva, particularly during sleep.

DOCTOR Friend enumerates, among the most frequent symptoms of worms, a dry cough, which is excessively troublesome.

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* It may be doubted whether the dilatation of the pupils may be considered as a symptom of worms, as the symptoms of hydrocephalus are very similar to those of worms, and are often confounded.

THE belly is mostly bound—The urine is frothy and of a whitish appearance.

MANY other worse symptoms arise from their presence, as eroding and perforating the intestines, as mentioned already: nor are examples wanting to shew that worms give rise to various convulsive and nervous affections.

THE symptoms of ascarides, though not very dangerous, yet, if their number become great, and happen to persons of sensible, delicate habits, they produce much uneasiness in the body. They induce an intolerable itching in the intestinum rectum, and this itching may increase so much that, by the consent of the different parts, it may be propagated, and excite spasmodic affections in the neighbouring parts, as difficulty of voiding urine, strangury, hemorrhoidal flux, &c.

DIAGNOSTIC SIGNS of WORMS.

THE many dangerous symptoms induced by the presence of worms in the body, render it very necessary that a physician should understand the symptoms indicating the real nature of the disease, least

least he prescribe remedies proper for worms, when the complaint requires very different medicines.

IN infants worms are manifestly more easily detected than in adults.

EACH species of worm are said to have peculiar signs and symptoms distinguishing their presence: Thus pains, gripings, heart-burn, and troublesome spasmodic symptoms, more frequently indicate the *teres lumbrici* than any other. The *tænia*, it is said, is accompanied with a much more depraved appetite, emaciation and syncope, with an enlarged abdomen, &c. though this latter often happens when the *teres* alone are present. The proper signs of the *ascarides* are a vehement itching of the anus, *tenesmus*, and frequent inclination to stool. Notwithstanding, all these symptoms may occur, yet no worms may be present; but, when worms are discharged from the bowels, it is presumable that the symptoms proceed from that source.

IN the Edinburgh Medical Essays, Professor St. Clair* relates a case of this nature—A boy, four years of age, complained of pains of his stomach, itching of the nose, startings in sleep, and

* Vol. ii. p. 294.

and would wake very much terrified; and afterwards, sleeping or waking, he kept continually rubbing his nose—convulsions succeeded, and he died the sixth day—having tried many remedies indicated in such a case. The body was opened, and the stomach and intestines dissected throughout their whole length—no worms appeared; but about two ounces of a viscid substance, like gelly, was found situated at the beginning of the intestinum jejunum.

THE Illustrious Morgagni* mentions another case of the fallacy of symptoms—A boy, seventeen months old, was suddenly seized with a diarrhœa, attended with cough and itching of the nose; in a few days he died. Upon inspecting the body, there were no worms found in the intestines.

DOCTOR Armstrong† relates a case of a boy “who lay very stupid, pulse low and quick, tongue foul, and breath fetid; he had no sound sleep, but slumbered with his eyes half shut; he grinded his teeth, had inward fits, and was sometimes threatened with convulsions—after a few days he died. The body was opened, and the stomach and the whole intestinal canal examined, but not the least appearance of worms.”

The

* Epist. xxxi. art. 5. de causis et sed. morb.

† Diseases of Children.

The CAUSE of the SYMPTOMS.

ALMOST all the symptoms of worms may be explained from the waste of the chyle, a certain matter furnished by the worms, and from irritation of the intestines.

By the worms consuming the chyle, may be explained the hunger, paleness, emaciation, debility, and bound belly, with the belching of wind, and rumbling noise of the bowels.

FROM the matter furnished by the worms, we may understand the causes of diarrhœa and fetid breath.

By irritating the intestines, they cause nausea, vomiting, syncope, itching of the nose, and various convulsive affections, as epilepsy, convulsions, &c.

The METHOD of CURE.

FROM the nature and situation of worms, the following indications seem aptly to arise.

I. To

I. To destroy the nest of worms, dislodge them of their lurking-places, and kill, or induce such a state of the stomach and intestines, as is incompatible with their existence.

II. BEING dislodged or killed, they are to be expelled from the body.

THE first indication very often suffices alone, as worms being removed from their situations, and weakened, are often expelled with the fœces, by the peristaltic motion of the intestines; but as this is not universally the case, it becomes necessary to form another indication for their expulsion.

THE remedies recommended for the first intention may be divided into such as act,

1. By their poisonous quality;
2. By their mechanical power; and,
3. By the conjoined action of each of those.

THOSE which act by their poisonous quality are cabbage-tree bark, Indian pink, male fern, worm-feed, and common salt.

Cabbage-tree bark.] It has a mucilaginous sweetish taste, and a disagreeable smell; it is given in form of powder, decoction, and extract. It produces

produces some sickness and purging, sometimes violent effects, as vomiting, delirium, and fever; which are supposed to arise from an over dose, and are said to be relieved by taken warm water, castor-oil, or a vegetable acid. In the West-Indies, where its use is better understood, they use it by way of infusion, and begin with small doses, and when cautiously and properly administered, it affords an excellent anthelmintic, especially for the expulsion of the lumbrici.

Indian pink.] THIS plant is made very frequent use of in this country, and it proves a pretty certain vermifuge. It is commonly administered in infusion; and its purgative effect, assisted by some suitable medicine.

FROM the experiments of Doctor Francis Home, it appears that it produced the expulsion of worms, when they had evaded other remedies. He says he found it necessary to continue the medicine eight or ten days, and, during the use of it, he never discovered any giddiness, blindness, convulsions, or other dangerous symptoms enumerated by authors, to arise from the use of it. —He gave to a boy, eight years old, ten grains twice a day, and to an adult, an half a drachm four times a day.

Male fern.]

Male fern.] THIS remedy is the celebrated specific of Madam Noufer, of Switzerland, for the cure of the tænia—Having attracted the notice of the practitioners of France, her secret, after being tried at Paris under the direction of some eminent physicians, was purchased by the French King, and published by his order. The virtues of this plant were well known to the ancients, as early as the days of Dioscorides; but it is said to have been entirely neglected. Galen mentions the successful use of it, and orders it to be drank with mead.

IN the Academy of Sciences of Paris, in the year 1701, Marchand made many experiments upon its use, and declares it to be a certain remedy in expelling all kind of worms.

DOCTOR Duncan, in his Medical Cases, has exhibited a case of tænia, wherein the powder of the male-fern proved successful. He adds, “If the present practice shall confirm the opinion of the ancients, the restoration of this article, to the list of the materia medica, may be considered as a circumstance of importance in the practice of medicine.” He says also, he has every reason for presuming that the expulsion of the tænia was, in a great measure, owing to the influence which the fern

fern powder exerted, as a degree of sickness at the stomach arose before any other medicine was exhibited.

THE root of the male fern, in powder, is directed to be taken in water, to two or three drams in the morning, no supper having been ate the preceding night—It generally sickens a little—A brisk cathartic is given a few hours after, consisting of calomel, scammony, and gamboge. This frequently brings off the tania entire; if not, the medicine is repeated at due intervals.

THE French physicians recommend some precautions, which they affirm are essential to the success of the remedy, as giving some panada and an injection, which they prescribe the night before, to lubricate the intestines, and prepare the primæ viæ.

Worm-feed.] THIS seed has an unpleasant smell, and a very bitter taste; and, on account of these qualities, the form of powder and decoction is rendered inconvenient—It is celebrated as a vermifuge, and is readily taken mixed with molasses.

IN the Medical Commentaries, vol. viii. page 213, the successful effects of the anthelmia ber-

D

mudensis,

mudensis, or common worm-grass, is mentioned as an anthelmintic, while, at the same time, it is perfectly inoffensive. It is supposed to be the same plant from which the semen santonicum, or worm-feed, is taken: It may be given in infusion; but the author found the following a pretty certain vermifuge—*R. Anthelm. Occidentalis* (common worm-grass) *unciam unam*, *Canell. Alb. scrupulos duos*, *pulv. jalap. scrupulum unum*, *vitriol. cerul grana decem M.* From ten grains to two scruples may be given once or twice a day, according to the age of the person.

Common salt.] FROM the experiments related in the Medical Commentaries, vol. viii. page 342, and those of the ingenious Doctor Rush, of Philadelphia, of the sudden and powerful influence of this salt in killing worms out of the body, I have been led to mention it here. In the experiments alluded to, a watery solution of this salt being applied to earth-worms strongly convulsed them in one or two minutes, in three they became motionless, and in four minutes they died.

DOCTOR Rush says, he “administered many pounds of common salt, coloured with cochineal, in doses of half a drachm, upon an empty stomach in the morning, with great success in destroying worms.”

WE might go on to enumerate many more articles which act by their deleterious quality, but the limits of this dissertation will not permit. Those of the most approved efficacy have been selected, and briefly treated.

2. THE mechanical medicines act directly and indirectly upon worms.

THOSE of the first kind are cowhage, filings of steel, and powder of tin.

Cowhage.] THE efficacy of this plant is now indisputable, and the dangerous consequences apprehended formerly from its contact with the coats of the stomach and intestines, are now happily removed.

THE parts of this plant which are made use of, are the spiculæ or hairy substance growing on the outside of the pod. These are given mixed with molasses or common syrup. The spiculæ of one pod are said to be a sufficient quantity for an adult.

A PRACTITIONER* who resided in the West-Indies, previous to the late war, made several experiments to determine whether the innocency of the remedy, when taken into the stomach, was to be attributed to the mode of its exhibition, or to the

* Doctor Samuel Kiffam's Inaug. Essay.

the mucus with which the stomach is lined; judging its activity might be blunted by the syrup of the one, and mucus of the other, which, however, proved not to be the case. He applied to the back of one of his hands a small portion of the dry spiculæ, and to the other a like quantity mixed with syrup, without being able to perceive any difference in their effects, in point of duration or severity: Hence he concludes the stimulating properties of cowhage are conveyed into the stomach with it.

IN the next experiment he blended a small quantity of the spiculæ with some saliva, and put it to the back of his hand; at the same time he took some dry cowhage into his mouth, and observed that what he had applied to his hand quickly produced considerable uneasiness, while that which was taken into the mouth had no sensible effect.

FINDING its stimulating effects to be so gentle and inoffensive upon the parts lining the mouth and intestines, and not knowing any other quality to which its properties as an anthelmintic could be attributed, more particularly as he had administered it in tincture and decoction, without any evident advantage, he made the following experiment, which removed the objections:—

To

To a number of earth-worms, when quiet and undisturbed, he applied some cowhage, and as soon as it came in contact with them, they manifested signs of uneasiness, by their violent agitation; and the same thing was noticed when applied to them united with molasses or syrup, and it eventually proved their death.

Filings of steel.] THIS preparation is exhibited against the lumbrici and tania. Some physicians have administered it to the quantity of a drachm in a day, which was repeated for several successive days.

Powder of tin.] THIS has been supposed to act as a poison to the worms, from the arsenic that is combined with it in its purest state; but from the length of time a worm can live in a solution of white arsenic, it is more likely that the tin acts entirely by its mechanical property upon the worms.

PROFESSOR Alston published in the Medical Essays, vol. v. page 90, an empirical remedy of tin against worms, from which he experienced great success. The method he prescribes for using it was as follows:—For an adult person, to have two ounces of the purest powder of tin mixed with

with eight ounces of common fyrup or molasses, and previously to its exhibition, to have the bowels well emptied by an infusion of fenna and manna, &c. The day following, suppose Monday, he directs one half of this mixture to be taking early in the morning, upon a fasting stomach. On Tuesday, at the same time, he orders a fourth part of it; and, on Wednesday, the remainder, in like manner as the former; and lastly, on Thursday he again directs the patient to be purged by the above purgative medicine, to evacuate the worms in the body.

THE celebrated Doctor Mead* found the filings of tin a most efficacious remedy against the tænia, and made use of it for a very long time before he published it. He took equal portions of filings of tin and red coral, reduced to a very fine powder; a drachm of which he directs to be taken, made into a bolus, with conserve of the tops of wormwood, twice in a day.

THE mechanical medicines which act indirectly upon the worms, are vomits, purges, and those remedies that give tone and vigour to the stomach and bowels.

3. THE

* R. Mead's *Præcepta Med. cap. de Lumbricis.*

3. THE remedies which act by their mechanical and poisonous qualities conjointly, are calomel and jalap. These are safe and powerful; they often cause an evacuation of worms when given with other intentions.

II. THE worms being dislodged or killed, they are to be expelled from the body.

THIS indication may be fulfilled, by exhibiting in constitutions that are pretty strong, all those purgative medicines accounted drastic, as gamboge, scammony, infusion of fenna and salts, &c. &c. &c. But in children powdered rhubarb alone, or united with mercurius dulcis, is an effectual purgative, and answers extremely well.

FROM the situation of the ascarides in the intestines, medicines taken by the mouth very rarely preserve their efficacy until they arrive at the intestinum rectum, as these worms are principally seated in it; hence they are more immediately and effectually killed and expelled by clysters of an oily, acrid, or sweet nature, and by acrid suppositories, with remedies of a like nature; but what many think more safe and certain remedies, are clystes of lime-water, injections of sulphurous mineral-waters, and the vapours of tobacco thrown up.

CLYSTERS

CLYSTERS administered against the ascarides ought to be frequently repeated, as sometimes they do not infest the rectum in great numbers; and in that case the few that do, get seated in the folds of the rectum.

IN the London Medical Transactions we have an account of a boy, who, as often as he perceived symptoms of ascarides, immediately took an half pound of common salt, dissolved in water; in consequence of which he voided them, and afterwards recovered.

AFTER having exhibited some of the foregoing remedies, and having expelled the worms, it will be adviseable to give, at proper intervals, some gentle cathartic; and should the intestines be much debilitated, some strengthening medicines ought to be taken, as bark and red wine; at the same time, using exercise: and indeed nothing seems to be more destructive to worms, or more effectual in preventing their generation, than good living.

THE END.