house she was found to be collapsed with severe abdominal pain, which, she said, began in the right hypochondriac region, radiating across the abdomen and up to the right shoulder-blade. She had had several loose motions and vomited several times, mostly a bile-stained fluid.

Examination showed marked tenderness at the level of the tenth rib on the right side, and palpation caused pain to be felt in the back. There was a sensation of a tumour in the region of the gall bladder, but this was somewhat indefinite owing to the thickness of fat of the abdominal wall. There was no jaundice; no tenderness over the appendix. The breath sounds over the chest were normal. Temperature 99°, pulse 100.

A provisional diagnosis was made of a distended gall bladder (probably mucocele) with passage of gall stones into the common duct. Operation was advised, but the patient decided to wait events for a day or so. She was therefore treated on February 11th and 12th with fomentations and bromides, with no relief to symptoms of pain. Temperature 98°, pulse 100.

On February 13th, finding she was not improving, and before agreeing to an operation, she desired a consultation, and accordingly was seen by Mr. H. F. Vellacott. He agreed with the diagnosis made and advised immediate operation. The patient now agreed to submit to operation and was removed to a nursing home.

First Operation.

The same day, at 4 p.m., an operation was performed, Mr. H. F. Vellacott assisting. Dr. Rosa Bale gave the anaesthetic, first inducing with chloroform, followed by ether. An incision was made splitting the right rectus. On opening the peritoneum a large distended gall bladder was exposed and found to be full of small calculi (133 were subsequently removed). The gall bladder was adherent to the colon, from which it was freed. No stones were found in the common duct. As some difficulty was experienced in removing some stones in the cystic duct the gall bladder was opened. On opening the gall bladder a number of stones were removed and at the same time the liquid purulent contents came away together with the whole lining of the gall bladder, which was gangrenous—in fact the examining finger went through the necrotic muscular and serous coats of the gall bladder. The gall bladder was then resected, the cystic artery being tied separately. The appendix was then sought for and removed. The stomach, which was very much distended, was examined for gastric ulcer, but none was found. The wound was stitched up, a tube and gauze drain being put down to the site of the stump of the cystic duct.

Progress.—The patient made a rapid recovery, and was digesting an ordinary diet at the end of a week. She left the nursing home at the end of four weeks, having had a normal temperature for three weeks. The only complication was a stitch abscess, which healed up when some catgut came away. Whilst in the nursing home a report was received from the night nurse that the patient had had a rigor on the seventeenth day after her operation, and some vomiting; the temperature was 99°, pulse 100. Under treatment of hot drinks and a dose of aspirin the attack subsided, and it did not recur again. Not much notice was taken of this attack at the time, as the wound was healing well, and the general condition was otherwise quite good. It was regarded as of nervous origin. She left the nursing home on March 11th.

After being at home convalescing for three weeks, an urgent message was received on April 1st, seven weeks after the operation of cholecystectomy, because the patient had had a rigor, and also complained of excruciating pain in the right shoulder and neck; she was aching all over. Temperature 103°, pulse 110. Examination of the chest revealed nothing. The abdominal wound showed no tenderness. As influenza was in the house the attack was thought to be influenzal.

The next day the pain was in the left side of the chest. The following day the pain radiated down the right arm and right side of the neck (phrenic nerve pain). Examination of the chest revealed nothing.

By April 9th, examining the chest daily, it was noted that there was gradual diminution of breath sounds and increasing dullness up to the level of the seventh rib posteriorly. After the original rigor the temperature ranged from 98° to 99°; the pulse, however, was very quick—110, 120, 140, at times, accompanied by profuse perspiration. A diagnosis of subphrenic abscess was made.

On April 11th Mr. Vellacott again saw the patient and he performed an exploratory puncture, first in the tenth intercostal space, and, nothing being found, then posteriorly near vertebra, and pus withdrawn—the first syringe being pure pus and the second of a tomato colour. The patient's condition was very grave, and she was again removed to the nursing home.

On April 12th her condition rapidly became much worse and pain was very severe. She was gravely collapsed. Temperature 103°, pulse 120 to 130.

Second Operation.

Under gas and oxygen, given by Dr. Rosa Bale, Mr. Vellacott resected the tenth rib. After sewing the pleura to the diaphragm an incision was made into the liver. Large quantities of dark blood and clots escaped. The abscess was not at first found. Sinus forceps were pushed into a large abscess in the right lobe of the liver and about three pints of pus were evacuated. A large drainage tube was put in. Examination of the pus revealed the presence of numerous cysts.

A diagnosis was made of hydatid cyst of liver, and Dr. Wordley, pathologist to the South Devon and East Cornwall Hospital, reported that he had found numerous hooklets.

Progress.—The patient was very critically ill for the next fortnight, but the tongue began to clean and appetite slowly came

back. On April 21st it was necessary to aspirate the right base, and about 8 ounces of serous fluid were withdrawn. The wound discharged large quantities of pus and fragments of cysts and cyst wall. It was treated by frequent irrigations of Dakin's fluid (two-hourly). Her general condition, however, was not satisfactory; she had an irregular temperature—102° to 103°—with a rapid pulse of 120 to 130, and a respiratory rate of 30 to 50. Dullness of lung increased and fluid was diagnosed as present up to the level of the sixth rib. Believing she was going to die, and wishing to be at home, she refused to remain in the nursing home, and was consequently removed by ambulance to her own home on May 3rd. That evening the temperature was 103°, pulse 126, respirations 40.

On May 4th she permitted an aspiration, and 40 ounces of purulent dark bile-stained fluid were removed. This gave some relief. Examination of the fluid by Dr. Wordley showed no hooklets to be present. She consented to be operated on again.

Third Operation.

On May 5th, under gas and oxygen administered by Dr. Rosa Bale, the third operation was performed, assisted by Mr. Vellacott. The eighth rib was resected and from the pleural cavity a few ounces of pus were drained. Considering her grave state she stood this operation very well. A large tube was left *in situ*. That evening the temperature fell to 97.6°, pulse 110, respirations 25.

From this date she began rapidly to improve and the temperature never rose again. The pleural sinus was healed six weeks later and the lung had recovered from its collapse. By June 14th she was able to be out of bed, and ten days later to go for a drive. The sinus in the liver is now reduced to about 1½ in. and admits a fine probe. Some pus still discharges at times, but it is lessening. She is able to perform some of her household duties and goes out for walks daily.

A large measure of the success attained in this case was due to the patient being given gas and oxygen (Boyle method) by Dr. Rosa Bale, which thereby reduced the severe shock of the last two operations. The original source of infection has not been ascertained.

THE RADIATION OF PAIN IN LESIONS OF THE FALLOPIAN TUBE.

BY

MAURICE MARCUS, M.B., B.S. LOND.,

LATE HOUSE-PHYSICIAN, KING EDWARD VII HOSPITAL, CARDIFF.

The physical signs of diseases of the Fallopian tube have been described with great minuteness, but less attention seems to have been paid to a description of the subjective symptoms, and particularly of the radiation of the pain which occurs in these conditions.

The pain arising from an affection of the tube is rarely distinguished from that due to involvement of the neighbouring parietal peritoneum. Thus, as symptoms of salpingitis, are mentioned pain and tenderness on pressure in the iliac fossa, in the mid-line in the hypogastrium, and also posteriorly in the loin—that is, the pain of salpingitis is confused with that due to the local peritonitis. But the Fallopian tube, like other hollow viscera, reacts to disease by pain which is referred to the skin over an area dependent upon the spinal segments from which it receives its innervation. From a consideration of the cutaneous hyperaesthesia in a case in which the tube was involved, Head¹ considered these to be the eleventh and twelfth dorsal and first lumbar segments. This view appears to admit of some modification, for in the cases described below of various lesions of the Fallopian tube the pain complained of was felt in an area wider than that governed by these three segments. It was felt in the loin, in the iliac fossa, and was said to pass down the anterior surface of the thigh to the knee. This distribution appears to be peculiar to the Fallopian tube, and its recognition may be of value in arriving at a topographical diagnosis.

Case 1.—A married woman, aged 21, complained for some time of pain "like a toothache" of great severity in the left iliac fossa. She suffered also at times from pain of slighter intensity round the umbilicus and in the right iliac fossa. At operation (by Dr. Tenison Collins) there was found a large left-sided hydrosalpinx and cystic ovary, and a long appendix.

The following cases show the typical radiation of pain down the thigh.

Case 2.—A married woman, aged 22, complained for a year of irregular menstruation, menorrhagia, metrorrhagia, and dysmenorrhoea. She suffered from pain in the right iliac fossa, which passed down the front of the thigh as far as the knee (information volunteered); occasionally pain was felt also in the small of the back. The pain was very severe, shooting in character, and sometimes lasted for the whole day. Pain was also felt in the

left iliac fossa, but this was not so severe nor did it radiate elsewhere. She had had two miscarriages. On examination (by Dr. Tenison Collins) the uterus was found to be anteverted, the right tube was very much thickened and extremely tender on palpation, and there was shortening of the right broad ligament. The left tube was thickened, but not to such a degree, nor was it so tender.

Case 3.—A married woman, aged 40, suffered from abdominal pain for nineteen years. A week before admission to hospital she complained of very severe pain which started in the right iliac fossa and passed down the right thigh to the knee. She was tender over the whole of the lower abdomen. At operation (by Professor Ewen Maclean) free purulent fluid was found. The right tube was thickened and distended with pus. There was a condition of general inflammation in the pelvis, involving the appendix and the left tube, which was secondary to the right tube.

Case 4.—A married woman, aged 45, multipara, had her last menstrual period six weeks previous to admission. Two weeks before admission to hospital, for one day, she passed blood, pale in colour, per vaginam. Four days after this, while at stool, she complained of a sudden agonizing pain in the left iliac fossa, and a little way down the left thigh. Below this point, down to the knee, she felt a sense of numbness. On the following day she passed blood and clots from the vagina. At operation (by Dr. Tenison Collins) a ruptured left tubal gestation was found.

Case 5.—A female patient, aged 50, admitted to hospital as an emergency case, complained of severe pain in the hypogastrium, in both iliac fossae, and down the anterior surface of both thighs, the pain being most severe in the left iliac fossa. At operation (by Mr. H. Geary Grant) a bilateral salpingitis and diverticulitis was found. The left tube was the more inflamed, and had given rise to the diverticulitis (sigmoiditis).

Case 6.—A married woman, aged 26, complained of dysmenorrhoea, metrorrhagia, and leucorrhoea for the last three months. Nine days before admission to hospital she felt a sudden pain low down in the right iliac fossa, passing down the right thigh on the anterior and outer side of the limb to the knee. She complained of a burning pain on micturition since the onset of the pain; she vomited for the first time five days after the onset of the attack. On examination, a tender fluctuating lump was felt in Douglas's pouch on the right side. At operation (by Dr. Tenison Collins) a right pyosalpinx was found, much pus escaping; the left tube was inflamed.

In spite of the difference in character of the lesions—namely, acute salpingitis, pyosalpinx, and ruptured tubal gestation—the pain complained of in these cases had as a common feature its origin in the iliac fossa and radiation down the anterior aspect of the thigh to the knee. The uniformity of this distribution is against the hypothesis of an "overflow" of the stimulus from the tube through the last dorsal and first lumbar spinal segments to the lower lumbar segments; it suggests rather that the Fallopian tube is represented in the spinal cord by the eleventh and twelfth dorsal and first, second, and third lumbar segments, the first three lumbar posterior roots innervating the area of the skin from the groin to the knee, on the anterior aspect of the thigh.

Summary.

Lesions of the Fallopian tube cause pain which, arising in the iliac fossa, is referred down the front of the thigh to the knee. This distribution of pain is significant of an involvement of the tube, and appears to be of diagnostic value. It suggests, further, that the tube is represented in the spinal cord by the eleventh and twelfth dorsal and the first three lumbar segments.

In a note contributed to the *Lancet*² the above observations were used to establish a differential diagnosis between appendicitis and inflammation of the right tube, the difference being that the pain of appendicitis starts usually round the umbilicus, and, felt later in the right iliac fossa, does not pass below the groin.

I wish to thank Dr. Tenison Collins, Professor Ewen Maclean, and Mr. H. Geary Grant for permission to publish their cases, and Dr. Alexander Hastings for allowing me to make use of some of his notes.

REFERENCES.

¹Head, H.: *Brain*, 1893, vol. 16, Part 1, pp. 89, 101. ²Marcus, M.: *Lancet*, 1922, ii, p. 813.

THE nineteenth Dutch Congress of Natural Science and Medicine will be held at Maastricht from April 5th to 7th, under the presidency of Professor C. H. H. Spronck.

THE United States Census Bureau announces that in 1921 about 15,000 deaths from diabetes mellitus were recorded in the registration area. This area comprises 82 per cent. of the population of the United States. The death rate from diabetes was 16.8 per hundred thousand of the population in 1921, as compared with 16.1 in 1920.

A CASE OF RITTER'S DISEASE.

BY

RONALD McD. CAIRNS, M.B., CH.B.,

SENIOR HOUSE-PHYSICIAN, ROYAL INFIRMARY, LEICESTER.

THE following case of an exceedingly rare disease seems of sufficient interest to warrant its being placed on record:

The mother, a primipara, had always enjoyed good health and presented no abnormality throughout her pregnancy. The child, a male, was born after a somewhat difficult labour, which demanded instrumental interference, but at birth the baby appeared perfectly normal and did not exhibit any cutaneous abrasions, and incidentally the skin, in general, was quite healthy.

The child thrived, but on the seventh day my attention was arrested by a flaccid bulla, about two inches in diameter, resembling the lesion in pemphigus foliaceus. It had arisen during the night, was situated in the left pectoral region, and but for the fact that the surrounding skin did not exhibit any local reaction it looked suspiciously like the blister from a scald, but no history of exposure to heat could be obtained. The temperature was normal and there were no constitutional symptoms.

On the following day the lesions had spread; they involved practically all the left pectoral area and extended over the left shoulder. The bulla had burst, exposing a hyperaemic dermis and large pieces of the affected epidermis were peeling off. Under the remaining raised edges of the skin there were small collections of serous effusion, showing a very slight degree of turbidity.

There was still further extension on the ninth day, the method of spread consisting of the actual increase in size of the existing affected areas and the formation of new bullae. The left upper arm, practically as far as the elbow, was now involved, but between the lesions patches of comparatively normal skin still showed. The child was irritable, crying almost continuously, refused both breast and artificial feeding, and was obviously wasting, but the temperature was still normal and the motions regular and normal.

On the tenth day hyperaemia of the skin over the nape of the neck and the occiput appeared, and by evening a bulla had appeared in this position. This formed a marked contrast to the primary blisters, which had shown no initial reddening, nor a reaction areola. The new bladder-like swelling contained seropurulent effusion and the fluid in the other lesions was assuming this character also. The right side of the chest and right upper arm became affected on this day. The elbows were practically clear, but the hands, particularly the dorsal aspects, and the wrists showed the typical bullae. There were, in addition, a few reddened patches on the cheeks and brow, one in the neighbourhood of the umbilicus, while below the knees the affected skin was being shed in large moist flakes. Almost all the surface of the back had desquamated, and in the arm in particular, but to a certain extent in all the larger lesions, the exposed dermis was acutely inflamed, yet exhibiting no signs of necrosis, being quite dry in the centre, with no appearance of any exudate.

On the following day, the eleventh, and the fourth day from the onset of the disease, the child died. The affected parts had still further progressed and the child was very much wasted, death evidently being due to marasmus. Even up to the end there was no fever, but on the last day the temperature was subnormal.

The bowels were regular throughout and no internal complication arose. Ung. hydrarg. ammon., carron oil, ung. sulph., arsenic, and soothing baths were all tried, but proved equally useless in attempts to arrest the progress of the disease. The mother made an uninterrupted recovery.

This disease has been variously described as Ritter's disease, dermatitis exfoliativa neonatorum, and pemphigus neonatorum, and Ritter von Rittershain, Elliot, and others have described this non-contagious affection. In founding institutions on the Continent it is comparatively common, nearly 300 cases occurring in the founding asylum at Prague during a period of ten years, but down to 1900 no cases had been recorded in this country. Recently, however, I believe, one or two isolated cases have been noted.

The etiology is most obscure. Some regard it as a form of pemphigus foliaceus, some consider it impetiginous, others attribute it to some abnormal condition of the maternal milk, while still others look upon it as an exaggeration of the natural exfoliation of the newly born. Sepsis has never been found to be responsible. It usually occurs between the first and third weeks of life, but occasionally the onset is delayed until a month or even five weeks after birth.

The condition presents such a typical and unusual picture that little difficulty is experienced in diagnosis. Treatment, beyond the protection of the blebs by powders and the prevention of secondary infection by suitable dressings and soothing baths, appears to be unavailing.

In Ritter von Rittershain's series the mortality was practically 50 per cent., but some place it at an even higher rate. The sporadic cases certainly appear to be more fatal.

I much regret my inability to obtain a *post-mortem* examination and a bacteriological report on the exudate aspirated from the unbroken bullae.