

The adult dose is from five to ten drops. This may be well replaced in the same dose by the Tinctura Chloroformi et Morphinae, B. P., which was intended to be its official substitute.

Belladonna may be considered a feeble anodyne. Administered with opium it has not only a corrigent effect, mitigating some of the unpleasant symptoms of the latter drug, but is also apparently, to a certain extent, an adjuvant.

The various coal-tar products, whose name is now legion, have a certain anodyne value. Antipyrine, phenacetin, acetanilid, lactophenin, are a few among the many. (See also under *Antispasmodics*.)

Cannabis indica is a still weaker anodyne, if it deserves the name at all. Its hypnotic action can overcome a moderate degree of discomfort, but not much actual pain. It is of some repute in the treatment of chronic migraine.

There are, besides the foregoing, one or two drugs which deserve mention as local anodynes, although their commoner use is as local anesthetics. For example, cocaine is chiefly employed to produce anaesthesia, as of the cornea, or by injection to anaesthetize the field for a circumscribed operation. Its anodyne action may be obtained, however, in conjunctivitis, in painful hemorrhoids, etc. A four-per-cent. solution may be employed. But the ever-present danger of establishing the cocaine habit must always be borne in mind before resorting to cocaine as an anodyne.

Cocaine itself is much less soluble in water than its salts, e.g., the muriate; but the former is soluble in fats, while the latter are not. Hence in ointments the cocaine itself should be used, and not its salts.

Eucaine has been found in many respects a useful substitute for cocaine. *Charles F. Withington.*

ANONACEÆ.—(The Custard-Apple family.) A family of nearly fifty genera, pertaining almost wholly to the tropics, of both hemispheres. They yield a number of the most delicious of known fruits, such as those of *Anona* and *Duguetia*. They are classed near the Magnolias and Myristicas, and, like them, are rich, chiefly in the bark, in volatile oils, for which they are considerably used in domestic practice. *H. H. Rusby.*

ANOSMIA. See *Smell, Disorders of.*

ANTACIDS. See *Alkalies.*

ANTHELMINTICS.—Agents rendering harmless or killing worms. A *vermifuge* is an agent which expels worms, a *vermicide* one which kills them, but these terms are occasionally used as synonyms.

A priori any agent thus used must either be insoluble in the gastro-intestinal juices, and therefore non-absorbable, or else, if soluble, must possess the faculty of being innocuous to the host at the same time that it is destructive to the intruder. Drugs of this latter class are few, and the employment of nearly all absorbable drugs is distinctly hazardous, for their dose is necessarily large, and they not infrequently produce various phenomena of poisoning.

For convenience worms may be divided into three groups, each with its own treatment: tape worms or tenia; round worms; seat, pin, or thread worms.

Tape Worm or Tenia.—Drugs used in this condition are: pelletierine, and pomegranate from which it is derived, pumpkin seed, thymol, cusso, kamala, salicylic acid, silver oxide, chloroform, turpentine, and areca or betel nut.

In the treatment of tape worms the method of procedure is of as much importance as is the choice of the remedy to be employed. An absolute essential is the withholding of all food from the patient for from twelve to twenty-four hours. If this is impracticable the drug should be administered before breakfast, a light supper only having been partaken of the previous night. About three-quarters of an hour after the administration of the anthelmintic an active purge should be administered. For

this purpose an ounce of compound tincture of jalap (French Codex) will be found useful, or a large dose of calomel may be used—and calomel has the advantage of causing a profuse outpouring of bile, which seems to be particularly obnoxious to these parasites. As the desideratum is the removal of the head or heads of the worm or worms, the stools should be carefully examined for their presence, and in any case a high rectal injection should be given, preferably of saline solution, as this is most useful in bringing away the head of the tenia, which may be narcotized but not dead. It is of the utmost importance that the bowel discharges be destroyed.

Of the agents used against this worm, three are largely and successfully employed, though at times two or even three drugs may have to be successively tried, and the treatment may even then fail. *Aspidium* is most useful in the form of the oleoresin, given in four capsules of fifteen minims each, at one dose, or in two doses half an hour apart. It is not to be forgotten that oils render soluble this agent, and never, therefore, should they be employed. Pelletierine may be used as the tannate, of which the dose is three grains, or else as the liquid alkaloid prepared by Tanret; the latter is very expensive and not always obtainable. *Pepo* is most effective and may be used by taking two ounces of the powdered pumpkin seeds to make an emulsion or a confection, this amount being the usual dose. *Thymol* has quite recently been advocated, and may conveniently be given in capsules of ten grains each, one capsule being taken every quarter of an hour until two drachms are taken. *Pomegranate* is used by taking two ounces of the bark, adding this to two pints of water which is boiled down to one pint, and of this a wineglassful is taken every half-hour. *Areca nut* is a comparatively new remedy, which depends upon a volatile oil and upon its active principle, arecaine, for its efficacy; it is employed in the dose of two drachms of the powdered nut. *Kamala* and *cusso* have the disadvantage of being required in large dosage, while they are most repugnant to the taste; the former is given in syrup, in the dose of two drachms, to which has been added some hyoscyamus to prevent griping, and the latter as the powdered flower, of which half an ounce is used to make a decoction with a pint of water. Of *koosin*, the active principle of cusso, twenty to forty grains may be given in capsule. The dose of *silver oxide* is one grain three times a day; it is of doubtful value. Salicylic acid, one-half drachm, combined with an equal amount of sodium bicarbonate, added to a pint of water, has been recommended, but the taste of this solution is a serious drawback to its use. *Turpentine* and *chloroform* are certainly effective, but belong to the class of absorbable, and therefore dangerous, drugs. The dose of each is one drachm, and in their administration glutol capsules will be found of advantage.

Children under two years of age react badly to teniacides as a rule, and great care must be taken in treating them for this condition.

Round Worm or Ascaris Lumbricoides.—These worms affect children rather more than adults, and infest the upper part of the small intestine, though rarely they work their way up into the stomach, and even into the œsophagus and pharynx. Drugs used against this parasite are: santonin (the glucoside of santonica or levant wormseed); spigelia or pink root; chenopodium or American wormseed; turpentine; azedarach or pride of China; mucuna; tin. Probably the best of these is santonin, which can be conveniently administered, as it is tasteless, in powders of two grains, alone or combined with calomel. Equally useful is spigelia in the form of the fluid extract, of which the dose is two drachms, or, better, the fluid extract of senna and spigelia (unofficial) may be used in a dose of half an ounce, the senna in this case acting as a purge. Oil of chenopodium, in the dose of from twenty to thirty minims, which may be dropped on sugar, is very useful; turpentine, half an ounce, combined with castor oil, one ounce, is generally most efficient, but should not be used because poisonous effects, particularly renal inflammation, may occur from its absorption.

Azedarach has the disadvantage of requiring a large dose, two ounces of the drug being added to a pint and a half of water, which is then made into a decoction by boiling the mixture down to one pint; it is nevertheless most useful. Mucuna and tin are barbaric relics, their administration being as crude as their preparation and mode of action. They belong to the class of so-called mechanical anthelmintics. Mucuna, a West Indian plant, was used by scraping the pods of the plant of the hairs or spicules which cover them and adding to this molasses or syrup. The patient swallowed this mixture, and the spicules in their passage down the intestines were supposed to transfix the worm. The tincture and decoction have no virtue, and mucuna, so largely employed at one time, has passed away.

In treating any patient for the presence of ascariides, it is necessary, as in the case of tenia, that food be abstained from for twelve or, better, twenty-four hours; that an active purge be administered about three-quarters of an hour after the remedy has been taken; and that the bowel discharges be destroyed.

Seat, Pin, or Thread Worms: Oxyuris Vermicularis.—These worms generally infest the rectum and colon, and are most common in children. The following drugs are those usually employed, but anthelmintics used against the tape and round worm can be used, as many of them are equally destructive to the seat worm: quassia; saline solution; carbolic acid; lime water; iron; tannic acid and drugs containing large amounts of tannic acid, such as catechu, kino, and krameria.

Quassia is unquestionably the most efficient of this list, and has at the same time the advantage of being non-irritant and non-poisonous. A rectal injection, consisting of one ounce of the fluid extract added to a pint of water, or of a decoction made of an ounce of quassia chips added to a pint of water, is given. Before using this or any other injection the bowel should be thoroughly cleansed with soap and water, and it is imperative that the injection be retained, by pressure over the anus, for fifteen or twenty minutes, and that the region around the anus be thoroughly washed with salt and water. Failure to observe these precautions will render the treatment of little avail. Of the remaining drugs, saline solution is probably the best; carbolic acid (one-per-cent. solution) has its advocates, and is often used immediately after the quassia injection; it should not be employed, I believe, for two reasons: first, because it may cause sloughing, and, secondly, because dangerous symptoms may follow its absorption from the rectum. Alum (one ounce to a pint of water), lime water, iron, and tannic acid act as astringents.

For cleansing with soap and water and for injecting the medicament a soft rubber catheter or rectal tube will be found most useful in aiding the solution to go well up into the colon, and it is advisable to repeat the treatment two or three times at intervals of a day or so.

Charles Adams Holder.

ANTHRAROBIN.—Dioxyanthrol, desoxy-alizarin, leuko-alizarin, C₁₅H₁₀COH, CH, C₆H₂(OH)₂. This is prepared by the reduction of commercial alizarin in warm ammoniacal solution with zinc dust, and subsequent filtering into water acidulated with hydrochloric acid. The resulting precipitate is washed and dried.

Anthrabin is a yellowish-white, granular powder, insoluble in water and dilute acids, slowly soluble in chloroform and ether, and freely soluble in glycerin and in ten parts of alcohol. In aqueous solutions of alkalies or alkaline earths it dissolves with a brownish-yellow color, which, through oxidation and the reformation of alizarin, rapidly turns to green and then blue. Claimed to have the same virtues as chrysoarobin, this substance has the advantages of being non-irritating, and of causing but slight staining of the skin. Clinical reports differ as to its efficacy; for example, Jackson says that it is a weak preparation and not of much value, while Behrend and others consider it superior to chrysoarobin. These latter use it as a parasiticide and stimulant to the skin,

and especially commend its use in psoriasis, pityriasis, tinea tonsurans, trichophyton, and herpes. It is employed in ten- to twenty-per-cent. ointment, or in solution in glycerin or alcohol, or in collodion. It must not be applied in the immediate neighborhood of the eye, as it has a tendency to spread. A prescription that is recommended contains anthrabin and salicylic acid, of each one drachm, in alcohol sufficient to make one ounce. Behrend's mixture consists of anthrabin 10 parts, borax 8 parts, in water 82 parts, or he uses a ten-per-cent. solution in glycerin. *W. A. Bastedo.*

ANTHRAX.*—(Synonyms: Carbunculus Contagiosus; Milzbrand; Charbon; Wool-Sorter's Disease; Mal de Rate; Mycosis Intestinalis; Anthracemia; Malignant Pustule; Splenic Fever.) (See also *Carbuncle* and *Furuncle*.)

A specific, highly infectious disease, common to most vertebrate animals and communicable to man (though in varying degree). The disease is not contagious in the ordinary sense of the word, but it is in a high degree communicable by means of secondary media of infection. It maintains its virulence for long periods, and suffers no deterioration from transportation or variations of climate or other external conditions. It appears as an acute intoxication, usually of a restricted part of the body, but later of the entire body, and is due to the invasion of the tissues of its host by the bacillus anthracis. The disease is primary in animals, and occurs in the human subject in two distinct forms, viz., by direct inoculation, or indirectly by eating the flesh of animals infected with anthrax or by inhaling dust which is contaminated with the poison of anthrax, as in the operations of currying hides, upholstery, mattress-making, etc. The blood, tissues, and excretions of an animal dead from anthrax are found to contain a minute organism, in the form of a rod bacillus, which has been demonstrated to be the specific and invariable cause of the disease, and may be obtained in every fully developed case of anthrax. At the point of invasion the bacillus first acts as a purely local poison, producing only a local irritation, but it soon multiplies rapidly, and later is conveyed by the circulating blood into all parts of the body, where by its enormous numbers it blocks the capillaries with embolic masses of bacilli, causing innumerable hemorrhages into the organs and tissues, and effusions into the serous cavities and cellular structures; and by its specific toxin acting upon the sympathetic nerve centres it produces great depression of the vital functions, which often ends in death within a few days.

Anthrax is the most widely spread and the most destructive of all communicable diseases which affect animals. The malady is primary in the herbivora, and is found in all countries. It is very prevalent in parts of France, Germany, Italy, Persia, North and South Africa, and South America. It is least prevalent, though not absent, in Australia, North America, and the British Isles. Epidemics of the disease often appear among cattle and sheep of affected regions, and may be fatal at the rate of from fifty to seventy per cent. of the animals attacked. It also attacks human beings in infected districts by inoculation from the lower animals, and is often attended with great fatality. All classes of vertebrate mammals are susceptible to anthrax. The disease does not spread by contact or association; it can be acquired only by the introduction of the infective organisms into the body, either through an abrasion of the skin or a defect in the mucous membranes, or by the spores of the bacilli finding their way through the epithelial lining of the alimentary canal or respiratory tract, and so causing general infection. The inoculation of these organisms produces the same fatal effect upon animals as does the infection from the original source of the primary disease. Blood taken from a diseased animal is also fatal if introduced into the tissues of another susceptible healthy animal; but if the

*The bacteriology of anthrax will be considered in the article entitled, *Bacteria, Pathogenic*. For this reason no allusion has been made to the subject in this article.

blood is filtered previous to its introduction, so as to remove all germs, it is no longer infectious to a healthy animal (Klebs, Pasteur).

Anthrax cannot under any circumstances originate *de novo*, but is always communicated by some medium capable of conveying the infection; and it is always transmitted directly or indirectly from pre-existing cases, or by the products of such cases, from animals dead of the same disease.

In Great Britain, anthrax is included among the maladies specified under "The Contagious Diseases Acts." In England, numerous outbreaks of anthrax have been traced to the refuse of washings from wool, hair, etc., which are discharged into streams or sewers, and from the solid residue which is used for manure.

Twelve men and sixty head of cattle died of anthrax in Pennsylvania during the year 1897. The men were, without exception, operatives in local tanneries, and the cattle were from pastures watered by the stream carrying off the refuse of these tanneries (*Modern Medical Science*, vol. xii., No. 7, January, 1900). Ten cases of anthrax were admitted to the Liverpool Northern Hospital between March 13 and July 8, 1893. The source of the disease was found in two tanyards which had become infected from some hides imported from China. The diagnosis was not doubtful in any of the patients, and was supported by microscopic examination in all the cases, in six of which it afforded absolute proof of the nature of the disease. Later, three additional cases were admitted to the same hospital, of whom two were workmen from the same tannery. The third was a woman employed as a wool-sorter. Three other cases were reported from the same establishment which were treated elsewhere. The mortality is reported at forty-four per cent. (*The Lancet*, January 20, 1900, p. 164.)

Animals rarely take the disease from other animals, but obtain it indirectly from the soil or other secondary medium of infection. Thus, certain restricted regions or localities become centres of infection where the disease shows itself year after year. This may arise from the superficial burial of animals dead from anthrax, which leads to the infection of the soil, which, once produced, is not easily eradicated. In portions of the province of Brandenburg, the owners of cattle have learned by oft-repeated experience the exact boundaries of limited districts, and even of certain fields, where anthrax contamination persists in the soil. The same condition prevails in certain portions of the Bavarian Alps.

No ordinary changes of temperature, such as freezing of the ground, affects the vitality of the organism. Stable implements, veterinary surgical instruments, etc., may spread the disease among healthy animals. The bodies of animals when buried are not so dangerous for the propagation of anthrax as are the blood, intestinal contents, etc., which may be scattered on the surface of the ground or adhere to grass, shrubs, etc.

Herbivorous animals, such as cattle and sheep, are more susceptible to the intestinal form of anthrax, but are less often affected by the external form of the disease, the so-called "malignant pustule." Others, such as guinea-pigs and rabbits and white mice, are less often attacked by the intestinal forms, but are more susceptible to subcutaneous inoculation by experiment. The carnivora are less susceptible than other classes. Animals ordinarily acquire anthrax by way of the intestinal canal, through infected fodder, stable litter, manure, or from water polluted by anthrax infection; or from infection of the pastures or fields owing to the exposed bodies of animals dead from the disease; or from the contamination of the grass by the anthrax germs from the dead body of an animal which has been buried in the vicinity.

Direct inoculation of anthrax in man is not very common. It can happen only in those whose calling brings them in direct or personal contact with the diseased or dead animal. There must be also either an abrasion of the epidermis or a wound of the skin to insure infection. Veterinaries and knackers have been more frequently affected than physicians, nurses, undertakers, or butch-

ers. There is danger to man from flies about those affected with anthrax, as it has been proved that the virus of many infectious diseases may be conveyed by insects, either from soiling of their bodies or limbs with the infectious material, or from their dejections which may contain the germs of an infectious disease.

Anthrax in man, in this country at least, is almost exclusively limited to those working in animal products imported from other countries where the disease exists. The dead animal is far more dangerous when thus distributed than is the living animal to the human beings in its own immediate vicinity. Infection may occur through the skin, intestines, or the lungs. In a guinea-pig a single bacillus of virulent anthrax is capable of producing fatal infection. Experiments on rabbits have shown that general as well as local infection may follow the rubbing of certain pathogenic bacteria into the un-injured skin. In infected localities the anthrax bacillus lives in the soil, and may thus render certain portions of a field or pasture where the bodies of animals dead from the disease have been buried a permanent source of the disease to other susceptible animals through long periods.

The greatest source of danger in this disease lies in the fact that the virus may be introduced through the small abrasion or injury of the skin, or of the mucous membrane of the alimentary canal. The degree of susceptibility of different animals to the poison of anthrax is not uniform. The herbivora are especially susceptible (experimentally, rabbits and guinea-pigs), the omnivora are less liable to take the disease (pigs, men, etc.), and the carnivora are least susceptible to the virus. Strong, healthy animals are more easily affected than the lean or sickly. One attack affords no protection against a recurrence of the disease. To show the ravages of this disease, it may be stated that in Russia, in the year 1864, no less than 72,000 horses were destroyed by it. In the province of Novgorod, within four years, more than 56,000 horses, cows, and sheep, as well as 525 men, fell victims to this terrible scourge (see Bollinger). The disease spreads among men in proportion as they are exposed to infection from diseased animals or men. Shepherds, farmers, butchers, coachmen, stablemen, as well as veterinary surgeons and those individuals who handle animal products, such as wool sorters, curriers, mattress-makers, etc., are especially exposed. Horsehair is particularly dangerous. Further, articles like hides, horns, wool, etc., from countries where the disease is prevalent, which may be transported great distances, are liable to convey the infection and thus give rise to the malady among those employed in their transportation or manufacture. Trousseau mentions two factories in Paris, in which horsehair from Buenos Ayres was used in upholstering furniture, and in which not more than six or eight workmen were employed: during ten years twenty laborers died in these establishments from anthrax. Even after the hair has been long in use, the disease may be induced in the form of true malignant pustule in those employed in renovating the upholstery. A small scratch or crack in the skin or mucous membrane is sufficient for inoculation, and frequently the disease is introduced into the system by the unclean nails or fingers of workmen in scratching the face or arms. The disease may be spread from man to man. The discharge from the pustule (anthrax carbuncle) contains the bacilli of the disease, and its inoculation will be followed by the development of anthrax. Repeated transmissions of virus do not cause a diminution of virulence: the last generation is as highly infectious as the first. Anthrax is observed in men in the proportion of fifty-nine per cent., to forty-one per cent. in women. The seat of the primary sore, the malignant pustule, was found by Virchow to be confined to the face, hands, fingers, forearm, or neck in eighty-four per cent. of cases. In the rest, sixteen per cent., the arms and lower extremities were the seat of infection, and in these cases the patients were chiefly women and children, in whom these regions are more exposed than in men.

There is a varying susceptibility to anthrax among

different families of the same race. This has been observed in both men and animals. Thus the negro is less susceptible than the white man, and certain breeds of sheep, notably the Algerian variety, are less susceptible than other breeds. Deer, reindeer, and elephants are also liable to the disease.

The bacillus of anthrax is famous as being the first micro-organism to be discovered as the actual cause of an infective disease. In San Domingo in 1770 it was the cause of the death of fifteen thousand persons in the space of six weeks from eating the flesh of animals dead from the disease.

All forms of anthrax are caused by a single organism. It is at first a local lesion which may be destroyed by thorough excision or by efficient caustic treatment. The disease is not necessarily always fatal. Dr. Budd, of Bradford, England, had nine cases, of which eight resulted fatally.

Other observers in mostly tropical countries report as low as twelve per cent., or even five per cent., mortality. Such a statement should, however, be taken with some amount of reservation. In forty-eight cases of external anthrax treated at Guy's Hospital in London, thirty-nine recovered after operation for the destruction of the local disease. The infection of a wound of entrance of the poison cannot be prevented by the immediate irrigation of the wound by corrosive sublimate or carbolic acid when the bacilli have once gained entrance into the flesh.

There is always a local lesion in some part of the body by which the virus of anthrax gains entrance to the system. The disease is by no means always fatal to animals. Fagee states the average mortality among horses and horned cattle to be seventy per cent. The disease is accompanied in cattle with enlargement of the spleen as a very characteristic condition. Many cases show no external lesion, as the infection may be taken by the mouth in swallowing, or may have been inhaled. There are then rarely premonitory symptoms; the patient is seized with a chill, becomes faint and prostrated, has pains in the back and legs, the temperature rises to 102° or 103° F., the breathing is rapid and there is much pain in the chest, the pulse is feeble and very rapid, and there may be vomiting. From the prominence of these symptoms the pulmonary form of the disease has at times been diagnosed. Death may occur in twenty-four hours. Cerebral symptoms may be very marked in the course of the disease.

When the disease is located in the chest, there is great resemblance to a rapidly spreading pneumonia with subsequent heart failure. It is probable that many cases of "pneumonia" occurring in manufactories of carpets, blankets, furs, etc., are really thoracic anthrax. The recognition of "wool-sorter's disease" as a form of anthrax is due to Dr. J. H. Bell, of Bradford, England. Eppinger has shown "rag-picker's disease" to be a local anthrax of the lungs, with subsequent general infection of the system from this source.

The term "malignant pustule" is inappropriate and misleading, as the disease is often not malignant, and the pustule never contains pus.

COURSE OF THE DISEASE.—External Anthrax.—During the first day the seat of infection is more or less irritable, sometimes painful. The continued itching of the part, with augmentation of the redness, an oedematous swelling, together with shooting pains in the locality, with red lines beneath the skin, marking the course of the swollen lymphatics, are among the strongest initial symptoms of anthrax. As the disease progresses, these conditions increase in intensity, and the tissues about the point of infection become discolored and variegated in tint. The formation of a vesicle at the point of infection, with subsequent rupture, and the appearance of a crust or scab are decidedly characteristic. Fever is often present even at this stage, though it may not be observable in the early stages. Diarrhea is frequent. Malignant cases may terminate fatally in from twenty-four to forty-eight hours, and are often preceded by collapse.

During the second day there usually appears a vesicle varying in size from 1 to 3 cm., with a yellowish or brownish exudation. At about the third day, the vesicle bursts and shrinks, leaving a brownish base, exuding serum. On the fourth day there is a black, dry, depressed crust or scab, often called the eschar, which is surrounded with a very characteristic, slightly elevated border or wreath of small new vesicles. There may be other discrete or confluent vesicles in the neighborhood. Pus is first observed at the end of the tenth or fifteenth day, if the patient lives so long, when the separation of the sloughing eschar, accompanied with suppuration, occurs in the usual manner.

The initial symptoms of anthrax are similar to those of other acute febrile diseases: weakness, malaise, chilliness or moderate rigor, headache, thirst, restlessness with or without mild delirium, sometimes vomiting and disturbed sleep. The subsequent symptoms vary in character and intensity according to the external localization of the disease. If this is in the stomach, there may be obstinate vomiting; if in the intestine, persistent diarrhoea; if in the pulmonary structures, rapid breathing, with symptoms similar to those of extensive pneumonia, cyanosis, and speedy collapse. Serious disturbance of the brain may be associated with any of these conditions, accompanied with convulsions and coma. The temperature curve is similar to that in other acutely toxic febrile conditions, ranging from 102° to 105° F.

Dr. Hamer reported a mortality of forty per cent. in cases of anthrax of the neck, while the mortality in cases in which the primary lesion was situated upon other parts of the body was twelve per cent.

Anthrax is less fatal in tropical countries, where the condition of the climate, heat, sunshine, etc., may produce diminished virulence of the specific organism of the disease. Perhaps a greater resistance to the effect of the bacilli, or of their toxins, on the part of the inhabitants, or a greater toleration of the infective poison, may account for the less fatal character of the malady in those regions where the mortality has been reported as extremely low, varying from zero to one per cent.

A pronounced systemic reaction with much local inflammation has been thought favorable to recovery. In asthenic conditions of the system the prognosis is less hopeful. The pulse, respiration, and temperature are not always indicative of the gravity of the disease or of the probable result.

Dr. Bell gives the following table of mortality in relation to the duration of the disease:

Days.....	2d	3d	4th	5th	6th	7th	8th	9th
Cases.....	2	3	12	6	11	10	5	5

Over nine days, 1 case; total, 55 cases.

Intestinal Anthrax (*Mycosis Intestinalis*).—In some cases the primary lesion of anthrax, the malignant pustule, is seated upon the internal surface of the bowel, and produces the symptoms known as those of mycosis intestinalis, followed by the same train of fatal results as when the primary lesion is upon the external surface. Often the milk and the flesh of diseased animals are taken as food, and doubtless the infection frequently occurs from this source. The course and symptoms of this form of the disease are not well understood. Often the workmen engaged in slaughtering diseased animals become infected by direct inoculation, while those eating the flesh of the same animals experience no harm. It is probable that the bacilli are destroyed by the processes of cooking, which generally require an elevation of temperature sufficient for their sterilization; or possibly they may be rendered harmless by the gastric digestion; but if they succeed in passing the stomach, they may then become seated in the mucous membrane of the bowel and there produce the disease.

Intestinal anthrax is rare in man, though it has been occasionally reported. (For a most interesting case see