sharp broken end pierced the second part of the duodenum and gave rise to acute symptoms. Lihotzky¹² mentions a most curious case, in which a spoon remained harmlessly in the stomach and duodenum for two and a half years, and only gave rise to perforation of the latter when the anatomical relations of the viscera became disturbed by the occurrence of pregnancy. Last of all, we have Chaput's¹³ case in which a tooth plate was swallowed and became impacted in the third part of the duodenum, its onward progress being blocked by the pressure exerted on the gut by the superior mesenteric vessels and the ligament of Treitz. After ten days an attempt was made to remove the foreign body through an opening in the commencement of the jejunum. But the tooth-plate was firmly fixed in the bowel by its metal points, which had deeply penetrated the wall, and not until the incision was prolonged upward to the duodenum could it be removed. Although some difficulty was experienced in suturing the bowel the patient did well.

It seems not a little curious that elongated foreign bodies do not more frequently become impacted in a bent tube like the duodenum. The screen examination in the case here recorded seems to indicate that the duodenum of children is more movable than might be imagined, and it is probable that this part of the bowel is capable of considerable dilatation. Again, the observations of Müller and Exner serve to show that a curved and pointed body will be rotated by the bowel into such a position that it will pass most easily. In this way, perhaps, may be explained the numerous cases in which, especially in children, a foreign body of considerable length has passed through the duodenum without giving rise to trouble.

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THE EXISTENCE OF LIVING CREATURES IN THE STOMACH AS A CAUSE OF CHRONIC DYSPEPSIA.

By W. SOLTAU FENWICK, M.D.

THE frequent occurrence of entozoa in the human subject is probably responsible for the superstitions current through many centuries regarding the occasional harbourage in the stomach of various strange animals, which, subsisting upon the food of their host, or even upon the structures of the viscera, gave rise to a series of weird symptoms that usually terminated in an agonizing death. Such stories have not only obtained credence among all classes of the population throughout the entire world, but have frequently been recorded and commented upon by members of the medical profession, many of whom appear to have been genuinely convinced that the animals shown to them had actually escaped from the body. So many of these fables were obviously the outcome of gross superstition, hysteria, or of a deliberate intention to defraud, that it is, perhaps, hardly surprising that modern writers on diseases of the digestive system either ignore the subject altogether or only briefly mention accidental parasitism. Nevertheless, instances are still recorded from time to time in medical journals in which some unusual inhabitant of the human body has been observed by credible witnesses. With some little trouble more than 180 cases may be collected in which lizards, salamanders, frogs, slugs, caterpillars, worms, leeches, beetles, larvae, chrysalides, or maggots, were believed to have been harboured in the digestive tract for a considerable time and accompanied by an intractable form of dyspepsia. Some of these are so well authenticated that the subject certainly merits more attention than has hitherto been accorded to it.

INSECTS.

A large number of different insects or their larvae have been observed as accidental inhabitants of the human

body, and in the early part of last century Hope published a list of some forty-three varieties which had been identified. Since that time numerous other cases have been recorded, and there is now little difficulty in collecting a hundred and thirty examples of myiasis or diseases caused by the presence of insects. In the vast majority, where sufficient details are given to permit of their identification, the insects belonged to three of the fifteen natural orders—the Diptera or two-winged flies, the Coleoptera or beetles, or the Lepidoptera, or butterflies and moths—and it is with the various species belonging to these three orders that the following remarks are chiefly concerned.

1. *Diptera*.

Of the numerous families of this order, the Muscidae, which include the house-flies, blow-flies, flesh-flies, and flower-flies, contribute the greatest number of parasitic larvae. The eggs of these insects are usually deposited in places where an abundance of food is obtainable without the necessity of exertion, and consequently the resultant larvae constitute the lowest form of maggots, and possess no legs. A very short time may intervene between the deposition of the egg and the appearance of the larva. In the case of the blow-fly it does not exceed twenty-four hours. As a rule, the common house-fly (*Musca domestica*) lays her eggs upon various forms of cooked meats, sweets, or biscuits, while the bluebottle or blow-fly (*Musca vomitoria*) prefers high meat, game, or other kinds of animal food that are undergoing decomposition. In his description of the latter species, Wood remarks that the oval wire covers which are sold for the purpose of keeping blow-flies from meat are often useless, since, when the insect finds that she cannot gain direct access to the meat, she will rest on the top of the cover, and allow her eggs to drop through the meshes or the wire gauze. The flesh fly (*Musca carnaria*) proceeds in a different and more expeditious manner. In the case of the bluebottle and most other Muscidae the eggs have to be hatched after their deposition, but in this species they are hatched within the body of the parent and are deposited as maggots, each female producing about twenty thousand. It was to such insects that Linnaeus referred when he wrote the apparent paradox that three flies could eat an ox as fast as a lion. The flesh fly does not even wait until the meat has undergone incipient decomposition, or, perhaps, is able to detect signs of it before they become apparent to the human senses, since hosts of these minute larvae are often found upon birds and animals within two hours of their death.

Of the genus *Anthomyia* some species, such as the meat-fly (*Musca anthomyia*) particularly affect meat, while others feed on radishes, onions (*A. ceparum*), lettuces (*A. lactucae*), or cabbages (*A. brassicae*). Others, again, deposit their eggs in certain fruits, especially the raspberry and blackberry, each specimen of which when fully ripe may be found to contain a maggot. The number of eggs and larvae which are ingested by persons who devour garden and hedgerow fruit must be enormous.

In two apparently authentic cases (Lasalle, Sentex) larvae belonging to the family of Tipulidae or crane-flies were detected in the vomit and faeces. Of this, the best-known species is the *Tipula longicornis*, or daddy-long-legs, which deposits its eggs on the ground, whence they possibly gain access to the human stomach by means of unwashed vegetables and fruit. The grubs, which are tough-skinned and hard-headed, are well known to gardeners by the name of leather jackets. The larvae of other species live in rain or well water, in which they may often be detected as minute thread-like worms of scarlet colour that exhibit constant twisting movements. Occasionally the larvae of the drone-fly (*Eristalis tenax*) find their way into the stomach through the medium of water, although the muddy fluid favoured by these rat-tailed maggots can hardly be described as suitable for drinking purposes.

Drosophila larvae are sometimes ingested in sour milk (Hutton), and the well-known cheese mites (*Piophilae casei*), which are probably quite harmless, need no description. Another dipterous insect that lays its eggs upon the surface of the water is the common gnat (*Culex pipiens*), and Allonneau has related an instance in which immense numbers of the eggs and larvae of gnats were vomited at intervals. The family of the Oestriidae or bot-flies are parasitic in certain animals, the larvae of the

common bot-fly (*Gasterophilus equi*) infesting the stomach of the horse. Several cases have been recorded in tropical countries in which persons vomited or evacuated larvae of this species, while the one related by Cattle is of particular interest, since it occurred in an inhabitant of this country who was not concerned in tending domestic animals.

2. Coleoptera.

At least twenty-four varieties of beetles or their larvae have been identified in the vomit or evacuations of persons suffering from symptoms of gastro-intestinal irritation, and more than forty instances may be found recorded in the literature. In the great majority of the cases the insects apparently belonged either to the Staphylinidae or rove beetles, the Carabidae or ground beetles, or to the Blaptidae; among the latter the *Blaps mortisaga* is the most conspicuous example, its existence having been specially noted in nine instances. Sometimes many species of the same family or of different families were found in the same individual, mixed with dipterous larvae, spiders, millipedes, and entozoa. The eggs of many of these beetles are deposited upon the earth, although those of the *Tenebrio molitor* are usually found in corn mills and bakehouses, whence they probably find their way into the stomach with the flour or bread. All the larvae are of considerable size, those of the *Blaps mortisaga* often measuring $1\frac{1}{2}$ in. in length; and since they are provided with very formidable feet and jaws, their existence in the stomach and intestines of their human host is usually productive of anything but comfort. If well supplied with food and warmth, the *Tenebrio molitor*, and perhaps other species, breed throughout the entire year—a fact that may help to explain the persistent evacuation of the insects in all stages of development, which was noted in the cases of Mary Riordan and others.

3. Lepidoptera.

Members of this order are less frequently parasitic in the human subject than the Diptera or Coleoptera. Caterpillars of the Noctuae have been evacuated alive in six instances; in four others, those of the *Mamestra brassicae*, or cabbage moth, which infests the summer cabbage, have been identified; while in one instance (Herold) the caterpillar of the large white butterfly (*Pieris brassicae*) has been found. In all, some twenty-two parasitic caterpillars, generally referred to as "hairy" or "smooth," have been observed; and Cavenne has recorded an instance in which chrysalides of butterflies were the cause of a severe gastro-enteritis. Finally, it may be mentioned that Bartels has observed internal parasitism by a member of the family of Pulicidae or fleas, and Ranque a case in which numerous woodlice were vomited.

Gastro-intestinal infection by dipterous insects is far more common in tropical countries than in England, owing to the greater number and variety of flies, and the custom of eating meat in a raw or partially cooked state. Even in this country, however, it is probable that the majority of people who enjoy cold game or stale cooked meats during the warm months of the year invariably swallow eggs, and even larvae, while those who indulge in garden fruits, raw cabbages, salads, onions, or radishes which have been carelessly cleaned, are also extremely prone to infection by the various Anthomyia, as well as by other insects that lay their eggs in these substances. It is stated that the eggs of the blow-fly have been found in the stools of healthy individuals, and it is probable that if a systematic investigation were undertaken the eggs and larvae of other forms would also often be detected. The habit of drinking unboiled water or water that has been exposed to the air for some time is responsible for infection by those species which usually lay their eggs on water; while such persons who drink the contents of pools, lakes, wells, or tanks, invite infection by a vast number of larvae. The fact that the rat-tailed grub of the drone-fly, which selects for its residence only the foulest water, has been found in the human stomach, is sufficient to indicate how widely opinions may differ concerning the exact definition of "drinking water." Cakes, biscuits, or sweets kept in cupboards are liable to be contaminated by many insects; and in a case related by Albrecht it was observed that the larvae in the boy's stools were identical with those that infested the cupboard where his favourite

cakes were stored. A depraved appetite resulting from hysteria or mental disease seems to have been responsible for many examples of coleopterous larvae in women, although the fact that children are by no means exempt (Pickells) proves that accidental infection may sometimes occur, possibly through the medium of garden mould.

The clinical details of many of the cases of internal myiasis, while deficient in several important particulars, conclusively prove that under certain circumstances the eggs of insects are hatched in the human stomach, and the resultant larvae grow to their full size; while in rarer instances all the various metamorphoses which precede the development of the perfect insect may be completed in the organ. Thus, more than 45 cases have been recorded in which a vast number of maggots were evacuated as the result of the ingestion of insects' eggs, and in many of these the length of time which elapsed between the probable date of infection and the first discharge of living larvae corresponded with that required for the hatching of the eggs and the development of the maggots. In others, again, as in that related by Cavenne, the appearance in the stools of chrysalides suggests that the pupal as well as the larval stage was completed in the alimentary tract, while the case of Mary Riordan and others, in which larvae, pupae, and the perfect insects were discharged at intervals for years, can only be explained by the assumption that the insects actually multiplied in the digestive canal of their host.

These clinical observations are to some extent confirmed by the results of experiment. Thus, larvae of flies introduced into the stomachs of guinea-pigs and frogs have been found alive at the expiration of three days, and those of the blow-fly not only withstand prolonged immersion in water, but resist artificial peptic and pancreatic digestion for six or seven hours. The extraordinary vitality of many species of beetles, especially the Blaptidae, has frequently excited comment (Pickells), and even immersion in spirits of wine for several hours does not seem to affect the *Blaps mortisaga* (Wood).

It is quite certain, therefore, that not only do the eggs of dipterous and coleopterous insects frequently hatch in the human stomach, but that the larvae may remain alive in the organ sufficiently long to permit their escape into the more hospitable regions of the intestine. If these statements apply to the normal stomach, they become infinitely more forcible when the frequent occurrence of gastric subacidity is considered. It is well known that certain functional disorders of the nervous system, including neurasthenia, hysteria, and some forms of insanity, are not infrequently accompanied by a marked deficiency of hydrochloric acid in the gastric juice; and since all varieties of primary inflammation of the stomach produce a similar diminution of digestive activity, it is obvious that the gastritis which ensues from the presence of living animals must indirectly favour their longevity. It is also highly probable that the condition known as achylia gastrica, in which the stomach never secretes any acid, is far more common than is usually supposed, and consequently in many apparently healthy individuals the stomach may prove an excellent incubator for the development of any eggs that happen to gain entrance to it.

SYMPTOMS.

The symptoms that ensue from the presence of larvae in the alimentary tract vary according to the numbers and nature of the parasite. In the case of the Muscidae, the passage of maggots by the rectum is often the first indication of the disease; but when larvae of the Oestridae, Tipulidae, or Coleoptera are present, their large size and sharp appendages always give rise to considerable irritation. An interval of four to twelve days usually intervenes between the ingestion of the eggs and the appearance of the first symptoms, during which time the patient either feels perfectly well or complains of vague abdominal discomfort, restlessness, and want of appetite.

At the end of this incubation period general malaise is experienced, accompanied by headache, thirst, anorexia, and faintness, while in children rigors, convulsions, and delirium are not infrequent. Extreme vertigo has been mentioned in so many cases that its occurrence cannot be regarded as purely accidental. Fever occurs in more than half the cases, and may persist for ten days or longer, although as a rule it tends to subside within forty-eight

hours. In several instances continued pyrexia for three weeks, accompanied by loose stools, caused the disease to be diagnosed as enteric fever. When dipterous larvae inhabit the intestine the abdominal symptoms are usually slight, and chiefly consist of distension, uneasiness, or of pinching and pricking sensations in the region of the navel; but if those of beetles, bot-flies, or crane-flies are present, severe tearing or gnawing pains are often complained of, or genuine colic is experienced. Retching and vomiting occur in the majority of the cases in which the latter larvae exist, and in more than one instance haematemesis has been observed.

The crisis of the complaint, which appears to coincide with the maturity of the larvae, is heralded by a sudden evacuation of the parasites, dipterous maggots being usually discharged by the bowel as well as by emesis, but beetle larvae chiefly by vomiting. Occasionally only a few specimens are eliminated at a time, but as a rule their numbers have been reckoned by the pint, quart, or litre, or are described as "innumerable."

It is interesting to notice that young children often suffer from general urticaria, especially when the caterpillars of certain moths have been swallowed. An evacuation of maggots is accompanied by a rapid subsidence of the former symptoms, with the exception of a mild diarrhoea which may persist for several days. In nearly two-thirds of the recorded cases, however, the symptoms recurred within fourteen days, and in about 40 per cent. of the entire number the patient continued to discharge larvae from the stomach or bowel for many months. In only two instances was mention made of the appearance of the fly in the stools or vomit, so it is probable that the apparent chronicity of the complaint depended upon a succession of distinct infections; but in cases of coleopterous parasitism, such as those recorded by Pickells, Ariel, Paterson, Bateman and others, the long continuance of the disease, which in Pickells's patient was still increasing in severity after three years, indicates that the insects must have multiplied within the body. Senator's case is of interest from the fact that while no maggots could be obtained by washing out the stomach, the patient vomited another dozen a month later. In only one instance was external myiasis associated with a discharge of larvae from the bowel. This was observed by Pout in 1787, and concerned a girl, aged 11, who was suffering from small-pox. On the ninth day of the disease she suddenly passed about half a pint of live maggots, and in all about three quarts were discharged. As the pustules burst each one was found to contain a similar maggot. Death ensued from exhaustion. The medical attendant appears to have been so surprised and perplexed by these abnormal features of small-pox that it is hardly possible to regard the case as anything but genuine. Emaciation, debility, and anaemia are usually present in chronic cases, and occasionally mention has been made of a depraved appetite, dyspnoea, difficulty of micturition, and dropsical effusions.

The general features presented by beetle parasitism are well exemplified by the case of Mary Riordan, which excited widespread interest during the third decade of last century and was so carefully watched by independent observers for the space of three years that even Cobbold admitted its genuineness. This young woman, who was highly neurotic and steeped in superstition, made it a practice for two years to remove clay from the graves of some priests of extreme sanctity and to mix it with her daily food. When first seen by Pickells she complained of severe gnawing and cramping pains in the abdomen, nausea, giddiness, and retching, and was subject to attacks of catalepsy. At intervals violent vomiting would occur, attended by the ejection of various larvae mixed with blood and mucus. In these attacks the patient would scream with pain and describe herself as suffering the tortures of hell, and was sometimes seized with epileptic convulsions. During the first year of her illness 700 larvae, most of which were alive, were vomited and about 100 passed by the bowel, while in the course of the next eighteen months nearly 1,300 were counted. Most of the larvae were identified as those of the *Blaps mortisaga*, or churchyard beetle, but in addition to these the meal-worm, or larva of the *Tenebrio molitor*, various dipterous maggots and intestinal parasites were observed. The majority of the larvae were full grown, those of the *Blaps mortisaga*

measuring $1\frac{1}{2}$ in. in length. When kept in boxes for observation they frequently devoured each other. Pupae as well as perfect insects were often seen, and on one occasion, when two beetles were vomited, the insects flew away. For three years and a quarter these parasites continued to increase in number, and the patient remained extremely ill and suffered from retention of urine, dropsy, and other symptoms. After numerous remedies had been tried in vain, the administration of 6 oz. of turpentine each day procured the discharge of immense numbers of larvae, pupae, and insects, after which the pain and vomiting subsided and the girl was restored to health.

In Ariel's case the patient vomited immense numbers of beetles during the course of two years, including 263 belonging to various species of Staphylinidae, among which were identified the *Ocypus olens*, or devil's coach horse, as well as numberless larvae of the *Tenebrio molitor* and of different species of Carabidae. This patient was cured by a mixture of turpentine and linseed oil. Osiander's case, to which reference has already been made, vomited and passed by the bowel numerous spiders, millipedes, flies, larvae, and worms. Colter relates that a Kaffir girl, 18 years of age, after suffering for a considerable time from abdominal pains, vertigo, and loss of flesh, vomited every few days a specimen of the "dunghill beetle"; while in the cases recorded by Jessop, Rosenstein, and others, living larvae of various beetles were either vomited or evacuated.

Very little is known concerning the phenomena that accompany parasitism by lepidopterous larvae, most writers being content to refer the symptoms exhibited by their respective cases to gastritis or enteritis. In the case described by Waters a child was seized with high fever, delirium, general urticaria, and acute gastritis, all of which symptoms subsided after a hairy caterpillar $1\frac{1}{2}$ in. in length had been expelled from the bowel.

TREATMENT.

Accidental parasitism would probably be prevented if sufficient care were taken to protect meat and other articles of diet from the access of flies, and to avoid uncooked vegetables, musty cakes, and unboiled water. Muslin safes are alone of any value in protecting meat from the blow-fly. In mild cases of internal myiasis a sharp purge is often sufficient to rid the intestines of larvae and eggs, while in the more troublesome forms of the complaint the administration of thymol, santonine, or other anthelmintics, often appears to be successful. Beetles are, however, notoriously difficult to kill, and it was only by enormous doses of turpentine that Pickells and Ariel were able to rid their patients of these pests. With the exception of three doubtful cases death never occurred.

SLUGS.

The garden slug has long been credited with the power of living in the human stomach for a considerable time (Trümpy). Most of the cases, however, which are supposed to support this contention are extremely doubtful, although the following instance, reported by Dickman in 1859, presents certain features of interest:

This patient was a girl, 12 years of age, who was in the habit of devouring raw vegetables in the garden. For two months she had complained of nausea and discomfort after meals, and on August 5th of that year vomited a large and active garden slug. The following day two more were vomited, and on the 7th no fewer than five of different sizes. On August 9th she suddenly exclaimed that something was crawling up her throat, and was seized with violent choking and retching, at the same time making frantic efforts to extract the animal with her fingers. A mixture of ammonia and camphor gave immediate relief, and after free purgation the symptoms disappeared.

Dickman considered that the child had probably swallowed the slugs when they were very small. In 1865 Dalton discussed the question whether slugs could live in the stomach in the light of certain experiments. He stated that when small slugs are carefully introduced into the stomachs of dogs they are always found to be dead when the animal is examined after a short interval, and that if kept in water at a temperature of 70° F. they invariably succumb within twenty-four hours. My own observations indicate that garden slugs rapidly die when placed in water at the temperature of the human body, although large ones may live for several hours in a moist chamber at a temperature of 99° F. On the other hand, immersion in the filtered contents of a healthy human stomach which

possesses the normal degree of acidity is attended by an immediate coagulation of their mucilaginous envelope and death within a few minutes. It can only be assumed, therefore, that if Dickman's observations were correct, the patient's stomach was either devoid of acid secretion or the slugs had never penetrated further than the oesophagus.

Rhind's case, in which a common grey slug, 4 in. in length, is stated to have lived in the stomach for eighteen months, and to have survived five days after being vomited, seems to have been similar to many others where hysterical women added slugs to their vomit or excreta in the hope of exciting notoriety or compassion.

LIZARDS.

In 1834 Luroth published the case of a woman, aged 28, who, after suffering for a long time from gastralgia and other symptoms of indigestion, was attacked by severe colic, and voided a lizard 3 in. in length, after which her former troubles disappeared. In David's case the patient, who had attained the age of 60, was cured of a severe gastritis by vomiting a lizard; while in that related by Spence the animal voided by the bowel was sufficiently agile after its long incarceration to defy all efforts to capture it. In these, as in other instances (Bernstein, Pingault, Hirz), the sole evidence of the phenomenon appears to have rested upon the statements of the patient, and the evacuation of the reptile was not observed by any independent witness. There is consequently no reason to believe that the lizards had ever inhabited the alimentary tract.

WORMS.

Garden worms are frequently brought to medical men with the story that they had been vomited or passed with the stools. Several instances have been recorded (Eyting, Fermaud) in which the deliberate ingestion of such worms was followed by severe inflammation of the stomach and bowels, but there is no evidence that they remained alive for any length of time after being swallowed.

LEECHES.

In former years, when leeches were constantly employed in medical practice, many instances were recorded in which they were accidentally swallowed, with serious results, and in a medical treatise published in 1835 it is stated that when leeches gain access to the stomach they grow to an immense size and occasion severe losses of blood. Spence claimed to have removed from the throat of a man a leech which had caused spitting of blood for two months; Dumas relates an example of acute gastritis due to a leech in the stomach; Marques one in which repeated haematemesis occurred during the course of twenty-one days from the same cause; and Wanderbach a somewhat similar instance. There does not seem to be any reason why a leech should not enjoy a comfortable existence in the human stomach if it is not subjected to the normal percentage of free hydrochloric acid, but whether it would be capable of sucking blood from its host for an indefinite period is open to question. It is comforting to know, however, that the administration of a strong solution of salt is a certain means of destroying such an unwelcome parasite.

AMPHIBIOUS ANIMALS.

The popular belief that the stomach always contains fluid may possibly account for the superstition that certain amphibia, such as frogs and salamanders, are able to pass a prolonged existence in the human body. At least four cases have been recorded in which the presence of living frogs appears to have been honestly regarded by doctors as the cause of gastric disturbance (Ille, Sander, v. Wiebers, Weiss). In two of these only one frog seems to have existed, but Sander's case was remarkable from the fact that no fewer than nine frogs were vomited. In every instance the patient was a woman who had experienced colicky pains, flatulence, nausea, and loss of flesh for some time previous to the appearance of the animal.

Aquatic salamanders as occasional inhabitants of the human body have been recorded by Linckius and others, but it would appear that in every case the reptile had been intentionally swallowed. Berthold has specially investigated the question of living amphibia in the human stomach, and in two cases was able to demonstrate the existence of flies and other insects in the stomachs of

reptiles which were stated to have been vomited after a prolonged residence in the patient's body; while a salamander which was supposed to have been vomited by a girl rapidly succumbed when placed in water at a temperature of 65° F. This observer also found that frog spawn, tadpoles, edible frogs, and salamanders were unable to exist when the water in which they lived was raised to a temperature of 65° F.

On the other hand, at least two cases have been recorded which suggest that amphibia are able to resist a much higher temperature than Berthold was inclined to admit. Thus, an insane woman under the care of Bremser, believing that the bite of the reptile was always fatal, attempted to commit suicide by swallowing a small toad which she had carefully wrapped up in a piece of mesentery obtained from the butcher's shop. No symptoms of interest developed for several hours, but in the course of the evening she complained of nausea and oppression at the chest, and finally vomited the toad, which was quite alive but had both its hind legs broken. Colin's patient, who swallowed a salamander, vomited the animal alive after the lapse of nearly sixty hours.

With regard to the question of food, it is probable that the smaller amphibia and reptilia are able to accommodate themselves to circumstances to a much greater degree than is usually believed. As an instance of this I may mention that some lizards which a friend and I had captured in the summer were threatened by starvation during a severe winter, but were eventually saved by a diet of milk, which they soon learned to drink out of a dish placed in their cage.

Although there is no reason to believe that amphibia ever enjoy a prolonged existence in the digestive tract, or that spawn accidentally swallowed can develop into tadpoles, it does not appear improbable that a small frog, if uninjured in transit, might be vomited alive after several hours' residence in the stomach.

With regard to the cases in which live fresh-water shrimps are stated to have been discovered in the evacuations (Banon, Troschel, Wright), I have never known these crustacea live more than thirty seconds when placed in water at a temperature of the human body.

SNAKES.

The only carefully attested instance of a snake living for more than a few hours after being swallowed is that recorded by Mandt. The subject of this incident was a Russian peasant who, when sleeping in a forest, was awakened by the sensation of something passing down his throat. On examination, a rounded body could easily be felt moving about in the stomach, and a loud bruit was audible through the stethoscope. In spite of vigorous medicinal treatment the movements did not cease until the third day, and nearly a fortnight elapsed before a viper, measuring 12 in. in length, was expelled from the bowel. The reptile belonged to a species the bite of which excited inflammation but was not fatal.

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A CASE OF INTUSSUSCEPTION OF THE TRANSVERSE COLON IN AN ADULT.

BY

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THE patient in the following case, a coloured man aged 45, came under my care on the evening of September 26th, 1909. He had had severe pain in the epigastrium, vomiting and diarrhoea for some thirty hours. Some twenty-four hours earlier still he had lifted a weight of 50 lb. with the right hand alone, but he was accustomed to lift much heavier weights, and remained in his ordinary health until the next morning. He was then on board a small sailing boat, and at 9 a.m. felt a sudden sharp pain in the right side, and an inclination to go to stool. The motion was easy and normal, but he had to lean in a strained position during the act of defaecation, the boat being under full sail and rocking a great deal. After the motion the pain in the right side became very much worse and doubled him up, and at this juncture he vomited the sugar-cane and pupa seeds which had been part of his last meal. He vomited again twice in the next two hours—green material. On getting ashore, about 11.30 a.m., the pain was less severe, and he walked half a mile to his home, though with difficulty. He drank a little sugar and water, and this was immediately rejected. Vomiting continued at intervals during the night, but no bad-smelling material. The following morning—that of the day on which I saw him—he was carried on board a boat to be brought to me. At 9 a.m. he passed about a pint of dark red clotted blood, and at the same time vomited material which smelt like bad eggs. This was repeated ten or twelve times, and he passed more blood by the bowel on four or five occasions.

Previous History.

For about twelve years he suffered from constipation on sea voyages, lasting often for eight days. The bowels never moved when at sea. Since 1902 the bowels had moved daily.

State on Examination.

He was a tall, spare man, but well developed. He was twisting about in bed, and complained of severe pain in the right hypochondrium. His face was pinched and drawn, breathing entirely thoracic; pulse 90, was full and regular; his temperature was not raised. He complained of great thirst, very severe pain in the abdomen, a feeling of sickness, and was quite worn out by the excessive vomiting. The mouth was parched, tongue coated with a thick brown fur, lips pale and drawn, and the breath was most offensive. The abdomen was retracted with scarcely any movement—with a slight fullness in the region of the pylorus; no peristalsis was detected; there was general tenderness over the abdomen, but this was especially marked over the swollen area. The abdominal muscles were contracted but not quite rigid; no tumour could be palpated. The abdomen yielded a tympanitic note all over, including the tender area. There was no enlargement of liver or spleen, and nothing was made out per rectum.

Diagnosis.

In view of these symptoms and the definite history of faecal vomiting, a diagnosis of obstruction in some part of the bowel was made.

Treatment.

He was given soap and water enema, two pints in fifteen minutes. This was returned, along with a little thin, dark-coloured blood; no clots. Sips of water were ordered, and the patient given liq. morph. 43 minims every two hours till the pain was relieved; this was after four doses.

September 27th. The next day another soap and water enema was administered, two and a half pints; it was returned with a little dark blood.

September 28th. Turpentine and starch enema, two pints, brought away a few small hard masses of faeces and a little flatus, which relieved the patient considerably.

September 29th. Patient was given calomel, $\frac{1}{2}$ grain, in the morning, and again $\frac{1}{2}$ grain in the evening.

September 30th. Calomel, $\frac{1}{2}$ grain, was given at 6 a.m. At 11 a.m. the patient had a good motion, which was quite natural and formed. He was then allowed a little milk and water and albumen water; up till this he had taken nothing but water. He had another natural motion in the evening, and continued the calomel, $\frac{1}{2}$ grain morning and evening during the following day the bowels being moved twice, morning and evening.

Result.

In the afternoon of October 2nd, at 3 o'clock, the patient felt something move at the painful spot, accompanied by a shooting pain and a "feeling of hollowness." He had a motion between 4 and 5 o'clock, which he passed with great difficulty. His friends noticed that he had passed a piece of bowel, and sent me a most urgent message to come at once. I found the patient much alarmed but considerably better, and was able to reassure him that everything was all right. This prognosis proved justified, for after this day the patient's recovery was steady. I ceased attendance on October 26th, but have since heard that there has been no recurrence of any symptom.

The piece of bowel passed proved to be the transverse colon. The intussusceptum was about 1 ft. in length, and consisted of the two tubes of gut—the middle and internal tubes, so that about 24 in. of gut were involved. There was evidence of a tight constriction at the neck of the intussusceptum, but in the specimen the little finger could be introduced into the inner tube. This would explain the passage of natural formed motions previous to the passage of the intussusceptum itself. The whole bowel was gangrenous and very offensive; but the two tubes were not adherent, and the inner tube could be reduced a little way. Attached to the middle tube was a mesentery, which contained fat, and which was believed to be omentum. The mesentery attached to the inner tube was in shreds and gangrenous. The three longitudinal muscular layers were clearly made out, so that the part involved would be mostly the right half of the transverse colon, with possibly a part of the ascending colon.

I have felt justified in reporting this case because of:

1. The rarity of acute intussusception in the adult.
2. The absence of any definite exciting cause.
3. The very rare occurrence of spontaneous cure.

Muscular strain and indigestible food are the causes commonly ascribed in textbooks, but this man was accustomed to lift heavy weights up to 300 lb, and when he happened to lift 50 lb. with the right hand alone on the morning previous to the attack he felt no immediate bad effect.

His food was that to which he was accustomed. The strained position which he occupied during defaecation on board the sailing boat may have increased the extent of the intussusception, but the pain had then already commenced.

As regards the treatment adopted, my first thought was operation, which I offered to perform, but as the patient was unwilling I did not press the point, in the absence of hospital accommodation and other medical assistance. Remembering the dictum of an experienced physician of my acquaintance that "nearly all cases of acute appendicitis could be cured by morphine and hot water," I tried this treatment, adding daily enemata in an attempt to reduce the obstruction. As the patient passed a little flatus with the third enema, I felt justified in prescribing small doses of calomel to overcome the effect of the morphine on the upper part of the bowel. This, as the case showed, proved successful, as I believe, by causing a movement of the bowels, it prevented the stercoraemia which might have caused the death of the patient from exhaustion; and, although unforeseen, it probably hastened the separation of the gangrenous gut, thus preventing a certain amount of toxæmia.

In conclusion, I attribute the result of the case to be due in a large degree to the physique of the patient, who was one of those thin, spare individuals who seem best able to survive a serious illness.

AMONG the new Senators of the Kingdom of Italy are two representatives of the medical profession. These are Dr. Camillo Bozzolo, Professor of Clinical Medicine in the University of Turin; Dr. Tommaso de Amicis, Professor of Dermatology and Syphillography in the University of Naples. The same distinction has been conferred upon Professor Cimician, who, though not a doctor, has taught chemistry to so many generations of medical students, first at Rome and afterwards at Bologna, that he may be claimed as of the household of medicine.

UNDER the will of the late Mr. Henry Minson, of Green Lanes, Newington, the following institutions each receive one-seventeenth share of the residue of his estate: The Royal Sea Bathing, Great Northern Central, London, Metropolitan, and London Fever Hospitals, Earlswood Asylum, and the Royal Asylum for Incurables, Putney. The residue is of such amount as to secure to each of the beneficiaries between £400 and £500.