

**Softening of the stomach in children in Australia : with some observations on the disease in adults / by C.E. Reeves.**

**Contributors**

Reeves, C. E. 1828-1880.  
Royal College of Surgeons of England

**Publication/Creation**

Melbourne : George Robertson, 1867.

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SOFTENING OF THE STOMACH

IN CHILDREN

IN

A U S T R A L I A



WITH

SOME OBSERVATIONS ON THE DISEASE IN ADULTS.

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BY

C. E. REEVES, B.A., M.D.

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*Nulla est alia pro certo noscendi via nisi quam plurimas et morborum et dissectionum historias, tum aliorum, tum proprias, collectas habere et inter se comparare."*

MORGAGNI. DE SED ET CAUS. MORB., lib. iv., præm.

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*C*  
Melbourne:

GEORGE ROBERTSON, 69 ELIZABETH STREET.

1867.

SOFTENING OF THE STOMACH

IN CHILDREN



AUSTRIAN

WITH

SOME OBSERVATIONS ON THE DISEASE IN ADULTS

C. E. REEVES, B.A., M.D.

Printed at the University Press, Toronto, by J. H. M. G. & Co., 1877.

Published by

GEORGE ROBERTSON & CO., 111, BATH STREET

1877

TO  
CORNELIUS STEWART, ESQ.,  
SURGEON.

MY DEAR SIR,

MAY I beg that you will accept the  
Dedication of the following pages, the result of six  
year's labour, as a slight token of my admiration of  
the noble manner in which you acted, and thanks  
for your aid, in defending Mr. BEANEY.

Yours very truly,

C. E. REEVES, M.D.

WELLINGTON PARADE, MELBOURNE,

JULY, 1867.



CORNELIUS STEWART, ESQ.

DEAR SIR,

My Dear Sir,

May I beg that you will accept the  
enclosure of the following paper the result of six  
years' labour, as a slight token of my appreciation of  
the noble manner in which you acted, and thank  
you for the interest in following Mr. Stewart.

Yours very truly,

C. E. BEEVER, M.A.

Secretary to the Committee

1881.

# SOFTENING OF THE STOMACH

## IN CHILDREN.

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### CHAPTER I.

*Frequency of the disease in the colony—Its tendency to occur at very early periods of childhood, both in Europe and in the colony—Influence of hot weather in predisposing to it—Liability to occur in low, damp districts, and in damp, over-crowded houses—Improper food a frequent cause of it.*

IN 1862, an article on this disease was published in the *Medical Record*. With this exception it has received but little or no attention from the profession. It is not because it is a rare disease ; on the contrary, it is very common, both as a primary and a secondary affection. In the latter form it is not confined to children, but it constantly occurs in adults in connection with puerperal peritonitis—in consumption, particularly the chronic tubercular form, which is generally met with in those living in damp houses.

The writer has collected 112 cases, which he noted as carefully as it was possible to do in private practice ; and his object in the following paper is to lay before the profession as accurate an account, founded on these observations, as he can possibly give. He feels that there are many points in connection with it that yet require further elucidation. These he must leave to those who, by position and education, are much more competent than himself to undertake these investigations.



To the European pathologist the disease presents features of great interest, namely, that although, as in Europe, and particularly in England, it occurs as a secondary affection in diseases of the brain, chest, skin, and intestines in children, and in inflammation of the womb and peritoneum after child-birth; in consumption, diseases of the heart, erysipelas, and in dysentery—yet is most commonly met with in children as a primary disease, brain, chest, and intestinal diseases being very liable to occur as secondary affections, and they are nearly certain to cause the case to terminate fatally if the patient's strength has been previously much reduced. This tendency of the disease to occur as a primary one, is, from what the writer has observed, entirely confined to children, for he has never seen it later than the fourth year.

It is essentially, both as a primary and as a secondary disease, confined to the hot months; yet cases will be met with in the winter months in the low damp districts and in damp houses. They are not, however, common; and if met with, the weather will be generally found to be warm for the time of year and moist. This is the kind of weather most favorable for its development in the badly-drained large European towns.

“Cheyne (*Essays on Diseases of Children*, ed. 1801) considered that it was apt to occur during the autumnal months, particularly in sultry seasons. Jæger (*Hufeland's Jour. der Pract. Arzneykund*, bd. xxix.) and Dr. Gairdener (*Edin. Med. Chir. Transact.* 1826) are also of the same opinion. Pommer (*Heidelberg, Klinik. Annal.* 2 bd. 2 Heft., 1826), dry warm weather, alternating with cold showers or misty weather. The latter author has observed that it often exists in connection with epidemic diarrhœa. Cruveilhier (*Méd. Eclairée par l'Anatomie Pathologique*) considered that it was apt to exist as an epidemic in the autumnal months, and to occur in connection with epidemic follicular enteritis. In several of the cases reported by Camerer (*Magener-*



*weichung*) the children had previously suffered from epidemic diarrhœa."

In the colony the disease constantly occurs in connection with epidemic diarrhœa ; in fact, diarrhœa is one of the most prominent features of the disease ; in some cases it is the chief, there being scarcely any vomiting. In a large number of the cases diarrhœa precedes the development of the symptoms referable to the stomach for six, eight, ten, and even fifteen days.

#### CAUSES OF THE DISEASE.

1. PREDISPOSING.—The most predisposing causes are, 1st, certain periods of childhood ; 2nd, some seasons of the year ; 3rd, local causes ; and, 4th, improper food. The two last causes may act either alone or together in children up to the end of the second year, especially in hot weather, both as predisposants and excitants.

INFLUENCE OF AGE.—In Europe the disease is more liable to occur from the third to the twenty-first month of infantile life than at any other period. It will, however, be met with in this country before the third month, generally from neglect and improper food, and as late as the third and fourth year. In Europe the writer has seen it in a child three days old, in a second eleven days old, and in a third thirteen days old. In two other cases, one was nine weeks old and the other ten. Out of sixty-six cases observed there, forty-six, or quite two-thirds, were between three and twelve months ; twenty being between three and six months, fourteen between six and nine months, and twelve between nine and twelve months.

Of the remaining twenty cases, five were under three months, four between twelve and fifteen months, five between fifteen and eighteen months, and six between eighteen and twenty-one months.

An analysis of the 112 cases collected in the colony shows that here the disease is most common during the first eighteen months of infantile life, for eighty-four of the cases were under eighteen months,



while the remaining twenty-eight cases were between eighteen months and four and a half years.

The following table will show the relative liability of the different ages in the 112 cases.

10 were under 3 months, the two youngest being 10 and 15 days old; four others were 5, 6, 8, and 9 weeks; the remaining four being between 10 and 12 weeks.

20 were between 3 and 6 months

10        „        6 and 9        „

14        „        9 and 12        „

20        „        12 and 15        „

12        „        15 and 18        „

6        „        18 and 21        „

2        „        21 and 24        „

10        „        2 and 3 years

8 were beyond 3 years, but not more than  $4\frac{1}{2}$ .

Sex seems to exert but little influence in predisposing to the disease; both seem to be nearly equally liable, males possibly rather more than females.

**INFLUENCE OF THE SEASONS.**—The season of the year exerts a very great influence in predisposing and causing the disease. In Europe this is not so much observed; but out of 74 fatal cases no less than 64 died in eight months, from February to September (inclusive), while only 10 died in the other four months—October, November, December, and January. February, May, and August were the months in which the mortality was the greatest.

In the colony the disease is most common in the three hottest months of the year—namely, December, January, and February—for 54 out of 108 cases occurred in these months; in March, April, and May it was less frequent; in June, July, and August it was rare; but in September, October, and November it was again rather more frequent, particularly in the last month, compared with the five previous months.

Of 54 cases which occurred in the first-named three months, in December there were 14 cases, in January 26, and in February 14.



Of 38 which occurred in the second three months, there were 10 cases in March, 12 in April, and 16 in May.

Of 4 which occurred in the third three months, 2 occurred in June and 2 in July, but none in August.

Of 12 which occurred in the fourth three months, 2 occurred in September, 4 in October, and 6 in November.

3. LOCAL CAUSES.—The influence of local causes in predisposing to the disease must be considered as very great. The writer has never seen it occur in well-drained houses placed on high ground, nor in houses with an upper story if the bedrooms were large and well-ventilated, except from improper food. In only 10 out of 98 cases did the disease occur in two-storied houses. In 2 of the cases the children were suffering for some days before being brought into them; they recovered rapidly when placed under treatment. In 4 others—2 bakers, 1 butcher, and 1 grocer—the ground-floors were damp, and there existed more or less effluvia from bad drains or water-closets near the house, and apthæ or diphtheria had occurred in the children attacked or in others. Of the remaining 4 cases, in 2 the bedrooms were very small and not well ventilated, and the ground-floor rooms had the peculiar offensive smell met with when water exists under them. In both, water was found under the floors, and in one the drainage from an adjacent stable passed under the house in wet weather. In the 9th and 10th cases, in which the houses appeared perfectly healthy, although the bedrooms were very small, badly ventilated, and overcrowded, bringing the infants up by hand excited the disease; the weather was very hot at the time. In one of the houses several children had died of the disease, and in the other two. Of the remaining 88 houses, 10 were brick, and all were more or less damp, and the bedrooms small and badly ventilated; in two the closets were close to the house, and they overflowed. The other 78 were wooden houses, and either situated in low districts or water existed under



the flooring. No less than 38 were over-crowded, large families occupying two or three small rooms ; in several instances the places were mere huts with mud floors. The chief source of damp was either ponds on a level with the floor, which in most instances rested on the earth, or more frequently the water-tap which was placed close to the house, the water from which, instead of being carried off by a proper drain, was allowed to flow over the yard and find its way under the house. This, with overflowing of the closets, had a great deal to do with causing the disease, for as a rule wooden houses, with good foundations and properly lathed and plastered, seem to be the most healthy.

4. IMPROPER FOOD.—Improper food has a very great deal to do with exciting and keeping up the disease. In very young infants, in bringing them up by hand, the milk in hot weather is either kept too long, or it is too heavy. Sometimes there is some defect in the nurse's milk ; it is either too heavy, or she is out of health, or her milk is too old. In some cases the infant gets an attack of thrush, and with this the mother's milk ceases to agree ; the skin becomes harsh, dry, and covered with scaly eruption ; the stomach symptoms set in at the same time. In a few instances this takes place when attempts are made to bring infants up by hand. Changing the nurse, or putting the child to the breast after it has been separated for some weeks, or given it at very long intervals and irregularly, will produce it. These are causes, especially in hot weather, which excite the disease in very young children. In older children, weaning them, and then giving hard indigestible food, or such food as the family is accustomed to take, and in excess, or continuing to suckle the child after pregnancy has occurred. It is not uncommon to find, in women liable to bilious attacks, that if the bowels become very much confined that the milk disagrees with the infant ; and if this state of the bowels is allowed to remain, symptoms of softening of the stomach soon become evident.



It is often extremely difficult to trace how far bad or improper food has caused the disease ; but it has a great deal to do with exciting the disease, especially in infants brought up altogether by hand or in partly fed, and newly-weaned children.

## CHAPTER II.

*Influence of age and seasons in causing the disease to end fatally.—Changes found after death.*

1. INFLUENCE OF AGE AND SEASONS IN CAUSING THE DISEASE TO TERMINATE FATALLY.—Of the 112 cases observed, the disease proved fatal in 38—about one-third of the number ; it was most marked under 3 months, and from 3 to 6 months—but rather less so—and from the 6th to the 12th month the mortality was very much less, and after the first year it diminished much more, as will be seen from the following table :—

Of 10 cases observed under 3 months, 8 died.

Of 20 cases between 3 and 6 months, 12 died.

Of 24 cases between 6 and 12 months, 6 died.

Of 68 cases beyond 12 months, 12 died.

In a subsequent part of this paper, the writer will enter more fully into the causes which influence this high rate of mortality in children during the first 12 months of life.

The hot season of the year acted with nearly equal force in producing a fatal result as it did in predisposing and exciting the disease.

Of the 8 fatal cases under 3 months, 2 died in December, 4 in January, and 2 in April.

Of the 12 fatal cases between 3 and 6 months, 4 died in January, 2 in February, 4 in May, and 2 in November.

Of the 6 fatal cases between 6 and 12 months, 2 died in March, 4 in April, and 2 in May.

Of the 12 fatal cases beyond 12 months, 6 died in December, 2 in January, 2 in February, and 2 in March.



CHANGES FOUND AFTER DEATH.—These may be divided into two classes—those observed in the stomach, and those observed in other organs. The changes met with in the stomach have, with the exception of the brain, nothing to do with those observed in any other organ, as the lungs and intestines. Even those met with in the brain seem to be due to the state of extreme anæmia which the disease excites, and which may possibly render it more susceptible to irritation, acting through the medulla oblongata. There is this peculiarity in the disease, that when it proves fatal it is either from convulsions or from exhaustion. Under both circumstances the writer has observed the brain pale and softer than usual. When death has, however, ensued from convulsions, the gray portion of the cerebellum and the medulla oblongata appear to be darker than usual. This softening does not depend on the presence of exudatory corpuscles. The white fibres are beaded, as if they contained more fluid than usual. The same state may be produced by bleeding an animal repeatedly, until it dies, and by allowing a thin section of the brain to imbibe water.

Of the thirty-eight fatal cases, it was with great difficulty that after death an examination could be made in fourteen of the number. In all of them the changes found in the stomach were the same, differing in some in color, consistence, and extent. The color seemed to depend on the degree of anæmia which existed; if the skin was very pallid, then it was very like the paper (if soaked in water) on which this is printed; in two of the cases it had a very delicate pale rose tint. In both these cases blood had been passed from the bowels a short time—from 12 to 18 hours—before death. No blood was found in the intestines. In the other cases it was of the color of dirty gum water, or dirty gruel; sometimes it had a very faint dirty bluish tinge. When it was like dirty gum water or dirty gruel, a number of little greenish-black bran-like spots existed on the surface, and floating in a little thin dirty fluid.



In the midst of this alteration, in three instances there was a fold of the mucous membrane close to the pylorus of the papery white colour just named, standing out prominently and contrasting rather strongly with the other dirty or bluish alteration. This dirty-bluish or slatey hue was most marked in children beyond the first year ; before this period it was generally absent, as if the cellular coat of the stomach was then much more prominent than the fibrous. In the three cases in which these white softened folds were observed, there was scarcely any of the dirty fluid mixed with the green particles present in the stomach.

The consistence of the softening was invariably that of paste or gum water, not thin enough to flow, but easily raised by scraping it with the edge of a scalpel. In adults it has often sufficient consistence to be raised in flakes, but in children the writer has never seen it so firm as this.

The alteration affects the whole of the mucous membrane of the stomach ; it may destroy all the coats, and the fluid which escapes can also act as a solvent on the liver, spleen, diaphragm, duodenum, gullet, or any other part with which it comes in contact ; the extent and the amount of alteration will depend on the quantity and the solvent power of fluid poured out. In the colony, where post mortem examinations are made much earlier than in England, it is rare to find that the stomach has given way ; the writer has repeatedly seen all the coats but the peritoneal one destroyed, and this one so very thin (presenting an appearance like very old muslin, with fibres equally as well-defined, though not so regular) that it has given way on slightest touch. If the stomach contains only a very small amount of the watery fluid just named, it is not always possible to determine that its coats are thinned, until the organ is held up to the light ; then a space of variable extent, in some part of the posterior wall, either near the pylorus, or at the great extremity, will be seen to admit the passage of light much more readily than any other. In



several instances, when the writer has brought the stomach and the fluid home, the softening has progressed. In all the cases examined, the stomach has been empty, or only contained a small quantity, rarely more than from two to six or eight teaspoonsful of fluid. It is not impossible that when a large quantity of it exists, but that complete destruction and perforation of all the coats will ensue. In a case of sudden death, after a full meal, and while the process of digestion was going on, the stomach gave way when it was touched, and its contents escaped through a large rent. In this case, the softening was precisely similar, and occurred under the same circumstances to that observed when a rabbit is killed by a blow on the back of the head during digestion—the stomach, in the course of a few hours, will be found softened. Softening of the stomach, the result of disease, seems to be identical with softening observed as the result of digestion. It can scarcely be supposed that the changes found after death preceded it. The rapidity with which children recover, if not greatly reduced in flesh and strength, if the stomach can be tranquillised, and the healthy motions some time passed, evidently show that they do not. The mucous membrane of the stomach appears to be in a highly irritable state, causing the gastric follicles to pour out a large quantity of juice, and any irritating fluid, or indigestible food increases it. Milk is converted into hard curd as soon as it enters the stomach, and is either rejected as such by vomiting or by purging. Before the gastric juice can act as a solvent on the mucous membrane its vitality must have been either destroyed, or it must have undergone some alteration to enable it to do so. In perforating ulcer of the stomach in adults, particularly young females, the vitality of the parts seems to be first destroyed and then removed by digestion, the mucous coat going first, then the others, the peritoneal one the last. It is only in this way that those cases of perforation can be accounted for in patients who have never had any, or



but very slight, symptoms of gastric derangement, and then, perhaps, only for a few days. The ulcers in these cases have the peculiar emphysematous edges observed in sloughing sores after the slough has separated. They present a peculiar appearance, namely, that they appear as if a piece of the stomach had been punched out, and no trace of any filaments, even of the peritoneal coat, are to be discovered, save in those cases in which this membrane has been so thinned as to be unable to bear the distention which takes place when food is introduced; then some slight shreds may be found. These remarks apply to acute perforating ulcer. In the chronic ulcer, in which perforation takes place, although the action of the gastric juice will remove any particle of destroyed tissue, yet the process by which they form seems to be more analagous to ulceration on the surface of the body. The ulcer, as on the skin, is generally more or less irregular, surrounded by thickening of variable extent and density; its edges and bottom are united to organs with which it is in contact, either directly, or, where only in contact at times, by bands of fine tissue, varying in length from half an inch to two, three, and even four inches.

The changes observed in other organs, with the exception of those observed in the brain, to which we have already alluded, will be considered in the portion of the paper treating on the complications which occur during the disease.

### CHAPTER III.

*Characteristic features and general symptoms of the disease.—Connection between it and colonial fever.*

The most characteristic features of the disease are vomiting and purging, with very rapid emaciation, in the acute form. In some of the acute cases the vomiting is the most marked symptom, the stomach rejecting everything taken into it, especially milk, which is returned in a curd-like state, sometimes as



hard as cream cheese ; in others the purging is most marked, and milk is seen in a curded state in the motions. This rejection of the milk in a curded state may be considered as diagnostic of the disease. When milk is not given, the vomited matter may consist of thin or thick mucus, or of a little thin, dirty, watery fluid, mixed with minute arborescent particles of bile, similar to that found in the stomach after death. The mucus is generally observed when the stomach is empty, or after the food which has been given is rejected, and early in the disease. Later, when the emaciation has been extreme, the dirty watery fluid will be brought up, but it does not always occur ; when it does, the face sometimes assumes an earthy aspect, especially in children with dark hair. The matters which pass from the bowels present a nearly similar character, with this exception, that the dirty-like fluid mixed with the particles of bile may be passed very early in the disease, and for some days before the stomach symptoms become marked. The rapidity with which the purging reduces the little patient is surprising. In strong, healthy-looking, and, particularly, large fat children, in two or three days the skin hangs on the bones, the flesh appearing to have melted away.

The progress of the disease may be summed up in a few words. The sickness and the purging continue, sometimes with variable intensity ; some days they are less severe than others ; sometimes they subside under treatment for a few days, then returning with renewed severity and continuing until death. The emaciation increases, the pulse is quick and feeble, ranging from 120 to 130. Towards the close of life it may rise to 140 ; the eyes sink in the orbits, they are surrounded by dark circles, which contrast strongly with the wax-like palor of the skin in very fair children ; in dark-haired children these circles, although existing, are not generally so strongly marked, but, occasionally, they are.

As the disease progresses, and the pulse rises in frequency and becomes more feeble, the pupils, if



carefully watched, will be seen to enlarge ; the anterior fontanel becomes very much depressed ; at length slight twitchings of the mouth, eyelids, or of the muscles of the neck occur, and are followed in the course of a few hours—six or twelve, rarely longer—by general convulsions, which continue with variable intensity for six, twelve, twenty-four, thirty-six, or forty-eight hours, when death takes place. The writer has known the convulsions prove fatal in a very short time, but he has never seen, save in one instance, the patient live more than seventy-two hours. He has never seen a case recover when convulsions have set in. Warm baths have either extinguished life at once, or hastened the fatal result, and leeches and depletent measures have had a similar result. The cases nearly invariably end in this way, but they sometimes die from exhaustion from the blood ceasing to be able to stimulate the heart. This state is very apt to be excited by a warm bath—by fatigue, from carrying the child some distance ; in three of the cases attacks of croup at night were followed by exhaustion the next day ; the weather was very hot. Hot winds, when the patients are in small close places, often seem to hasten the development of convulsions.

The heat of the skin is very seldom increased—at the onset of the disease, and if congestion of the lungs exists, then it may, but when it becomes fully developed it is rather cool ; there may be slight accesses of fever, but they are irregular and of short duration. In the chronic form there may be occasional flushing of the face, attended by an increase in the frequency of the pulse ; but the heat of the rest of the body is seldom much increased. In this form the writer has seen fever, with quickened pulse and great restlessness at night, occur from the bowels being confined, but as soon as they were cleared of dark-colored offensive motions, these symptoms subsided. In remittent fever, terminating in chronic softening, there has been, until the latter has become marked, night fever. The existence of fever both in



the acute and in the chronic form is an exception. The disease is an exhausting one, depending on the fluid poured out by the stomach irritating the mucous membrane of the bowels and causing them to act. The irritative nature of the evacuations may be often noticed by the excoriated state of the nates. After death the lining membrane of the rectum will be found in these cases more or less injected. The motions have often a sour smell, and give an acid reaction to test paper.

The acute form is certainly closely allied to colonial fever—a fever depending on the presence of some morbid poison in the blood, for at the onset there is congestion of the lungs—the quick pulse and the dry skin (never clammy and greasy, as observed in adults) of this fever—but these pass off as soon as the sickness and purging set in; the congestion of the lungs may, however, remain. There are other peculiarities worthy of note.

1st. That colonial fever is never observed in children under two or two and a-half years of age; this is the writer's experience of nearly five years' careful study of this fever.

2nd. It would seem that when the age of tendency to acute softening of the stomach ends, then that of colonial fever begins, and, as age advances, increases, or rather becomes more marked. In children from the 3rd to the 7th year, and even later, the lung symptoms are more marked than later in life. There will be but very few cases of this fever met with, however, in which there will not be found more or less congestion of the lungs; the absence of cough, difficulty of breathing, and pain in the chest may lead the cursory observer to pass it over.

3rd. The writer has been repeatedly called upon to treat those residing in the same house, grown-up children, and the mother, and sometimes the father, for colonial fever, at the time, or soon after, he has been attending the infant for softening of the stomach. The urine in infants who have had symptoms of fever



before the symptoms of softening has become marked, has, sometimes, the peculiar putrid fish or meat-like smell observed in adults suffering from this fever.

There is a very close connection between chronic softening and chronic colonial fever, although, as in the acute form, on the development of the symptoms of softening of the stomach, the fever symptoms disappear, and it is difficult to trace their commencement, but in these cases there will be nearly invariably found chronic lung disease. This form of the disease is generally met with in children between two and four and a-half years. In three cases, however, the children were between twelve and eighteen months; they had all had acute congestion of the lungs, with symptoms of acute softening during, or just after, the severe floods of 1864, from which they recovered. The houses (brick) remained damp and cold, passive congestion of the lungs set in, they were generally cold, but when they became warm from being in bed with their mothers, their faces became flushed and skins hot. While in this state the symptoms of softening again appeared, and death ensued in two in a few weeks: in the third, from change of residence, an improvement took place, but, from being incautiously exposed to the night air after a very hot day, croup set in, and reduced it so much that it sank.

There is a close resemblance between remittent fever and chronic softening. The writer has several times seen chronic softening considered and treated as remittent fever; in both the skin is pale, but in chronic softening it has often a waxy hue; the pulse is quick and feeble, and the appetite variable. But there is not the peculiar vomiting and purging in remittent fever as in chronic softening, nor is there in the latter the clayey motions and the night fever, followed by perspiration, observed in the former. In the cases in which remittent fever has passed into chronic softening, on the occurrence of the vomiting and purging the accesses of night fever ceased.



Remittent fever does not appear to be common among children in the colony, but it seems to be increasing, for the writer has seen more cases during the last twelve months than during the previous three and a-half years. Chronic colonial fever in children, and remittent fever, resemble each other so closely, that when congestion of the lungs exists in the latter it is nearly impossible to distinguish between them; not that it is of great importance, for the same treatment is applicable to both. From these observations it would appear quite possible for chronic softening to supervene on remittent fever, and be attended by chronic disease of the lungs. In sixteen cases of remittent fever, in about half the cases there was only slight and generally partial congestion of the lungs.

## CHAPTER IV.

*Symptoms presented at different ages, with Cases.*

*The symptoms presented at different ages.*—It is often very difficult to trace the progress of diseases in private practice. In the colony there is an amount of apathy existing that is almost painful to witness. It is not uncommon to hear or evidently to see that “doctoring” is considered useless, and that the aid of a medical man is only sought to secure a certificate in case death ensues.

In infants only a few days old, the following cases are, perhaps, as good illustrations of the disease as will be met with. They are given to show the progress of the disease rather than its duration. It may prove fatal if improper food is given, and if the vomiting and purging is severe, in from 5 to 10 days. In one, the mother had not suckled any of her children for some time, and they had all died from the disease. The infant was healthy and well nourished when born. In a few days it began to vomit up the cow’s milk which had been given it, and which was evidently too heavy for its stomach. When the writer’s attention was drawn to it, it was about 10 days old. It was still healthy, and looked to be thriving. The milk was rejected in a curdled state, and the motions, which were otherwise loose and healthy, contained small masses of curds. The mother was advised to get a wet nurse for it, but her circumstances, she said, did not admit of her doing this. Milk and water, with sugar, rice water, gum water, arrowroot, and thin chicken broth were successively ordered, but without producing any marked permanent influence on the symptoms. At first the progress of the disease seemed to be checked, but on the occurrence of aphthæ it returned. With the aphthæ the skin became covered with papillary eruption, which continued and became



slightly scaly until death. Acetate of lead and tannic also were nearly equally as ineffectual in checking the disease. Milk, however much diluted, always aggravated the symptoms; nothing agreed so well as thin well-boiled arrowroot, with a few drops of port wine, given in small quantities and frequently. A few drops of almond oil given twice or thrice in the 24 hours seemed at first to agree. The pulse ranged from 102 to 108; the emaciation gradually increased; vomiting invariably occurred twice or thrice in the 24 hours, however carefully it was dieted, and the bowels acted about the same number of times. The vomited matters consisted of the arrowroot, or whatever given; the motions varied—sometimes they were natural, sometimes like dirty water, but they had no particular smell. By the end of the month it had got very emaciated, and the pulse had risen to 116 and got weaker, but there was no other alteration. Fourteen days after this, when seen, the emaciation had increased; the pulse had risen to 124 and was very feeble; the purging had been severe, the motions were like green water; it had refused food for the last few days, until the night before, when it took the bottle ravenously. The anterior fontanel was very much depressed, and the pupils large; there were slight twitchings of the mouth and eyelids at times. In the evening, general convulsions, not of a very severe character, set in, and it died 10 hours afterwards. Before the convulsive attacks the pulse fell to 108. The weather was very hot at this time, but the house, with the exception of the bedroom, was cool.

Only the stomach was allowed to be examined. It was distended with gas; its coats were generally very thin, and near the pylorus, for a space somewhat larger than a five-shilling piece, the mucous and muscular coats were destroyed, and the peritoneal one was very much thinned and softened. In the other parts of the organ the alteration was confined to the mucous coat; it could be easily raised by scraping with the scalpel, and closely resembled thin



paste. There was only a little thin tasteless dirty fluid in the stomach. The intestines were empty, the liver rather pale but healthy, lungs very pale; the heart small, and both it and the large vessels contained only a little thin pinkish blood.

In another case, in which the child was only fifteen days old, the progress of the disease was very similar, but it was more rapid. The disease had existed ten or twelve days; the mother's milk had been continued; it was rejected and passed in a curdled state. The motions were very variable, but generally they either consisted of green mucus, mixed with the curdled milk, or of thick mucus; the latter was passed after the stomach had emptied itself by vomiting. The dirty watery motions did not appear until the eighteenth day, when they replaced the mucus. On the twenty-fourth day a little blood was passed on three occasions. On the morning of the twenty-third day the pulse, which had risen (as in the other case) in frequency, and became feebler as the emaciation increased, had sunk from 120 to 102; the anterior fontanel was very much depressed, pupils large, and the twitchings of the muscles of the mouth marked. As in the other case, general convulsions set in, and continued until death. No after-death examination.

The next case, a female aged ten weeks, was seen January 14th. She had been weaned one week. Five days ago purging set in, the bowels acting the last two days twelve times in the twenty-four hours; the motions variable, sometimes green, mixed with curdled milk; sometimes natural, but thin, and sometimes watery. Three days ago it began to vomit the milk in a curdled state, and this morning it brought up some clear mucus. Emaciation extreme, pulse 110. Tannic acid, with acetate of lead, and minute doses of morphine ordered—milk to be discontinued—gum water, thin well-boiled arrowroot, or maizena, to be given instead.

16th.—Improvement marked—bowels open seven times in the twenty-four hours. Although no milk



had been given, the motions were still green, and contained small pieces of curdled milk. Almond oil with wine ordered. On the 20th the child was well.

30th, 9 a.m.—The last two days the purging has returned—motions very watery, mixed with minute green particles—a little blood passed—is sick at times. Improper food seemed to have caused the relapse, but several in the house were suffering from purging, caused by the effluvia from some stagnant water near. The emaciation is extreme—skin pallid—eyes surrounded by dark circles—is very restless, crying incessantly—pulse 130, very feeble—occasionally slight twitchings of the mouth observed. General convulsions set in towards the evening, and continued until death the next day.

P.M.—Fifteen hours after death. The mucous membrane of the stomach was generally softened and of the consistence of thin paste. Near the pylorus there was a patch the size of a five-shilling piece, of a pale rose colour—here the muscular coat was softening, and the peritoneal one was as thin as gauze. Some long softened irregular fibres could be seen running from one side of the softened part to the other—they yielded on the slightest touch—the stomach was distended with gas—there was scarcely a teaspoonful of fluid in it. The mucous membrane of the duodenum was slightly softened—the gall bladder contained a little thin bile—the liver, lungs, and heart were healthy, but extremely pale—the heart contained about two teaspoonfuls of pale blood—the mucous membrane of the rectum was injected, and it seemed to have been the source of the blood passed.

In a fourth case, the infant, a male, aged six weeks. About a week after birth it had thrush, and with it sickness and severe purging set in. In a few hours it was reduced to “skin and bone.” It has continued in this state. When seen, February the 17th, its skin was harsh, dry, and covered with branny scales; face wrinkled, of a dusky hue; eyes retracted and surrounded by dark circles; pulse 120,



very feeble; vomits everything but goat's milk and water—this is retained, but the bowels act every three or four hours; the motions are more or less green, and mixed with curdled milk, or thin and watery, containing little particles of bile. The milk was discontinued, gum water and arrowroot with wine substituted, and small doses of acetate of lead and opium given.

The extreme emaciation rendered any hope of its recovery extremely doubtful. Some days the purging was rather less than others, then the pulse lessened a little in frequency, sinking to 116; but the emaciation increased rather than diminished. The sickness was not so troublesome as the purging. It went on in this way up to the 1st of March. The bowels had only acted once during the last eighteen hours; it cried less; the pulse had sunk to 112, and there had been a little twitching observed about the muscles of the face, but so slight as to escape the mother's notice. At one p.m. convulsions set in suddenly, and continued until six p.m., when it died. No examination after death.

In a fifth case the disease occurred under precisely similar circumstances, and ran a similar course to the last. The child had thrush when a week old; it lost flesh very rapidly, and the motions were green and slimy, mixed with milk in a curdled state. This state had continued for six weeks, when it was brought under the writer's notice. The emaciation was then extreme. The bowels acted from four to six times in the twenty-four hours. Sometimes the motions consisted of hard masses of curdled milk, slightly tinged with green. As in the last case the purging was more troublesome than the sickness. The pulse was 114, very feeble; skin of a dusky hue, and covered with thick scaly eruption. The last two days it has emaciated very much, and to-day the hands are closed in a convulsive manner from time to time; but there are no twitchings about the mouth or eyes. The symptoms yielded to small doses of henbane with tannic acid. At first the breast-milk was allowed,



but this was discontinued, as the motions, although less frequent, contained large quantities of curdled milk. Wine and arrowroot, gum-water, and wine with almond oil, were the only things given with the tannic acid. This treatment was continued from April the 28th to the 19th of May. It gained a little flesh, and the pulse sank to ninety-six; the motions became natural. On the 19th of May it was seized with bronchitis. This reduced it very much, and it sank on the 24th from exhaustion and dyspnoea.

The lining membrane of the stomach was smooth, and seemed free from villi, as if the mucous coat had been removed; a new membrane of a pale rose colour appeared to have taken its place. The organ was taken home for more careful examination, but it was carried off by a rat. The lungs were not much congested; the trachea and bronchial tubes were loaded with mucus; there was not much congestion of their lining membrane.

In children beyond three months, the disease, in its uncomplicated form, presents the same symptoms and runs the same course as in very young infants. In one set of cases the disease may prove fatal—especially in large, flabby, or florid children—in four, six, eight, ten, or fourteen days, if the purging and sickness is very severe, and if the emaciation becomes extreme, and the pulse rises in frequency and loses power. In a second set, it may assume a chronic and irregular course, either the sickness or the vomiting predominating, until from some cause, such as indigestible or badly cooked food or bad milk, these symptoms become very much aggravated, and the child sinks from convulsions in a very short time. In a third set, the sickness and purging may have nearly or quite disappeared, but the children remain weak and thin, their faces of a waxy pallor, muscles flabby, and pulse quick and feeble; they do not seem to gain, but rather lose flesh and strength; the pulse at the same time creeps up to 120 and loses power; suddenly the sickness and purging



return; and they sink either from convulsions or exhaustion.

Convulsions may set in suddenly in these cases, and from very slight and often inappreciable causes, without any very marked aggravation of the diarrhœa or purging.

Cases illustrating the second and third forms of the disease :—

*Softening of a sub-acute character becoming suddenly acute—Death from convulsions.*

A female, aged eight months, seen 12th January. Eight weeks before it was taken with purging, the motions being green and slimy, with pain in the abdomen of a griping character. Soon after its commencement vomiting set in, with loss of appetite, and the pulse became quick and irritable. This attack passed away under treatment, but it had several relapses—one, it was supposed, from the smell of fresh paint. Up to four days ago it was improving; then the stomach became irritable, the milk being rejected from the stomach, and passed from the bowels in a curdled state. To-day the motions are grey and slimy, not acid to test-paper, but very offensive, and passed every hour; the vomiting severe, everything taken being rejected; skin like bleached wax; eyes and anterior fontanel deeply sunken, the former surrounded by dark rings; great emaciation; cries frequent, the legs being drawn up; abdomen retracted; no urine passed; frequent rolling of the head; pupils contracted, but sensible to the light—they varied in a few minutes, and later they became permanently dilated; pulse 132, scarcely perceptible; thirst intense; a 4th of a grain of acetate of lead, with a 16th of opium, was ordered every two hours, gum-water only to be given, half a teaspoonful at a time.

13th.—10 a.m.—Five powders had been given, and only one had been rejected; the gum-water had remained down much longer—sometimes it had not been rejected; the thirst was not so severe; bowels



had acted three times—motions green; it was calmer, and the pulse had sunk to 120.

6 p.m.—It had scarcely vomited during the day; only the gum-water given. Thirst much less; bowels had not acted; the cries had ceased; skin warmer; pulse 120, full and calm; pupils less contracted. It passed a tranquil night, and in the morning seemed to be in a fair way towards recovery; but the day was intensely hot, and when the heat set in, convulsions appeared, in which it expired in a short time.

In another case, a child five months old, the progress of the case and the symptoms were nearly similar. When it came under notice the bowels were acting six and eight times in the 24 hours, but the sickness was not severe: the motions varied, being sometimes green, sometimes greyish green, from the admixture of the colouring matter of the bile with the curdled milk; sometimes they consisted entirely of curdled milk. For the first ten days of the attack (it was in the fourth week when it came under notice) the motions were yellow, mixed with white lumps (curdled milk); sickness did not set in until the second week—then the motions became green, greyish, or white. The emaciation was not extreme, but the eyes were surrounded by dark rings, the face pallid, and the muscles flaccid; the pulse was 124; the thirst somewhat intense. Under the use of the acetate of lead and opium, with gum-water, chicken and veal broth, the diarrhœa and sickness disappeared, and the child was gaining flesh. On the sixth day some indigestible food was given. Four days were allowed to pass before assistance was sought. On this day the sickness and the purging were severe; the emaciation was very strongly marked—it appeared to have become so in the course of the last 24 hours; the skin was of the colour of white paper; pulse 136; no urine had been passed for 48 hours. The acetate of lead and opium again checked the sickness and the purging—but



suddenly, from no particular cause, general convulsions set in at 12 p.m., and continued until death ensued at 3 a.m. Slight rolling of the eyes, and twitching of the face, had existed all day. *Post mortem* 16 hours after death. The sinuses of the posterior part of the head were loaded with blood; the cerebellum was very soft compared with the rest of the brain, and about an ounce of serum existed in the posterior part of the skull and spinal canal. The mucous membrane of the stomach was of a greyish colour generally, and converted into a semi-transparent paste, easily removed by scraping with the knife. The stomach was contracted and empty.

In another case, in which the examination was not made for 24 hours, the organ contained some acid pasty fluid, its coats had nearly all disappeared, and very slight manipulation caused them to give way. The disease had run a similar course to the last case, but the vomiting had not been severe. When it came under notice, it was suffering from general convulsions; they were checked by large doses of the tincture of digitalis for 26 hours. At the end of this time they returned, and death ensued in a short time. The emaciation, waxy aspect of the skin, dark colour of the skin under the eyes, quick and feeble pulse, depressed fontanel, and the whitish-green motions, which were very foetid, were strongly pronounced.

The next case presents points of great interest. It would have recovered had the mother had courage enough to deprive it of the breast for two or three days.

A female, aged 20 weeks; seen October 29th. It has had "dysentery" for five weeks, bowels now acting 12 times in the 24 hours. The motions are green and slimy, and irritating, the nates being nearly raw. The motion, when examined, consisted of milk in a coagulated state, and the green colouring matter of the bile; it was slightly acid to test-paper. For the last two days it has vomited everything taken, the breast-milk being rejected in a coagulated state. The matters vomited were slightly acid. There was not much emaciation.



One-fourth of a grain of acetate of lead, and 1-16th of a grain of powdered opium, ordered every three hours, with gum water and chicken broth, or veal tea; no milk to be given.

November 1st.—The sickness was stopped by the first powder, but to-day it has returned, from the breast being given. Yesterday and the day before the bowels were not acted on more than four times in the 24 hours. The irritation of the nates has disappeared; motion not acid.

From the mother being unable to keep the child without the breast, or giving it as soon as the vomiting and purging had been checked for a few hours, the child went on up to the 11th—some days better, some days worse. The motions were green, except early in the morning, when, from giving it the breast in the night, to keep it quiet, they were mixed with pieces of coagulated milk, varying in size from a split pea to a split haricot bean. The bowels acted twice or thrice in the morning; but if the breast were not given, they seldom acted more than once in the course of the day and night.

12th.—This morning the mother allowed it to take the breast; it had had none during the night. It was very ravenous, and took a large quantity, and immediately afterwards was seized with a convulsion. Several other fits followed, affecting the whole body. When seen two hours after the fit, the pulse was 120, the anterior fontanel natural, and the brain beating synchronously with the pulse. Before the fits the pulse sank to 106, but during them it rose to 120, and at their close to 138. The fits commenced with drawing of the mouth to the right, rigidity of the arms, dilatation of the pupils, the eyes being drawn upwards and to the left, sometimes to the right, then convulsive jerks of the body set in, the legs being scarcely affected. The attacks lasted from three to five minutes. Ten drops of tincture of digitalis checked the occurrence of the convulsions, but the slight attacks, affecting the muscles of the face, eyes, and rigidity of the arms



continued to occur. Over these the digitalis—which was given in five minim doses every hour, until the pulse sunk to 106, and was irregular—had no power.

13th.—The anterior fontanel raised, pupils dilated. No urine passed since the 11th; bowels acting two or three times in the 24 hours. The fits had become general. Three minims of tincture of cantharides, with 4 of tincture of henbane, and 3 of digitalis, were given every hour.

15th, 9 a.m.—No fit for three hours; passed a large quantity of bilious-coloured urine this morning; face calm, pulse 120, regular; has had some sleep. The stomach has continued very irritable; gum-water alone retained. It has vomited some light coloured bile; motions green. In the afternoon and evening, slight convulsions of face; pulse 90; irregular; more urine passed; notices objects, the first time since the convulsions set in.

16th.—No fit; appetite ravenous; frequent attacks of pain as if from the passage of some irritant along the intestines; motions very green; pulse 100. From the 16th to the 19th no fit occurred, but the stomach was very irritable; gum-water alone retained, although the acetate of lead and opium were again given. The motions continued green; the pallor of the face had become extreme; eyes and fontanel sunken. On the morning of the 19th the convulsions returned. Ten drops of tincture of digitalis checked them, and reduced the pulse from 138 to 108, and the pulsations of the brain; yet the stomach continued so irritable that even the gum-water was rejected.

26th.—Fits less frequent and less severe, but any attempt to introduce a spoon between the lips excited slight convulsions of the face and eyes. Pulse scarcely perceptible, face pallid, eyes and fontanel much sunken. Death occurred in the afternoon, after a slight fit.

Body examined 16 hours after death. It was very pale, and no part of it contained blood. The heart was empty and contracted. The lungs and liver



healthy—the latter was not enlarged; the gall-bladder was small, and contained about two teaspoonsful of thin yellow bile. The mucous membrane of the stomach was of a dirty cream colour at the cardiac orifice and for a short distance up the œsophagus, and at the pyloric opening; the mucous membrane of the duodenum was similarly coloured; the remaining portion of the stomach was of the colour and consistence of thick dirty gum-water (slight friction converted the rest of the mucous membrane of the stomach and the mucous membrane of the duodenum into a similar state). The cerebral portion of the brain and membranes presented no alteration, but the cerebellic portion and over the medulla oblongata, particularly the latter, the membranes seemed rather opaque, and some enlarged vessels were perceptible; about an ounce of clear serum existed in the skull and spinal canal. The cerebrum, medulla oblongata, and the nerves at the base of the brain presented no alteration, but the cerebellum was very soft.

## CHAPTER V.\*

*Complications.*

IN Europe the softening nearly invariably occurs in connection with diseases of a chronic character, particularly those of a tubercular nature and towards their close, and if the symptoms are marked, hastening their fatal termination; the same will be observed in the colony. It has, however, a much greater tendency to occur here uncomplicated with any other disease in very young children, from bad or improper food in the hot months; but in winter, and in children after the second year, and in adults, it very often occurs in connection with other diseases. In the colony, as in Europe, lung disease is the most frequent complication; in the latter it generally occurs in connection with tubercular disease, but in the former with acute congestion of the lungs and bronchial tubes, chronic inflammation (induration) of the lungs, and tubercular deposits. In Europe, of 123 cases collected, in 38, or nearly one-third, it occurred in connection with disease of the lungs; in 11 of the number, with chronic inflammation; and in 10 with tubercles. In 17 of the remaining 123 cases, it occurred in connection with disease of the brain; in 9 of these hydrocephalus existed. In 22 cases it occurred in chronic disease of the stomach; and in 10 after delivery, generally with puerperal peritonitis. Of the remaining 36 cases, in 15 it occurred in connection with diarrhœa, fever, and general tubercular deposits—the lungs were always implicated.

Of 132 cases collected in Melbourne and its

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\* Greater part of this chapter was set up early in 1866, but the demands on the writer's time in preparing and conducting the medical part of Mr. Beaney's defence in the extraordinary charge of murder brought against him, compelled him to leave the completion of the work until this year. This will account for some of the discrepancies which will possibly be found in this chapter.



vicinity during the last five years, in 73 of the number the disease was uncomplicated; in 47 it was complicated with congestion of the lungs, or of the lungs and bronchial tubes or trachea; in 7 of the number with phthisis; in 5 with inflammation of the membranes of the brain; in 4 with diphtheria (in two of this number disease of the skin existed); in 6 with or towards the close of colonial fever; in 3 with puerperal peritonitis; and in 2 with disease of the heart. From there being a much greater predisposition to the disease in the colony than in Europe, it may be expected to be met with in nearly every disease. In 1866 and 1867 it was constantly met with in connection with measles and scarlet fever, and in one case with softening of the womb.

When slight congestion of the lungs occurs, either before or with the stomach symptoms, it has a tendency to disappear as the latter become marked; but the two may assume a chronic character, and this is very apt to occur in children. When, however, the congestion of the lungs is extensive—the bronchial tubes and the trachea being more or less implicated—there is fever more or less marked, the skin feels greasy or dry and harsh, the pulse is quick and without much power, and the urine is more or less foetid. From exposure to cold—and this is particularly liable to take place in the hot weather on sudden changes of temperature—the lung symptoms are very often aggravated. In these cases the vomiting often sets in insensibly—sometimes alone, sometimes with purging. The vomited matters will consist of the food taken, of milk in a curdled state, and of mucus either clear or mixed with bile. The motions will vary. They may, if the bowels are confined, be hard, dark, or clay-coloured or cheesey-like if milk is given. If loose, they may be yellow and thin, or green and slimy, and mixed with masses of curdled milk, or thin and watery with little particles of bile in them, and staining the napkins of a dirty green colour. This form was very common during



the hot months of November, December, 1865, and January, 1866, in children between 1 and 5 years in the low neighbourhoods around Richmond. In several cases it had a tendency to pass into a chronic state. The writer saw no fatal cases that season; but the following case which came under his care the year before may be, he thinks, considered an example of this form of the disease:—Male, 5 years of age, seen January 30th, was seized two months before with cough and fever, attended with vomiting, but not of a very severe character, and rapid loss of flesh and strength. There was marked dulness on percussion in the upper part of both lungs, but it was most marked in the right one, with some coarse mucous râles; pulse 130, very feeble; skin harsh and dry; face pale, and the corners of the mouth drawn down; dark circles under eyes; abdomen large and rather tender; motions frequent, watery, or green and slimy, or consisting of hard lumps and cheesy masses; stomach sometimes very irritable, the matters rejected consisting of acid smelling fluid of a watery or slimy character, or milk in a curdled state, or of the food taken, in a more or less undigested state. The vomiting and purging had become more troublesome during the last fourteen days than it had previously been. His appetite was very ravenous. His urine was high coloured, and it contained a large quantity of phosphates. He had no marked access of night fever. He at first seemed to improve under the exhibition of oil of sweet almonds with port wine, tannic acid, with Dover's powder and beef-tea, chicken and mutton broths; but from exposure to cold and being allowed to eat some fruit, both the lung and the stomach symptoms were very much aggravated, and he sank rather suddenly on the 27th of February. The upper part of the lungs was indurated, but the larger bronchial tubes were not impervious; the mucous membrane of the stomach was easily removed by scraping; the mesenteric glands were enlarged, but not tuberculous.



The next two cases were of a chronic character.

*Chronic Induration of Lung, with Tubercular Deposit in Mesenteric Glands, and Chronic Softening of Stomach—Death.*

Male, aged  $4\frac{1}{2}$  years, seen July 12th. He had only just been brought from Gippsland, where, from what could be gleaned, he had had an attack of congestion of the lungs, from insufficient clothing and exposure to cold. He was emaciated; skin of the colour of badly-bleached wax; abdomen large and hard; pulse feeble, 120; tongue clean; urine natural; bowels irregular, the motions sometimes thin and watery and frequent, at others natural; vomits everything but a little beef-tea. In the right lung the respiratory sound was feeble in the apex and base, but no marked increase of voice sound existed; in the large bronchial tubes there were coarse râles; no cough or expectoration. He had been treated for worms by a chemist without any material benefit. Under the exhibition of tannic acid, with minute doses of Dover's powder and almond oil in wine, he improved. From cold he had several relapses, and cough then appeared; at one time it resembled whooping-cough, then very prevalent, but it quickly lost its spasmodic character.

Sept. 12th.—Has been much better, but from the weather being very cold and wet, he has got fresh cold; pulse 120, feeble; skin harsh and dry; slight fever towards night; cough troublesome; harsh bronchial respiration; no sickness or purging. This attack passed off, leaving him, however, thinner and weaker than before.

21st.—Two days ago a piece of German sausage was given him. This was followed by retching and vomiting of mucus in the night. Everything taken since has been rejected; pulse 120, very feeble; the emaciation has increased, and the waxy hue of the skin has become very marked; beef-tea injections ordered.

22nd.—A little wine and the almond oil has



been retained. To-day passed a piece of kidney, taken on the 20th. His nose bled rather freely. In the evening there was considerable fever. During the night he vomited up some brown and some yellow mucus.

23rd.—Emaciation has increased considerably. Pulse 120, very feeble; skin cool. No sweats in the night. The beef-tea injections have been retained, but they excite a great desire to pass a motion. Small doses of Dover's powder, with tannic acid, ordered. The stomach only retains the oil and wine.

24th.—Last night and to-day the injections have been returned as soon as given; and, as the tenesmus was severe, 5 drops of tincture of opium, in a teaspoonful of tepid water, were injected into the rectum with great relief, and he passed a quiet day.

25th.—Some milk, with water, had been given him during the night. This was vomited in a curdled state. The opium injections checked the vomiting, but on the 26th they lost their power over the stomach, and in producing sleep; morphia was therefore substituted for the opium in the injections with the best effect up to the 4th October, when severe tenesmus set in, and caused them to be returned as soon as given. He had good sleeps of several hours in from half an hour to an hour after they were given. They enabled the stomach to bear, in the course of the 24 hours, the yolk of two poached eggs, chicken broth, gum-water, and from one to two glasses of port wine, a teaspoonful at a time. He improved up to the first of October. The night-fever continued to occur, but it was greatly relieved by sponging with tepid vinegar and water, and the pulse sank to 114. On this day the bowels, which had only acted once in two and three days, the motions being healthy, acted three times in a very short time. On the 2nd, the purging, which had continued, was checked by two or three doses of tannic acid. On the 3rd, the purging again returned. The pulse had risen to 128—it was very feeble;



feet and hands rather swollen. They had been a little inclined to swell for some days. On the 4th the pulse had risen to 140. He had passed a very restless night; lips pallid; eyes very bright; tongue rather redder at sides and apex than it had been. No motion since yesterday; tenesmus and retching severe.

Oct. 5th, 10 a.m.—Pulse 140, rather vacillating; takes everything offered ravenously; no twitchings of the mouth or eyelids, but the thumbs are bent in and the hands seem rather rigid. Soon after the visit his eyes began to roll, and general convulsions soon followed and continued until death, which took place in four or five hours. The eyes between the general convulsions oscillated with great rapidity, and the arms were rigid and slightly flexed. The convulsions were ushered in by flexion of the arms, and then with rigidity of the body and fixing of the eyes, followed by jerking of the body. A few drops of the solution of morphia mitigated the severity of the convulsions.

The right lung was adherent in its upper half; its apex was of a pale rose colour, and indurated, and contained five or six clear cartilaginous masses of the size of small peas. The left lung was healthy, but the lining membrane of the bronchial tubes of both lungs was highly congested as far as it could be traced, and covered with thin red-coloured mucus. The heart was small; it contained a little thin pinkish blood. The abdominal cavity contained rather more than a pint of fluid; the liver was slightly cirrhotic, but the kidneys were healthy. The mesenteric glands were as large as kidney beans, adherent to each other, forming a flat irregular mass the size and shape of an adult hand. The enlarged glands consisted of two portions—a greyish hardened one, forming an external coat from  $\frac{1}{8}$  to  $\frac{1}{4}$  of an inch in thickness, and another consisting of fine granular matter in the centre. The stomach was distended with fluid; its mucous membrane was softened in parts, but not removed; the alteration was neither very strongly marked nor very deep; by scraping



with the scalpel a thin layer like dirty paste could be obtained.

The small intestines presented at long intervals 5 or 6 cicatrisations, evidently of long standing. This is the only case, out of a large number of *post-mortem* examinations of the bodies of children, in which tubercles existed. His mother died from phthisis, but it was inflammatory and not tubercular.

*Congestion of the Lungs and Croup, with symptoms of Softening of the Stomach—Repeated attacks of Croup—Death.*

Male, aged 10 months. He had been healthy, but from the house becoming damp he began to lose ground, and his flesh was cold, particularly at night when placed in bed. In May, 1864, he had an attack of congestion of the lungs, attended with croupy symptoms and vomiting. These yielded to treatment, and he went on to the middle of October; when seen on the 18th his flesh was flabby and cold; feet swollen; face pallid, with dark circles under eyes; pulse 120, feeble; slight cough, with some harshness in the large bronchial tubes, and fine wheezing in the smaller ones; urine offensive and high coloured; bowels regular; motions healthy. He had been getting thin and pale for several weeks. He had a distinct access of fever every night—the chief symptoms being flushing of the face, great restlessness, with frequent jerking of the body; feet red and swollen, evidently from cold. Bowels very confined; a teaspoonful of castor oil was given, with the effect of bringing away a large quantity of hard cheese-like offensive stuff; this was followed by a second motion, consisting of curdled milk, mixed with green-coloured mucus. Several other motions of a similar character followed, and it became necessary to give tannic acid with Dover's powder. These checked the purging, but the Dover's powder seemed to increase the jerking; it was therefore discontinued.



The feet were bathed with a little weak muriatic acid lotion, with considerable relief to the irritation.

19th.—This morning he vomited twice—first, some milk in a curdled state (which had been given mixed with water in the night) and then some transparent mucus; after this he slept several hours, the first time for several days. Small doses of henbane and belladonna were given with the tannic acid; no access of fever at night, but the next morning his face was flushed, but skin cool, pulse 130, and he was very restless. After his bowels had acted twice, passing some offensive green mucus mixed with curdled milk, he became calm, and his pulse sank to 120; urine yellow and offensive. From being carried about he vomited the breast milk uncurdled.

24th.—Pulse had sunk to 96; bowels had acted once since yesterday—the motion was healthy; he had only vomited once since the 21st, and then only some wine and water. He improved, but the pulse remained rather quick, and increased gradually in frequency. On the 12th of November it was 120; his lips were pale; at times he vomited both the food and milk, the latter curdled. The pyrophosphate of iron was now tried, and it seemed to benefit him.

Dec. 7th.—From exposure in the evening at an open window, he had an attack of croup, with bronchial râles and wheezing. This attack, although it yielded to treatment, left him very weak and very susceptible to very slight alterations of temperature. During the next five weeks he had several attacks of croup, with bronchial irritation. The vomiting was sometimes troublesome, sometimes not; if it did not occur one day it did the next; the matters rejected consisted of the food, but when the stomach was empty, of nearly clear mucus, amounting to one or two tablespoonfuls, and sometimes of watery fluid; the breast-milk was returned in a curdled state; the bowels were generally regular, acting once a day; the motions healthy; the emaciation was progressive, the debility and palor extreme. The pulse always remained feeble, and from 120 to 125; there was no



marked access of fever at night ; sometimes the face flushed a little for a short time. On the night of the 13th he had a slight attack of croup ; it was removed by a mustard poultice to the chest, but towards morning twitchings of the muscles of the face appeared ; the pulse vacillated, and ranged from 130 to 135. A few drops of tincture of henbane with three of digitalis checked the tendency to convulsions. He sank gradually, and died in the afternoon.

There was scarcely any blood in the body ; the little that existed was of a pale pink colour. The lining membrane of the trachea and bronchial tubes was slightly injected, and covered with mucus.

The upper lobe of the right lung was slightly indurated, and of a pale pink hue ; the bronchial tubes were free ; the upper part of the left lung was also indurated. The stomach was large and pale ; its mucous membrane was, in its whole extent, thinned, and converted into a paste, easily removed by the scalpel. The mesenteric glands seemed rather larger than usual.

In this case the disease was evidently excited by living in a damp house. Just before his death the wall at the side of the bed was found to be very damp.

In another case the history and progress was very similar. The child was removed to a healthier house, but the days were very hot and the nights cold. The window being left open one night excited an attack of congestion of the lungs, with croup, which reduced its strength so much that it sank. Death ensued from convulsions.

The influence of cold and damp in exciting phthisis and chronic softening of the stomach was very strongly shown in the following case.

*Consumption, with Chronic Softening of Stomach—  
Death from acute Congestion of the Lungs.*

Male, aged 35, an ironmonger, eleven years in the colony, residing in a badly-built damp place. Seen



September 13th; suffering from pain after food, and when the stomach was empty, with acidity and flatulence; slight cough and shortness of breath on exertion, but without expectoration. He has emaciated rather gradually; pulse 72, feeble; skin very cold and pale; urine loaded with phosphate of soda; the bowels irregular. In the apex of both lungs there is dulness on percussion, with increased vocal resonance and absence of respiration; but the alteration was most marked in the right lung, and it extended down to the angle of the scapula, where the respiratory sound could be heard, but only feebly. During the next months—November, December, January, and the early part of February, from the weather being warm, he improved, the lung symptoms diminished, and the stomach lost its irritability; but he did not gain flesh, and his pulse remained at 72 and very feeble, and his skin pale and cold. In the latter part of February and in March the lung alteration increased, and with it the stomach became very irritable, with pain of a burning nature in the epigastrium; mouth very disagreeable, although the tongue was clean and pale. There was no marked epigastric tenderness; his bowels were irregular. He now began to expectorate some thin clear mucus, and to cough a good deal at night. The alteration in the lung did not appear to increase in extent, but, for the first time, some coarse mucous râles were discovered just below the clavicle, apparently seated in a large bronchial tube. By counter-irritation over the part these râles disappeared, and he improved; but in April he had a severe attack of sciatica, which reduced his strength very much. In May he began again to expectorate mucus; it increased in quantity, and with it there were mucous râles in the large bronchial tubes of the right side, particularly just under the clavicle. He continued to lose flesh and strength, but in an almost imperceptible manner, and his pulse gradually crept up to 108—it was very feeble; the pain and distention after food were severe, and the vomiting troublesome; eyes sunken



and surrounded with dark circles. By the first week in June the mucus had increased in quantity; purulent matter began to appear constantly in it; the previous three or four weeks a little purulent matter had been expectorated in the morning, and the râles in the upper part of the right lung had become coarse, approaching to gurgling. On the 17th he sat up very late in a warm close room, and then went to bed in a cold damp one. He got out of bed several times in the night. In the morning, when seen, there was general congestion of both lungs, with mucous râles; respiration difficult; pulse 130; skin cold; both hands swollen and face pinched. Death ensued the next morning. The mattress on which he was lying was found to be wet, and water existed to the depth of several inches under the floor of the sitting and bedroom.

Both lungs were congested, the right one more generally than the left. The upper part of the left lung was indurated, but not very extensively; the bronchial tubes were pervious; the upper lobe of the right lung was generally indurated, and near its centre there was a cavity capable of containing a small apple. Tubercular masses of the size of kidney beans were scattered throughout this lung. Both lungs adhered, and the large bronchial tubes contained muco-serous fluid, and the substance of the lung serous fluid. The stomach was large and pale; its mucous membrane was generally of a greyish dirty colour, and easily removed by scraping with the scalpel.

In another case, in which the symptoms were of a similar character, the mucous membrane of the stomach could be raised in large flakes. In all the cases of consumption in which there was vomiting of a persistent character the membrane has been more or less softened.

During the hot weather of 1866-7, three cases have fallen under the writer's notice in which acute congestion of the lungs occurred with acute softening of the stomach and of the duodenum. In all the



cases the patients (infants under 10 months) were seized suddenly, from the weather changing from extreme heat to cold. The vomiting and purging were very severe; in one case the breast milk was passed from the bowels as a thin white paste, and vomited in a similar state; the depression and emaciation on the morning of the day of its death were extreme; eyes sunken, and surrounded by dark rings; the pulse was 138, very feeble; it sank in the evening, the second day of the attack, from exhaustion.

In the other two cases death was nearly as rapid, taking place in one on the fourth and the other on the fifth day. They had all suffered at one time or another—first, from attacks of acute congestion of the lungs, and subsequently after recovering from vomiting and purging, but at the time they were seized appeared to be doing well, although not so robust and well grown as children who had not been similarly attacked; their skins were pale, and muscles rather flabby. This kind of cachexia is very common after attacks of softening of the stomach; it leaves delicate children very susceptible to other attacks—to acute disease of the membranes of the brain, and particularly to convulsions, which often prove rapidly fatal. They often become affected with a peculiar kind of nervous attack at night, the most marked features of which are that they awake suddenly in the early part of the night, cry out for help, their bodies become more or less rigid, and they utter loud cries, being all the time in a more or less unconscious state. The attacks may last from 3 to 10 minutes; if they are frequent, the health suffers; the face is pale, eyes surrounded by dark circles, and the emaciation is marked and often increasing. These attacks may ultimately assume a distinctly epileptic character. Mental emotion, severe exercise, overloading the stomach at night, constipation of the bowels, and worms, may cause the attacks to occur.

In these three cases the softening of the lining membrane of the duodenum was much more marked



than I have ever noticed in any other year, and it was much more pronounced than in the lining membrane of the stomach. In one case it formed a rather thick, light, pasty, yellow layer throughout, and the gall bladder contained a little thin, watery bile of the same colour; but in the other two cases the gall bladder was distended with very dark-green bile, and on pressure no bile could be made to enter the duodenum. The mucous membrane was of a dirty colour, and of the consistence of paste, easily removed by scraping, and in one case the subjacent parts presented several blood points. Softening of the mucous membrane of the duodenum has been more frequent this year, and the cases in which it has been observed have appeared to prove fatal more rapidly than those in which the softening was confined to the stomach.

During the hot weather of the latter part of 1866 and the early part of 1867 the disease was very common and very fatal, both alone and in connection with measles—two, three, and even four children dying in the same family. It has also occurred in connection with scarlet fever. In the cases in which the stomach symptoms had existed before the eruption appeared, there was in several a marked improvement until desquamation of the skin occurred; then, generally from exposure or improper food, an aggravation of the symptoms took place, and death generally followed if the purging and vomiting were severe.

In most of the cases the vomiting and the purging set in during desquamation of the skin, and if not of a very severe character, it was often aggravated by exposure to cold or improper food, very often both. The symptoms did not differ from those observed in the cases in which no measles or scarlet fever had preceded or accompanied the stomach disease. When the disease occurred from a sudden chill, especially after scarlet fever, there was with the congestion of the lungs often acute congestion of the kidneys. In one of these cases, the child, seven years of age, vomited and passed from its bowels large



quantities of rice-coloured fluid for two days, then it sank into a state of semi-consciousness, uttering low, moaning cries, which were only partially mitigated by injecting 10 drops of tincture of opium, in two teaspoonsful of warm water or thin starch, into the rectum every 6 or 8 hours. The stomach would not bear more than half-a-teaspoonful of brandy and water or barley-water at a time.

A distinct swelling could be felt in the abdomen to the left, and just below the navel. It seemed to be the cause of the cries, although handling it did not cause any marked pain. An attempt was made to inflate the bowels while the buttocks were raised, but without any effect on the swelling. During the last 24 hours of life, the opiate injections were returned as soon as given. Death ensued from exhaustion.

The posterior parts of both lungs were slightly congested; the right side of the heart and its large vessels contained a little thin blood. The stomach was of a pale dirty grey colour, and somewhat contracted. When cut open, it presented at its great extremity an irregular space somewhat larger than two half-crowns placed side by side; from this an irregular narrow band, somewhat less than an inch in breadth, extended to near the pyloric opening—from which the mucous membrane had been removed. The mucous membrane had also been removed from the upper part of the duodenum. The gall bladder contained a little thin bile. There was an invagination of the small intestines, which appeared to be recent, for there was no attempt at adhesion. There was congestion of the mucous membrane of the rectum, the kidneys appeared rather larger than usual, and the bladder contained a tea-spoonful of turbid albuminous urine.

Invagination of the intestines is not uncommon in this disease when the purging is severe. This is the third case which has fallen under the writer's notice. Separation of parts of the mucous membrane may also be met with, although it is only of late that it has fallen under the writer's observation. In one



case the alteration was confined to the stomach, and was most marked at the cardiac end. In another no after-death examination was made. In both the children were recovering from scarlet fever, when, from exposure to cold, they were seized first with vomiting, congestion of the lungs, and great and rapid prostration of strength; the urine, which was very scanty, was in both cases albuminous. In both there was incessant retching, attended with most distressing hiccough. The introduction of the smallest quantity of fluid aggravated them; it was rejected as soon as it reached the stomach. In both cases the eyes were sunk deep into the orbits and surrounded by dark circles, and the pulse ranged from 120 to 140. Death ensued rapidly in both cases, one living 2 days, the other 4.

These cases are good illustrations of the influence of blood poison producing the disease. During the year 1866 a case of acute softening of the womb occurred in Melbourne, and from the organ having been accidentally ruptured after death, the medical man\* who attended the patient was accused of murder. In this case the mucous membrane of the stomach was removed to a considerable extent. The retching was, as in the cases just named, very severe. The patient, aged 21 years, single, was a barmaid, of somewhat irregular habits. She had had two children. With the last one, born 13 months before, she said instruments had been used. Her health had not been good since this; her menstrual discharge had been irregular and offensive, and her womb had a tendency to prolapse. She denied having ever had a miscarriage, but there was the testimony of a witness to prove that she had repeatedly used hot-water baths, and that after one something of an offensive nature was discharged.† She had taken a great deal of medicine, but whether to procure abortion or to bring on the menstrual

\* Case of *The Queen v. Beaney*, tried at the Supreme Court in May and June, 1866.

† *Vide* page 53 of the history of the trial.



discharge it was impossible to determine. When examined by Mr. Beaney on the 12th of March, the abdomen was soft and flaccid ; there was considerable tenderness over the womb ; the vagina was large, and covered with a dirty brown offensive discharge ; the womb was low down, large and tender to the touch ; its mouth was wide open, readily admitting the end of the index finger, and one or two small clots of an offensive smell escaped from it during the examination ; she had vomited the previous day, and also vomited what she took for supper, and some brandy and water and porter.

On the 13th she continued to vomit, her breath was foetid, tongue dry and covered with brown, face pale, lips blue, and pulse rapid and feeble. She had evidently become very much worse, for she felt giddy when she attempted to sit up. The discharge had increased in quantity, and was very offensive and contained clots of dark-coloured blood. In the evening there was some pain in the region of the womb ; the discharge had increased in quantity, but the abdomen was soft.

On the 14th she was seen at half-past 4 p.m., in a state of collapse. Lips dark-coloured, eyes sunken and surrounded with dark circles, pulse very rapid and nearly imperceptible, breath very offensive ; sordes existed around the teeth, and the tongue was thickly coated with dark fur. She had intense pain of a bearing-down nature, which caused the lining membrane of the vagina to protrude. On some brownish clots which were lying in the mouth of the womb being removed, the pains subsided. She died about half-past 7. The vomiting and retching were severe on the 13th, and still more so on the 14th.

A *post-mortem* examination was made on the 17th by two medical men. Decomposition had set in, for the skin was raised in several places by gas ; the face, lips, eyelids, and vulva were swollen and discoloured, the brain was soft, the pleural cavities contained some reddish fluid, the lungs were congested, the spleen diffuent, the womb, when the intestines were



turned back, was seen of a dark colour and enlarged, and on raising its fundus an after-death rupture was discovered, the edges of which were very thin. The discovery of this rupture led the medical men who made the examination to arrive at the somewhat hasty and erroneous conclusion that it had been made during life by the introduction of the hand to empty the uterus. The mysterious disappearance of the ovaries, of which neither of the medical men could give a satisfactory explanation—one stating that they had been removed with the womb, and conveyed to the residence of the gentleman who had the charge of the parts; while he, on the other hand, asserted that they had been cut off and replaced in the coffin—led to the exhumation of the body on the 20th of April.

It was then discovered that neither the liver, intestines, nor stomach had been—although it was stated that “they were healthy”—examined. The liver was found enlarged and softened, and full of minute deposits; the lining membrane of the heart and large vessels were discoloured, and the former contained deposits; the stomach, from the great extremity to near the pylorus, presented a bandlike space, from  $1\frac{1}{2}$  to 2 inches in length, from which the mucous membrane had been removed. This alteration quite accounted for what one of the witnesses called the “constant dry retching” which she suffered.

Vomiting and retching (whenever they occur in acute congestion and inflammation of the womb, whether occurring in the non-pregnant, pregnant, or newly-delivered, must always be looked upon (if not checked) as nearly certain indications of a fatal result, and especially if they are accompanied by increasing rapidity and feebleness of pulse and emaciation.

While these pages were passing through the press, the writer was requested by Dr. Stewart to assist him in making the *post-mortem* examination of the body of a female 23 years of age. She was said to have been pregnant with her first child. The husband stated that she had vomited severely for the last 14 days of life, but she had suffered, the writer



understood, at times before. On the morning of the day of her death she had a convulsion. This left her in a very exhausted state, with cold hands and feet; pinched, pallid features; pupils rather dilated, but before death they became very largely dilated. She protruded her tongue, which was clean and moist, when requested to do so. The mouth of the womb had dilated so far as to admit the end of the finger, but there was no indication of labour. The child had been dead several days.

She sank the same evening. The body was well nourished, and there was no anasarca. The sinuses and vessels of the brain were loaded with blood. The pia mater was generally of a pale rose colour. At a spot the size of half-a-crown piece on the surface of the left hemisphere, the pia mater, arachnoid, and dura mater were adherent to each other; they were easily separated from the brain, which was unaltered; the brain was generally dark coloured, and contained a larger quantity of blood points than usual. The grey portion of the cerebellum and the centre of the medulla oblongata were much darker than usual. The lateral ventricles were empty; the choroid plexus injected. About 4 ounces of red serum escaped from the cerebro-spinal canal. The heart was large, flaccid, and empty. The pulmonary vessels contained some fibrinous clots; the posterior parts of both lungs were deeply congested. The stomach was pale externally; it contained a little fluid (brandy and water); around the cardiac orifice and along the great and lesser curvatures there were several dark red patches, varying in size from a sixpence to a shilling, depending on injection of the sub-mucous vessels. Over these patches the mucous membrane was pale, thinned, and very friable, and so easily raised that it appeared to be in the course of separating from the subjacent tissues. In the vicinity of the pyloric opening, by scraping with the edge of the scalpel, portions of the mucous membrane could be easily removed as a thick paste. The liver was large and rather friable, and its sinuses gorged with blood;



gall bladder distended with thick green bile ; the spleen small and soft. Both kidneys were large and deeply congested. The bladder was empty. The walls of the womb were rather soft ; it contained an eight-month foetus, which had evidently been dead several days. The right ovary contained two corpora lutea, one much larger than the other. The writer has never before met with the mucous membrane in the process of separation. In this case, a charge of neglect was attempted to be made against Dr. Wilson, one of the ablest practitioners in Melbourne, who was engaged to confine her, because the husband failed to inform him that it was necessary he should see her until the day before she died.

In Europe the writer has observed two classes of cases, and the same may be, he is convinced, met with here in the overcrowded and badly-drained parts of our large towns, and in any institution devoted to the reception of lying-in women in which overcrowding is allowed to take place.

In one variety the patient is anxious about herself, but not despondingly so ; her pulse is quick and irritable ; the tongue clean, pale in the centre, but red at the sides and apex, or either dry or moist, and of the colour of raw steak ; the thirst is severe, with more or less burning sensation, with fulness and tenderness at the pit of the stomach ; the eyes are unusually brilliant, although sunken and surrounded by dark circles, the cheeks flushed ; she is very talkative and restless, is often kept in bed with difficulty, and her hands and tongue are more or less tremulous, and there is more or less delirium. In the other variety the eyes are dull, sunken, and surrounded by dark circles ; the face pallid, or of a dusky hue ; the patient lies quiet, and is often very taciturn, or talks but little, and only replies to questions put to her, and often seems markedly indifferent to the result of her case. The history in both is usually the same. Often from no very appreciable cause, as well as a very severe one—such as a severe labour, or the employment of manual or instru-



mental aid to deliver, and particularly in women whose healths have been injured by bad food or irregular and drunken habits—the womb becomes inflamed. Two or three days pass, the stomach becomes irritable, and rejects everything taken; there is severe retching, and there may be also more or less diarrhoea; the tenderness of the womb disappears, and the practitioner very likely flatters himself that the patient will do well; but this is not the case, for the chances are very great that she will sink, and that very rapidly, if the vomiting and retching are severe.

In one of two cases which has fallen under the writer's notice—the patient, 20 years of age, a prostitute living in a hut-like place in a crowded street, had been delivered twelve days before by a midwife; the labour was tedious, and some difficulty was experienced in extracting the after-birth, and there was considerable flooding with it. She had been seen by a medical man for a few days, as she had had some inflammatory symptoms of the womb, for leeches and then a blister had been applied. He had last seen her five days before, and had then said she was doing well; but she was then vomiting everything given to her, and the “dry retching,” as the woman who attended graphically called it, “was very bad.” Her bowels had been and were still very loose. Her cheeks were flushed, but the rest of her face was of a dusky hue; eyes brilliant, but sunken, and surrounded with dark circles; tongue tremulous, dry, and of a deep-red colour, and covered posteriorly with a thick, loose membrane. The abdomen was soft and flaccid, and the womb free from tenderness. There had been no discharge for several days, but the epigastrium was tender and markedly prominent; bowels had acted three times during the last twelve hours; the motions were thin and watery. She had had no milk for some days.

The case progressed from worse to worse; everything introduced into the stomach was returned almost immediately. Several opiate injections were



given her, but they were returned very soon after they were introduced. She died on the 16th day, from exhaustion. The people of the house would not permit the body to be examined.

The next case presented the somewhat unusual complication of an opening between the bladder and the intestine. The patient, aged 21,\* was delivered with the long forceps, on the morning of the 30th of July, of a large-sized child, with some difficulty, in consequence of irregularity of the brim of the pelvis. The placenta was adherent, and a considerable amount of blood was lost. In the evening there was considerable uterine tenderness, and she complained of pain in one spot in the iliac region, near the point where the obstruction to the entrance of the head of the child into the pelvis had existed. A dose of morphia with two grains of calomel had been previously given; pulse 90; discharge copious.

31st. Vomiting set in rather suddenly after drinking a cup of tea; pulse 120; tongue rather red and clean; discharge copious; abdomen large and tender, particularly over the uterus; thirst severe; bran poultices were applied with considerable relief, and two doses of acetate of lead and morphia checked the vomiting.

August 4th. Very little discharge: it was thin and watery; abdomen soft and free from tenderness, but the pain still existed in the iliac region, with slight tenderness and swelling. The bowels acted freely after a dose of castor oil, and with considerable relief to the pain. The vomiting continued to recur from time to time, but it was easily checked by the medicines. She remained in a feeble state, but was able to suckle her child. She was always pale, and rather thin, and of small stature. Slight pain and tenderness still existed in the iliac region. By the 15th she was convalescent, and able to get up, and considered herself able to do without any further attendance.

On the 20th the writer was requested to see her,

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\* The writer has to thank Dr. Stewart for the very valuable assistance he rendered him in this case.



as the vomiting had returned from drinking some acid beer. The matters vomited consisted of bilious fluid and of mucus. Bowels acted once a day; motions healthy; tongue clean and red; thirst rather severe; pulse 96, weak; urine natural. The pain in the iliac region still existed; she complained that it was rather worse at night, and that it now prevented her bending her leg. There appeared to be rather more fullness and tenderness in the region of the psoas and iliacus muscles, but neither was very marked. She had no night sweats. An examination of the vagina discovered the existence of a small swelling high up on the right side. The sickness and retching continued to recur with variable intensity. Beef-tea injections were ordered night and morning. The next four days she improved, but the pulse crept up to 120, and was very feeble. The bowels acted twice and thrice a day; the motions were thin, but natural. On the 1st of September she voided with the urine an apple-pip, and she then began to experience great difficulty in passing it. On standing, it deposited a little thin brown mucus-like sediment, of a fœcal odour. The quantity of fæces increased in it; the bladder became extremely irritable, although at first she was able to go three or four hours without emptying it. At first the stream was natural, and passed without difficulty, then it became thick, and voided with great difficulty. The pain, tenderness, and swelling in the iliac region diminished on the occurrence of the fœcal matter in the urine, and she was able to sit up, and even walk across the room. This improvement was only transitory; the bladder became large and painful on pressure; the desire to evacuate it nearly incessant—the fluid consisting of from one-half to three-fourths of fluid fæces. The vomiting and retching returned with renewed intensity; the pulse crept up to 130; the eyes were deeply sunken, and surrounded by dark circles; the eyes oscillated rapidly when she spoke; face of an earthy colour. She sank on the 10th of September. An after-death examination could not be obtained.



In a case of fistula of the colon which communicated with the external surface, near the crest of the ilium, the patient, a female 22 years of age, died with nearly the same symptoms—*i.e.*, vomiting and retching, quick feeble pulse, increasing exhaustion, eyes sunken and surrounded with dark circles, earthy aspect of face, oscillating of the eyes for the last 36 hours of life. The mucous membrane of the stomach was of a slate colour; it could be raised in flakes in some parts, in others it was thinned, and when scraped with the edge of the scalpel was converted into a thin paste.

Of the two cases in which the disease occurred in disease of the heart, the writer was only able to watch the progress of the disease in one, but in both miscarriages had occurred.

The patient, aged 24, 5 years in the colony, was seen October 13, with Dr. Stewart. She has had four premature confinements in succession, and has lately miscarried. Menstruated yesterday for a short time; the discharge was pale. She has lately had an attack of paralysis, and lost the use of one side, but from this she recovered. The most peculiar feature of her case for some time has been extreme rapidity of the pulse, which has ranged from 120 to 140 to 150, with palpitation of the heart, and more or less difficulty of breathing on exertion, and a tendency to faint when in the erect position. She is thin and pale, eyes sunken, and surrounded with dark rings; conjunctivæ and skin tinged with yellow; liver tender and enlarged, and epigastrium tender; heart's action extended, with considerable dulness; marked bruit, with the second sound over the mitral valve, and a slight one over the aortic valves. She has never had rheumatism, but her father died of disease of the heart. For the last two days she has vomited frequently, the matters vomited consisting of the food taken, of acid or bilious watery fluid, and thin mucus; motions and urine natural; tongue rather red at apex and sides; pulse 120, feeble; unable to sit up from the tendency to faint. She



could not take any medicine from the tendency it had to excite vomiting, and for the same reason she refused to take food. She gradually got worse.

On the 15th of November, the emaciation was extreme; petechial spots covered both legs; they had existed for a fortnight; pulse 120, extremely feeble; the retching was very severe, occurring every 10 or 15 minutes, the diaphragm acting very violently.

The irritability of the stomach was so extreme that everything introduced into it was rejected immediately, and followed by severe retching; the epigastric tenderness was severe; she had not slept for some days.

Beef-tea injections were ordered, with sedative solution of opium.

She slept for 3 or 4 hours after the injection of a drachm of sedative solution. She appeared to improve a little under the treatment, and although the pulse became stronger, and the tendency to fainting disappeared, and the epigastric tenderness lessened, the stomach rejected everything but a little weak brandy and water. In the night of the 19th, she had an attack of a nervous character, and the next day she was in a state of general tremulousness; this lasted 3 or 4 days.

28th.—The vomiting and retching very troublesome; no sleep for 2 nights; pulse 135, very compressible, and rather vacillating; unable to be turned without danger of fainting; breathing very difficult; epigastric tenderness marked; emaciation had increased, and the dark circles round the eyes were very marked; the tremulous state had returned; the petechial spots, which had lessened in colour, had become deeper, and there was a little oozing of thin blood from the ears. The opiate injections, although the quantity of opium had been increased, had lost their power, and the beef-tea injections were returned as soon as given. On the 29th, she passed a large watery motion, mixed with a little thin blood, of the colour of port wine and water. During the day she vomited up some bile.

December 1st.—Sinking; pulse scarcely percep-



tible ; vomited some blood during the night ; bowels had acted frequently, and the motions contained a considerable quantity of pale blood ; she had had two slight attacks of convulsions during the night ; the left arm and hand were in constant motion, but the right arm was nearly motionless ; the right eyelid fell more than the left one, and the mouth was drawn a little to one side ; attacks of difficulty of breathing frequent. She died in the course of the day.

The emaciation was extreme ; only the posterior cerebral sinuses contained blood ; the cerebrum was healthy, but the white portion appeared rather more dense and elastic than usual, but the cerebellum appeared rather softer, and the grey portion rather darker than usual ; about two ounces of clear serum escaped from the spinal canal ; the upper part of the cord was healthy ; the liver was large and slightly cirrlosed ; the lungs healthy ; the heart was twice its natural size ; the wall of the left ventricle was one inch in thickness ; the mitral valve was dense and cartilaginous, and rough from the presence of warty growths ; the aortic valves were a little denser than usual ; the right side of the heart was distended with blood, but the left was empty ; the womb and ovaries were small, but the lining membrane of the former was of a deep venous hue on its posterior part ; the stomach contained about half a pint of bilious fluid tinged with blood, of the same colour as that passed from the bowels ; its mucous membrane was of a slate colour ; it could be easily raised in flakes of the size of a sixpence and removed by scraping with the edge of the scalpel.

The occurrence of the paralysis and the nervous symptoms would almost lead the practitioner to think that there was considerable alteration going on in the brain. In the following case, in which the stomach symptoms occurred in connection with colonial fever, there were very strong reasons for thinking that disease of the brain existed ; nevertheless, as the disease of the stomach improved, the symptoms of brain disease disappeared.



The patient, a young German lady, 18 years of age, residing in a low, badly-drained district, was taken on November the 19th with severe headache, after walking rapidly in the hot sun and then sitting in a draught. On the 23rd she presented the following symptoms :—Skin hot, and covered with greasy perspiration ; pulse 116, without much power ; face pale, thirst severe, urine clear and free from smell, tongue coated with white fur, severe pains in the limbs and across the eyebrows. Ordered her body to be sponged every six hours with tepid vinegar and water, and ten minims of tincture of cantharides,\* with three of muriatic acid, and ten of tincture of henbane, in water, every 6 hours.

24th.—Skin cool, pains in the limbs much relieved, headache rather less ; pulse fuller, 108 ; tongue cleaning at the sides and apex ; thirst less ; urine loaded with sediment (phosphates) and very offensive ; she began to menstruate to-day, and continued to do so for four days, the usual time. On the 29th, the urine was clear and free from smell, and on the 2nd of December she was convalescent. The headache continued, however, but a blister behind the ear relieved one side for a short time. The headache varied ; it was generally constant, and affected one side (the right), or the forehead, or the whole head ; but it became worse at times, assuming a neuralgic character. The pulse was always feeble, ranging from 84 to 90. The tongue was slightly coated with brown fur at its base ; bowels generally regular. Quinine, iodide of potassium, blisters to the temples, and aconite ointment were tried without

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\* Tincture of cantharides possesses an almost specific power over colonial fever, when given in from 7 to 15 minims for a dose early with muriatic acid and colchicum, or with iodide of potassium and colchicum if pains of a rheumatic character exist. The urine, if not before offensive, becomes so, and soon returns to its natural state. The congestion of the lungs soon disappears, the tongue cleans rapidly, and the skin becomes natural. The last should be sponged every 6 or 8 hours with tepid vinegar and water. Females, it may be observed, will bear twice as large a dose of cantharides as males without producing strangury. It requires to be carefully watched when given to males, as the strangury sometimes sets in rather suddenly and becomes very severe. It is, however, soon relieved by hot bran poultices to the abdomen, with a few doses of morphia, or an injection of from 40 to 60 drops of tincture of opium.



any effect. On the 7th of December she vomited soon after two grains of iodide of potassium had been given, and with it some corn flour which had been taken just before, tinged with iodine. From this time the stomach refused nearly everything introduced into it, no matter how small the quantity. At times there was severe retching, followed by the ejection of a little thin acid mucus. The headache was continuous, affecting the right side, and preventing sleep, except for a short time, and three or four times in the 24 hours it became very severe for periods varying from 10 to 20 minutes, until vomiting or retching set in, when she experienced some relief for a short time. A few days later the headache shifted from one side to the other; the mouth became constantly full of water, and the pillow was always wet. The left lid had a tendency to fall; the sight of this eye was so weak that she could not discern objects; the pupil was large and sluggish to light, as was also that of the other eye; there was marked squinting of this eye; the tongue was quite clean; pulse 66, very feeble; when the headache was very severe it sank to 56. During the attacks of vomiting, the face was drawn to the left side and the hands clenched; the urine was pale and very scanty; the motions natural, and the bowels acted once in 4 or 5 days; the skin was like wax; the feebleness extreme, although the emaciation was not very strongly marked. The symptoms seemed to strongly indicate brain disease, and that the result would be fatal. For some days she refused to allow beef tea to be injected into the rectum to give the stomach rest. As soon as this was done, half a grain of morphia being added to the injection night and morning, she began to improve, the vomiting became gradually less severe and less frequent, the headache gradually disappeared, the sight improved and the squinting disappeared, and at the end of a fortnight she was convalescent.

The connection between colonial fever and softening of the stomach is extremely intimate, as it has



been before observed. In children, when the softening occurs from exposure to cold, the indications of colonial fever will be more or less marked; particularly for the first few days, the pupils are often large, the skin greasy, with more or less increase in its temperature, sometimes constant, sometimes irregular, and particularly at night; the urine, if carefully watched, will be found more or less offensive; the pulse at first is generally soft, full, and slower than natural, increasing in frequency as the purging and vomiting reduce the strength; there is nearly invariably more or less congestion of the lungs, although it is often of a passive character and not always easily diagnosed; it usually disappears about the fifth or sixth day. The dilated pupils, and the soft, slow, full pulse, are often strongly marked during the first 12 or 24 hours.

In adults it is not common to find symptoms of softening occur, but in the few cases which have fallen under the writer's notice headache preceded and accompanied the vomiting, and there was more or less cerebral disturbance.

At page 16 the writer states that he had never seen colonial fever in children under two years and a half; this year two cases, both in the country, have fallen under his notice.



## CHAPTER VI.

*Diagnosis, Prognosis, and Duration of the Disease.*

THE diagnosis of the disease is not attended with difficulty ; the only affection with which it is likely to be confounded is acute inflammation of the mucous membrane of the intestinal canal. The watery feculent or mucous motions of this disease may cause it to be mistaken for softening of the mucous membrane of the stomach. The most prominent symptoms of softening of the mucous membrane of the stomach and duodenum are—

Firstly. Vomiting of the milk in a curdled state, and of food as soon as swallowed : of mucus thick or thin, and more or less acid, sometimes clear, sometimes mixed with bile, and sometimes of watery fluid.

Secondly. Of purging as in the case of the vomiting, consisting of milk in a curdled state, at first mixed with healthy motion, but later with green mucus, and still later with thin yellowish-green water.

Thirdly. If the disease progresses, increasing pallidity, or waxy or dusky hue of the skin, dark circles under the eyes, pulse increasing in frequency, creeping up more or less rapidly to 120, and, if it threatens to prove fatal, to 130 or 140, and becoming more and more feeble, and the skin bagging from the muscles, and fat wasting away.

## THE PROGNOSIS.

The result of the disease will depend on a variety of circumstances, such as age, weather, and the kind of nursing the child receives, the residence, and the neighbourhood. If the child is under three months, if the weather is hot, and it is brought up by hand by those whose interest in it depends on the few shillings a week received for it, death is nearly sure to follow, especially if some days have been allowed to pass before any attempt is made to check it. This



year (1867) the deaths among hand-fed children under three months during the hot months has been most appalling. It is no exaggeration to say that in the densely-populated parts of Melbourne and its suburbs at least from 80 to 90 per cent. have died. The mortality has also been greater among breast-fed children under three months this year than in any of the previous six years ; but it has not, perhaps, been more than from five to ten per cent. of those attacked. In a large number of the last, death has resulted from neglecting to seek medical aid early, or to other causes, such as hot, overcrowded, and badly ventilated and drained residences.

Children beyond six months will be found to bear up better against the disease than those under that age, as the table given at page 9 will show. From this table it will be seen that 8 out of 10 of the cases under 3 months died in which the disease was fully developed, 12 out of 20 between 3 and 6 months, 6 out of 24 between 6 and 12 months, while only 12 out of 68 cases of those beyond 12 months died.

But in all cases in which children under 9 or 12 or 14 months, brought up by hand, have died this year, it was very common to find that they had had somewhat severe attacks at the very commencement of the hot weather, or attacks of congestion of the lungs during the cold weather preceding the hot weather, or some disease which had reduced them, and so rendered them more susceptible to the disease. It is not uncommon to find that children who have suffered during the hot weather of the previous year—children who have had one attack—are particularly liable to others ; even a change of residence to a healthier district, unless they become very strong, does not always protect them. In some children the disease is much more liable to prove fatal than in others ; and this seems to be particularly the case in those born of delicate parents, and especially if they are pale and flabby, or stout for their age. The sickness and purging, if at all



severe, melts them away in the most surprising manner in the course of 24 or 48 hours, and the skin of the limbs hangs in large folds. It is in children of this type that the disease has the greatest tendency to prove fatal, and often rapidly so if the remedies employed fail to check it, and particularly if the weather continues very hot.

In giving an unfavourable opinion as to the result of the disease, the age must be considered—if very young—if the purging and vomiting are severe, or if they repeatedly return, and these are most unfavourable if the strength and flesh are much reduced, and if the pulse increases in frequency, creeping up day by day until it reaches 120, and then goes on rising to 130 or even 140; if it suddenly falls or becomes vacillating, it is a most unfavourable indication, and is generally an indication of convulsions, and particularly if the disease has existed some time, the emaciation being extreme, the eyes sunken and surrounded by dark circles, the anterior fontanel depressed, the eyes half closed; and if with these there are transient convulsions of the muscles of the neck or of the mouth and eyelids, or more or less rigidity and contraction of the fingers and thumbs of one or both hands. These transient convulsions or spasms of the muscles of the face are very common, and they are nearly certain indications of the occurrence of convulsions within a few hours. The rigidity and flexion of the fingers and thumbs may occur during attacks of pain in the bowels from the passage of irritating fluid along them; they are, therefore, not so much to be relied upon as the convulsions of the muscles of the face and eyelids. The convulsion of the superficial muscle of the neck is not very often observed, and when it occurs the same side of the mouth will be generally noticed to be more or less affected. The occurrence of convulsions is a most unfavourable symptom, and when the emaciation is extreme, a nearly certain indication of a fatal result.

Until the occurrence of convulsions no case should



be altogether despaired of. A change in the weather, or removing the child to a large, cool, well-ventilated room when the weather is very hot, will often be attended by a most surprising improvement. If the stomach can only be quieted for 24 or 36 hours, and if there is no disease of any other organ, there is always a chance of recovery. This year, most distressing tenesmus has occurred in several cases from the irritating nature of the motions—they all ended fatally.

*The duration* of the disease is very variable. It may assume a chronic character, but this is not nearly so common as accesses of a more or less acute nature, in which the disease yields to the remedies employed and to careful dieting.

These relapses must, however, be carefully watched, as they are very liable to end fatally if left very long without being checked. In the chronic form, and when this tendency to relapse exists, it may cause the disease to last many weeks. It is not always possible to determine the duration of a case. This year the disease has proved fatal in 48 hours. This is an exception.

In very young children, when the vomiting and purging have been continuous and severe, the duration has usually ranged from 7 to 14 days.



## CHAPTER VII.

*Treatment.*

EVERY medical man who has had to treat cases of vomiting and purging must have felt how inert remedies, however well chosen, often prove ; the stomach rejects them as soon as they enter it, or they pass off with the secretions from the stomach and bowels nearly as rapidly ; or if retained, from the power of absorption being lost, they produce no effect, and day by day, in spite of his best efforts, he sees his patients sink.

In treating the disease, it may be observed that like many others no time should be lost in having recourse to remedies, for the purging, which is at first slight, can generally be easily checked ; but if it is allowed to go on for a week or nine days, under the idea "that it is beneficial because the child is supposed to be teething," until vomiting sets in, and the emaciation becomes marked and the pulse is beyond 100, the chances of recovery will be very much diminished, especially in very young infants.

It is not, however, on medicines that reliance must be altogether placed, for without the strictest attention to diet they will fail, or prove only of temporary service. In very young children brought up by hand, the breast-milk offers the best, and very often the only remedy, if the parents desire to save their lives. It must be borne in mind that something more is necessary than to give a child suffering from or threatened with this disease a wet-nurse. She must be healthy and well nourished, and her child younger, or at least not older than the one she takes charge of. If the milk is passed or vomited in curd-like masses, if the child is constantly crying and continues to lose flesh, it will be best to change the nurse again and try another. In older children who have been brought up by hand, the greatest difficulty will be often experienced in getting them to take the breast.

It is in these cases, and in children who have been weaned some time, and in those the breast-milk disagrees with, that the ingenuity of the medical man will



be taxed to find some food that can be taken without producing sickness or purging, or that will be taken more than a few times without being refused. Among the best are barley water, gum water (1 oz. of the best white gum dissolved in a pint of water), thin arrowroot or maizena, made with water, and boiled for 15 minutes; chicken broth, lamb broth, veal tea, and Liebig's food. Baked flour and arrowroot, maizena, or ground rice, similarly treated, will also be found of service. Sago, tapioca, or *tous le mois* may also be given. The yolk of a poached egg, and the same raw, beat up with a little water and sugar, with a few drops of brandy, will often be retained. In the more chronic cases, the writer has found the oil of sweet almonds of the greatest service, given three or four times in the 24 hours, either made into a paste with finely-powdered lump sugar, or with a few drops of good port wine or brandy. Port wine or brandy should be given, and generally one or the other is borne well, and keeps up the strength; but if the stomach rejects them, or they are refused, light sparkling wine may perhaps be retained. It is often taken with avidity, and is retained when nothing else will stay down.

In feeding a child, the great point to be observed is to give only as much as the stomach will retain, and not as much as the child will take. The thirst is often so intense that, if permitted, it will drink half a pint or even a pint of fluid, and vomit it up almost immediately, and then drink again. In these cases it is most painful to listen to the cries for drink, and to refuse them; but to indulge them is nearly certain death. If, as it has been said before, the stomach can only be kept tranquil for 48 hours, the chances of recovery are very great, for the stomach seems to be able to recover its healthy action in this time; and if nothing happens to cause a relapse, and no disease of any other organ exists, they will very probably do well. Very slight causes will, however, often re-excite or keep up the sickness and the purging—such as undiluted milk, milk



slightly turned, food that has been allowed to remain some time in the saucepan, or made in a dirty saucepan, or in one already containing stale food. If a mother values the life of her child, she should make its food herself, see that the vessels used are well cleaned, and feed it herself. The demands on an attendant's patience by a child suffering from this disease are so heavy that very few servants will make very great efforts to meet them.

The medical man will do well to examine the napkins when the case does not progress well, for he will often find barley-seeds, pieces of parsley or other herbs added to the broth to render it tasteful, pieces of meat, vegetables, or fruit, and large pieces of curdled milk, although he may have interdicted them. It is, the writer believes, better to interdict even the breast-milk, if it is vomited or passed in a curdled state, and confine the child to farinaceous food. If this is done early, the stomach, as before observed, soon recovers its healthy state. The mother, while abstaining from suckling the child, should take a dose of castor oil or some other mild aperient. In hot weather, constipated bowels, biliousness, or diarrhœa will often cause the milk to disagree with the child.

The remedial means to be used are few—opium (or its active principle, morphia, which is possibly preferable as it varies less in strength, is not so bitter, or so liable to cause sickness, and children will therefore take it more readily), bicarbonate of potash, acetate of lead, and tannic acid. The writer thinks that he has found the acetate of lead and morphia of more service than any other remedies. In cases in which there has been diarrhœa of some duration, tannic acid has been added with very considerable benefit.

There is great tolerance of opium and morphia in this disease. In some cases they lose their narcotic power from the mucous membrane of the stomach and bowels not having the power to absorb them. It is in these cases that the aid of one or other of these remedies is most demanded. The child is in a state of great emaciation, restless in the extreme,



tossing from side to side unable to sleep, uttering low cries, vomiting everything given, or purged incessantly ; it may continue in this state for days unless convulsions set in. In these cases the injection of a few drops of watery solution of morphia into the rectum will be found most beneficial. The child will fall asleep, the vomiting will cease, and with it the purging, and it will rally often in the most wonderful manner. The cases in which it will fail are those in which the injection cannot be retained long enough for the morphia to be absorbed. There is sometimes, although the bowels do not act very often, such severe tenesmus from irritation of the rectum that the injection cannot be used. This year several cases have fallen under the writer's notice in which the sphincter of the rectum acted instantly, causing the mucous membrane to protrude, and exciting the muscles of the abdomen to action. Dressing a small blistered surface with a little morphia eased this involuntary action for a short time. In using injections great care is necessary not to irritate the mucous membrane of the rectum, for distressing bearing down is very easily excited.

The writer has used the morphia injection in a large number of cases. Whenever he has found the stomach so irritable that neither medicines nor food could be retained, the cases threatening to prove fatal, he has employed it, and in all in which the morphia could be retained long enough there was a marked mitigation of the symptoms ; the children have had more or less sleep, the vomiting and purging have been checked. In the cases in which it was used early, before the strength became exhausted, the benefit was marked and the recovery rapid ; in the cases in which the emaciation and exhaustion were extreme, its benefit was less certain, but it invariably prolonged life, and prevented the occurrence of convulsions. He believes that in it one of the most certain means of checking this disease will be found.