squeezed out from the end of the cord, and thickened arteries and abscess may be found under the abdominal wall if the disease spreads along the vessels and as far as the bladder. Phlebitis rarely causes local signs, unless associated with arteritis. It affects the umbilical vein, and gives rise to thrombosis, pus formation, and secondary hepatitis with progressive jaundice. Peritonitis and pneumonia are not infrequent, and are almost invariably fatal.

Clinically there are various types of septic infection. There may be no symptoms except sudden collapse, rapid fall of temperature, and death—a type most common in premature infants. Often it simulates acute gastro-enteritis, with vomiting, diarrhoea, and high fever. In other cases, cerebral and meningeal symptoms, or pneumonic conditions, predominate. Or there is severe toxæmia, with fever, greyish pallor, and hæmorrhages. Hæmorrhage after the second day of life is almost always septic. Many cases of hæmatemesis, melaena, and adrenal apoplexy are of this type. Tetanus, hæmorrhagic disease, and the affections named after Winckel and Buhl are also septic in origin.

The chief affections of the navel giving rise to fever are omphalitis; gangrenous lymphangitis, probably a variety of erysipelas; umbilical ulcer, subnavel abscess, and gangrene; and erysipelas, usually localized at first and insidious in onset, but generally fatal. In these affections the fever begins at the end of the first or beginning of the second week of life, sometimes later. A few illustrative cases may be quoted:

An infant, 10 lb. at birth, had a temperature of 102° F. on the seventh day of life and was passing good stools. Two days later there was twitching of the left arm and leg. The sutures were overlapping, the scrotum red and thickened, and there was a gangrenous odour of the cord and slight swelling of the navel. The fever and twitching lasted for six days. A drop of pus came from the navel on the thirteenth day and the cord separated next day.

In a second child the cord separated on the eighth day and there was a drop of pus. Two days later there was diarrhoea and temperature 100° F. Next day twitching began and the temperature rose to 103° F. The twitching became more severe during the night; the stools were slimy and offensive; temperature, 101° F. The buttocks were excoriated, the navel sore and exuding pus, and there was a petechial rash on the abdomen. Death ensued a few days later.

Another babe was seen on the ninth day for fever of two days' duration, anorexia, occasional colic, and one attack of lividity. A diagnosis of umbilical infection was made. Death from asthenia took place a week later, without any further symptoms.

Finally, I must refer to a case of doubtful causation.

The child, a forceps case, did not breathe well for about twenty minutes after birth, weight 9 lb. 13 oz. On the fourth day twitching began. Temperature, 101° F. Ol. ricini and grey powder were given. On the evening of the next day the temperature rose to 106.4° F., and there was much twitching, especially of the eyes, face, and hands. Probably some of the fever was due to the too liberal use of hot bottles. The child was in a state of continuous spasm. The stools were dark green, and contained mucus. No water had been passed for fourteen hours. Possibly this was of gastro-intestinal origin, as mucus and bile were vomited for two days after birth. The temperature fell gradually during the night to 102° F., rose once to 105° F. next day, and then fell gradually to 99° F. The babe was very feeble at times, but took food fairly well. During the next night she had attacks of respiratory spasm and collapse, and, though revived three times by artificial respiration, she died at 5 a.m. from respiratory spasm while being fed.

These cases are sufficient to indicate the importance of septic infection, via the cord or navel, as a cause of fever in the newborn. Such a cause must always be looked for and excluded before even thinking that an attack of fever, especially when associated with spasms and bad stools, may be due to erroneous feeding. Too much importance has been attached to dietetic factors. The incriminated organism is not necessarily a very virulent one. It is impossible to estimate its virulence, except by the height of the fever and the severity of the symptoms.

TREATMENT.

Treatment is primarily preventive. The greatest care must be taken during and after confinement to prevent infection. Dress the cord properly, using dry antiseptic gauze and an antiseptic powder, such as starch, containing 5 per cent. salicylic acid. It is even safer to disinfect it first with rectified spirit or alcohol. Once symptoms arise the treatment is symptomatic. Chloral is far the most

potent and most valuable drug for the relief of spasms. It can be given in doses of gr. ii to gr. iv by mouth or rectum. It should be given every two to four hours, the repetition of the dose depending on the effect on the child, a further dose not being given during sleep. Bromides are of much less value. Hot saline rectal injections are useful in assisting elimination of toxins. In bad cases subcutaneous injection of saline is needed. Small doses of grey powder are beneficial if the stools are bad. It is rarely necessary to give astringents for severe diarrhoea; bismuth in frequent doses is more useful. Brandy, 2 to 5 m every two to three hours, or even in larger doses, is required in toxæmia and collapse.

PROGNOSIS.

The prognosis depends on the type and severity of the case. Localized infections—for example, of the navel—are comparatively benign. As long as there are no grave signs, such as jaundice, profuse diarrhoea, recurrent hæmorrhages, peritonitis, pneumonia, or profound asthenia, there is a prospect of recovery. Anorexia, or refusal of food, and lethargy are bad symptoms. Even prolonged fever, with almost continuous spasm, may terminate favourably, though the possibility of subsequent mental defect must be remembered, as it is not always certain there is no encephalitis. Local or general palsy, due to encephalitis in the motor region, is unlikely to end in complete recovery.

FUNCTIONAL DERANGEMENT OF THE LIVER.

BY

WILLIAM BAIN, M.D., F.R.C.P.,
HARROGATE.

FUNCTIONAL disturbance of the liver has received scant attention from medical writers. While functional disorder of the nervous system and of the heart are treated at some length, hepatic insufficiency is not even mentioned in the principal textbooks of medicine. This is rather surprising when we consider the complex and varied functions performed by this important organ, for, in addition to the formation of bile, the liver is actively engaged in processes related to the metabolism of proteins, carbohydrates, and fats. The functions of the liver may be briefly enumerated:

1. It regulates the supply of glucose to the body by manufacturing it from proteins when the supply of carbohydrates is insufficient, and by storing it as glycogen when the carbohydrate element is in excess.
2. It not only prepares fats for combustion into their final products, but it synthesizes the more complex fatty compounds.
3. In relation to protein metabolism its chief functions are to convert amino acids into urea, and it plays an important part in the formation of uric acid, creatinin, and other waste products. These processes are chiefly carried out by intracellular ferments produced by the liver cells.
4. It is also the chief antitoxic organ. Further, the liver is concerned in the destruction of hæmoglobin, and is a source of animal heat.

From this brief summary of its more important activities it is obvious that any interference with the work of the organ must produce some symptoms.

What are the manifestations of so-called hepatic inadequacy? A large proportion of the symptoms ascribed to insufficiency of the organ, such as flatulent distension of the abdomen, constipation, etc., are due to digestive disorders, and are themselves the cause of the liver disturbance. It may be dogmatically stated that functional derangement of the liver is generally secondary to disturbance in some other part of the organism. Further, it must be acknowledged that in certain individuals the functional activity of the liver becomes very readily depressed; in other words, there is a liability or a predisposition to functional derangement of the organ.

During the past season I measured the vertical dullness of the liver in 300 consecutive patients. The measurement was taken in the nipple line. The normal measurement is about 4 in. Exclusive of cardiac and gall-stone cases, in 36 the normal average was exceeded—in the large majority by one or two inches. Normal liver dullness may measure 6 in., but the percussion area is then very little affected by stimulation and counter-irritation of the organ. In most of the cases, after a series of liver packs, the vertical dullness was only 3½ in.

I will now mention some of the symptoms I observed in those cases in which the liver was enlarged: A coated tongue, a bitter taste in the mouth, nausea, perverted appetite, flatulence, constipation with pale clay-coloured stools; sallowness of the complexion and irritability of the skin; dull headaches, mental depression, lassitude, insomnia, irritability of temper, drowsiness after meals, and a disinclination for work; a sense of weight, or a feeling of discomfort in the right hypochondrium, and occasionally an aching in the tip of the right shoulder. The pulse was often slow.

It is my impression that when the liver is involved the tongue takes a longer time to become clean than in ordinary cases of dyspepsia. In support of this opinion I may relate a rather peculiar case:

The patient had taken alcohol to excess for some years. His tongue was covered with a thickish yellow fur. He told me it had been in the same condition for many years. He remembered a doctor drawing his attention to it twenty years ago. The liver was increased in size (6 in. of vertical dullness), and the organ was tender on pressure. He took strong sulphur water daily, and had liver packs every alternate day. At the end of six weeks he felt quite well, the liver dullness being 4½ in., but there was no improvement in the condition of the tongue. As he was then leaving Harrogate I advised him to continue the liver packs during the winter, and I substituted iridin and colalin for the sulphur water. When I saw him in the following year his tongue had improved, and before he left it was perfectly clean.

Not uncommonly one meets with this type of case. The patient does not complain of anything very tangible. He has had a good deal of worry, but has led a healthy life. To use his own expression, he is somewhat "out of sorts." He feels a little depressed, is less energetic, and is inclined to take a pessimistic view of things in general. He does not suffer from indigestion or constipation. The liver may be found to be slightly enlarged, and in some instances slightly tender on pressure, but there is no other tangible sign. After a week of sulphur water and half a dozen liver packs the patient feels quite well, and the liver is normal in size. Two of my cases had liver packs only, without internal medication, and the result seemed to be equally good. I take it that these cases are examples of primary hepatic inadequacy.

The functions of the liver may be disturbed without any detectable enlargement of the organ.

I will cite a case in illustration. A lady was sent to Harrogate for recurring attacks of eczema of the face. The liver dullness measured 4 in. in the vertical diameter. She was a gouty subject. The treatment consisted of strong sulphur water and alkaline sulphur baths. At the end of a fortnight the eruption had disappeared. A few days later she was threatened with another attack, which she attributed to cold, but this quickly subsided under the influence of calamine lotion. Shortly after her return home she had a severe attack followed by others. Her medical adviser sent her again to me on May 30th, 1911. On this occasion I adopted a different line of treatment, namely, vigorous stimulation of the liver. She had liver packs daily, took colalin and podophyllin at bedtime, and strong sulphur water in the morning. In a week the eruption had vanished and has not reappeared.

It is an inference from this and other cases that in refractory irritative skin lesions functional disturbance of the liver ought to be taken into account.

The liver adapts itself to the extra functional demand made upon it with great celerity, and sometimes under stress displays sudden variation in size. I will briefly mention a case where the liver dullness became reduced 4 in. in ten days.

The patient suffered from sciatica. The liver dullness on July 8th, when I first saw him, was 5 in., and the organ was slightly tender on pressure. On July 17th he got ptomaine poisoning. I saw him on the 18th; the liver dullness was then 7½ in.; on July 22nd it was 4½ in., and on July 28th 3½ in.

It has been suggested, and there is some evidence in support of the suggestion, that an increase of oxalic acid in the urine is an indication of hepatic insufficiency. Possibly alimentary glycosuria may also be an indication, but it is generally considered that this condition is associated with derangement of the pancreas.

The chief causes of functional derangement of the liver may be briefly summarized as follows: Dyspepsia, gastrointestinal disturbance, alcoholic excess, rich and highly-seasoned food, fevers, nervous influences, and residence in the tropics.

Treatment.

The best method of treatment is to diminish the amount of work the liver has to perform and to facilitate the circulation through it. The work of the liver depends chiefly upon the quantity and composition of the food; therefore, in order to restore normal hepatic function there must be a limitation of the food supply; but it must be borne in mind that too rigid a dietary may interfere with the nutrition of the liver cell, and thereby injuriously affect its activity. The restriction in the quantity of food should therefore be compatible with the maintenance of normal nutrition. A mixed diet is the best, the articles being of simple composition. Three meals a day are advised unless the gall bladder is involved. Carbohydrates and fats should be limited, as the former tend to ferment, and the latter are not easily absorbed if the quantity of bile excreted is diminished. Alcohol should be forbidden. Other irritants such as mustard, pepper, red pepper, horseradish, ginger, cloves, strong meat broths, large quantities of salt, and the empyreumatic substances that are formed in baking and roasting should be avoided. In most cases it will not be necessary for the patient to exercise dietetic self-denial for more than a week. Rest after meals should be enjoined so that the functional hyperaemia of the organ is not disturbed. Exercise such as golf is very important. With increased, respiratory effort the liver is rhythmically compressed, and the venous blood flows more rapidly to the heart. For those unsatisfactory individuals who take little or no exercise massage, general and special, is desirable.

Regarding drugs, I would suggest a pill containing colalin and iridin, or podophyllin and colalin, at bedtime, followed by a dose of sulphate of soda or Carlsbad salts in the morning for a week or longer. If the stools are clay coloured, calomel may be substituted for either of the pills.

CONGENITAL ABSENCE OF THE COLON.

BY

JOHN MORTON, M.B., C.M.,

ASSISTANT SURGEON, WESTERN INFIRMARY, GLASGOW.

In reporting the following case I have in view not so much the interest due to the tuberculous lesions in the abdomen, with symptoms simulating recurrent appendicitis, as the rare abnormality of an entire absence of the colon, which was revealed, so to speak, accidentally in the course of operation. While congenital absence of the colon can be very easily explained on developmental grounds, I have not been able to find any clinical record of such a case. Neither can I recollect having come across an example of this condition in the dissecting-room during the years when I was a demonstrator of anatomy in the University of Glasgow.

The patient, a man aged 23 years, was admitted to the Western Infirmary, Glasgow, on September 7th, 1910, as a case of recurrent appendicitis, with a view to operation. During the previous two months he had had several attacks of pain in the right iliac region, lasting for a few days and then passing off. At the time of admission he was just recovering from one of these attacks. There was slight tenderness and rigidity in the iliac fossa, and a distinct mass could be felt, which certainly gave me the impression that we had to do with a lesion of the appendix with adhesions. The pulse and temperature were normal.

Five days later I operated with a view to removal of the appendix. On opening the abdomen by the usual gridiron incision I found a portion of the small intestine bound down by adhesions in the right iliac fossa, forming the mass which had been felt through the abdominal wall, but no trace of caecum or appendix. Having enlarged the incision in order to get free access to the abdominal cavity, further evidence of tuberculous disease was found. There was quite a variety of lesions exhibited. In addition to the adherent bowel above mentioned several distinct bands were present, under one of which a loop of intestine was caught and constricted almost to the point of strangulation. Having freed these bands, a number of enlarged glands were next observed in the mesentery, in the upper part of which one large glandular mass had softened and formed a tuberculous abscess as big as a hen's egg. This was incised and scraped out thoroughly, then closed by carefully suturing the edges of the peritoneum over it. Further examination of the bowel revealed several softened tuberculous patches on the surface of the gut, which were also scraped and covered in by Lembert sutures.

Finally I made a careful examination of the whole intestine and satisfied myself that the colon was entirely absent. The