has had a variety of treatment under my hands, and, though able to afford some relief, yet I see no prospect of permanent good, so that at last I am desirous of your opinion as to oöphorectomy, for her health has materially suffered, as you will observe. She is a weakly, nervous, anæmic person, whose life is a misery, and may probably break down before the menopause. She has not had any children. Several times at the periods her temperature has risen to even 102°, marking some local inflammation, and at these times the pain and tenderness is greater."

No history could be more graphic, concise, and complete. The only additions I can make to it are that marital life was absolutely unendurable, and that I found the left ovary adherent in the cul-de-sac.

I quite concurred with Dr. Lycett's views, and with his concurrence and assistance I performed ovariotomy on June 28th. I found the left ovary firmly adherent in front of the rectum, and to pull it off from its attachment was a work of difficulty. It contained about two drachms of pus, and appeared to be just on the point of bursting into the peritoneal cavity. Had it so burst, she doubtless would have had an attack of acute peritonitis, from which she might have died. The right ovary was shrivelled, so I removed that also. She made a perfect recovery, and not only is cured, but her sexual relations are now possible, so that not only has removal of the ovaries not unsexed her, but it positively has resexed her—a statement which I have made about a number of other cases of a somewhat similar kind.

Two cases of abscess in both ovaries, narrated by Mr. C. J. Cullingworth, in the *Lancet* of November 3, 1877, illustrate well this unusual disease, and are equally instructive in showing the disastrous results of delay in the performance of abdominal section in cases of doubt, where patients are suffering from pelvic mischief.

The first was a case of a woman, aged forty-five, admitted on January 13th, with vomiting, severe pain in and enlargement of the abdomen. In the lower part of the abdomen was a fluctuating swelling, reaching nearly as high as the umbilicus, quite dull on percussion, and a soft, rounded swelling in the vagina, to the right of the uterus. The morning temperature was low and the night temperature high, showing clearly the presence of pus, as did all the symptoms.

"January 27th.—Thirty-five ounces of pus were withdrawn by the aspirator, without relief.

"February 7th.—An exploratory incision was made, and a large abscess opened in the abdominal walls, outside the peritoneum, with a communication into the abdominal cavity. The patient died a few hours after the operation, and the post-mortem displayed that the source of the mischief was an abscess in the right ovary, which had burst. The left ovary also had become converted into a small bag of purulent fluid." The case seems to have had a very chronic progress, and if the abdominal section had been done some weeks before it was, there probably would have been a successful result.

The second case is an even more instructive one. About the middle of 1875 she noticed an enlargement of the abdomen, and was suffering from local distress. In June, 1876, this amounted to constant pain in the left iliac region, where there was a distinct, hard swelling, tender on pressure. The uterus was quite hard, the vagina was encroached upon, and its upper part exquisitely tender to the slightest touch, causing great suffering. An exploratory puncture was made without result, and after some months' residence in the hospital she was discharged on March 31, 1877.

She was readmitted in May following, with the symptoms much aggravated, the abdomen uniformly enlarged and universally tender, and the old, tender swelling could still be felt. The night temperature was always considerably higher than that of the morning. She was kept under observation till August 3d, when she died.

The post-mortem examination revealed old peritonitis. The right ovary was four and three-fourths inches in its large circumference, and three and one-fourth in its shorter, and was a mere shell, filled with offensive, purulent fluid. The left ovary was much larger, and formed the large tumor which was felt during life, and this again was filled with a highly offensive, purulent fluid.

In such a case as this it is impossible to resist the conclusion that abdominal section, performed soon after the onset of the serious symptoms, would have enabled the surgeon to have relieved his patient.

M. C. Darolles contributes some valuable observations concerning the microscopic examination of ovaries, in which ovaritis had resulted in the formation of abscess. He found that the process began in the suppuration of separate follicles, and that these subsequently coalesced, forming abscess of the whole gland. Such cases, he points out, as well as those of suppurative inflammation of the tubes, frequently result in a series of secondary

accidents, such as pelvi-peritonitis and acute general peritonitis, which may have a rapidly fatal issue.

M. C. Salamon has narrated a series of cases of tubercle of the ovary; but, as this condition is always associated with tubercle elsewhere, which is of far greater consequence, it can be regarded only as having an interest of curiosity. I have not heard of a case of tubercle of the ovary only.

Hermaphroditism.—If the law of evolution embraces all organized structures — and its details have now been so fully worked out that we may assume that it does—we must accept Darwin's theory of the descent of man. This acceptance at once becomes the explanation of the occasional occurrence of bisexual vertebrates, and consequently of true hermaphroditism in human individuals. Conversely, the occurrence of such malformations may be offered as one among the many proofs which are being accumulated from every quarter in favor of Darwin's theory, for they must be regarded as reversions of type. In the vegetable kingdom the majority of the species are bisexual, though modern investigations have shown most ingenious contrivances to secure the advantages of cross-fertilization.[1] Even in the more complex organisms of the animal kingdom, bisexuality is met with as high up as the nudibranchiata, while in the next sub-order, the prosobranchiata, most of the groups are unisexual. In the cephalopoda, where other great advances in structure are indicated, unisexuality is the rule. From this point a symmetrically double body is introduced into the schema, though it is met with also in the insecta, and the sexual organs are double, one in each half of the body. But as in the insecta, where unisexuality is the rule, hermaphroditism occurs with some frequency, so it does in the lower vertebrates, the frequency of the malformation diminishing, until in man true hermaphroditism is found very rarely. In all cases of hermaphroditism in animals where unisexuality of the individuals is the rule, the doubly sexed organs are always imperfect, even in insects; and in most of the cases recorded in birds there has been on the male side only a convoluted seminal tube and no testicle, so that the tube might have been taken for an aborted oviduct, had it not been, as in one of Simpson's cases ("Encyclopædia of Anatomy and Physiology"), for the coincident presence of the characteristic epithelial appendages of the male. In Simpson's second case I do not think there was any evidence of true hermaphroditism.

[1] See Darwin's "Fertilisation of Orchids," "Cross and Self-Fertilisation of Flowers," and Kerner's "Flowers and their Unbidden Guests."

The human testicle and ovary being developed from the same blastema, and being really the same organ, it is not surprising that occasionally reversions of type should occur, so that an immature testicle should appear on the one side, and an imperfect ovary on the other. According to Simpson, the ovary in these cases appears generally on the left side. This distinguished author has collected from many sources a large number of cases, the descriptions of some of which are not above suspicion; but in others, especially that recorded by Dr. Banon in the *Dublin Medical Journal* for 1852, the facts are beyond dispute; for the examination of the textures of the gland on either side by the microscope completely established that one was an ovary and that the other was a testicle, though both were so immature as to contain no perfect products. There was an imperforate penis, the urethra opening at its root, and behind this a genital canal closed by a perfect crescentic hymen, a fact which at once removes the case from the classes of spurious hermaphrodites already described. This genital canal led up to a small, well-formed uterus with normal relations to the bladder, rectum, and peritoneum, and having at its left cornu a perfect Fallopian tube with a corpus fimbriatum. In relation with this there was an ovary. There was neither tube nor ovary on the right side, but a testicle containing the characteristic tubules, and provided with an epidydimis and vas deferens. Simpson calls this true lateral hermaphroditism; and he further describes what he calls true transverse hermaphroditism, that is, where the internal organs, testicles, or ovaries, are alike on the two sides, but the external organs represent appearances somewhat like those of the other sex. But it is not clear in any of the cases he quotes that the malformation was anything more than an extension of the characters of spurious hermaphroditism; and as the glandular element must always be considered as the chief element of sex, it is not a philosophical proceeding to say that both sexes are represented unless both a testicle and an ovary are present. Even when the clitoris is perforated by a urethra as far as the glans, the condition is only that seen normally in the *Loris gracilis*.

This view, which I first enunciated in 1873, has been most fully confirmed by an admirable paper by Prof. Morrison Watson, in the *Journal of Anatomy*, October, 1879. He says: "In the gland alone and its structure is to be found the determination of sex. No arrangement of the passage is absolutely distinctive. Even the prostate gland is absent in the males of some animals (elk, red deer, etc.), and it is occasionally present in many female mammals, even women. The lateral hermaphro-

dites of Simpson are those to whom alone the term *true* can be applied."

In Simpson's third variety, to which he gives the name of "true double or vertical hermaphroditism," he describes the presence of a gland of each sex as present on both sides, or, as he says, "actual sexual duplicity." Without denying the possibility of such an occurrence, I must say that I think it very unlikely, and I have no hesitation in saying that none of the cases he quotes justifies the establishment of this variety. The most complete case is that recorded by Vrolik, and he distinctly states that neither in the structure which he supposed to be testicle nor in that considered to be ovary did he find a trace of histological evidence of the nature of the gland. Mere anatomical position goes for nothing in such a case, for the ovary descends sometimes in the same way as does the testicle, for it also has a gubernaculum. It must also be borne in mind that occasionally appendices both to testicle and ovary are met with, giving the appearance as if the individual had three or even four testicles or ovaries. If such a condition were met with in a hypospadic male who had at the same time an enlarged prostatic utriculus, as many of the cases quoted by Simpson undoubtedly had, and if the testicular appendix had not descended with the true testicle, the appearances would be exactly as described in most of Simpson's cases, and yet there would be not the slightest reason for the statement that both kinds of glands were present. The only satisfactory test is that of microscopic examination; and so far the evidence goes to show that there is only one kind of true hermaphroditism—that in which there is an ovary on the one side and a testicle on the other.

The cases lately recorded by Leopold, of Leipsic, and C. E. Underhill, of Edinburgh, are clearly cases of descent of undeveloped ovaries into the inguinal canal—instances of hypererchesis.

CHAPTER IV.

OVARIAN TUMORS AND CONDITIONS WHICH SIMULATE THEM.

Billroth's Handbuch der Frauenkrankheiten. Heft VI. R. Olshausen. Stuttgart, 1877.
Clinical Lectures. Mathews Duncan. London, 1879.
Gooch on Diseases of Women. Fergusson. London, 1859.
Kystes de l'ovaire. Gallez. Bruxelles, 1873.
Ovarian Tumours. Peaslee. London, 1873.
Diseases of the Abdomen. Edward Ballard. London, 1852.
Ovarian Physiology and Pathology. Ritchie. London, 1865.
Lessons in Gynecology. Goodell. Philadelphia, 1880.
Females and their Diseases. Meigs. Philadelphia, 1848.
Ovarian Tumors. Atlee. Philadelphia, 1873.
Ovarian Dropsy. Baker Brown. London, 1868.
Tumours of the Uterus. T. S. Lee. London, 1847.
Entwickelung der Ovariencysten. Stahl. Cent. f. Gyn., V., I.
Ætiologie der Ovariencysten. Breisky. Cent. f. Gyn., V., I.
Ovariencarcinom. Ullac. Cent. f. Gyn., V., I.
Myxoid Krebs der Ovarien. Mossè. Cent. f. Gyn., V., I.
Ovarienschwangerschaft (Spiegelberg). Gurchard. Cent. f. Gyn., V., I.
Grossesse de l'ovaire. Puech. Ann. de Gyn., July, 1878.
Ovarienadenom. Neelsen. Cent. f. Gyn., V., III.
Eierstocksarcomen. Leopold. Arch. f. Gyn., V., XIII.
Ueber Blutergüsse u. Blutgeschwulste der Ovarien. Leopold. Arch. f. G., V., XIII.
Ovarium Tumor mit elweissfreien Inhalte. Westphal. Schmidt's Jahrbuch, V. 169.
Ovarium Cystenadenosarkom. Schmidt. V. 174.
Ovarialschwangerschaft. Schmiedt. Schmidt. V. 178.
Carcinom der Ovarien. Küster u. Kegscheider. Beiträge f. Geburt. V. 4.
Ueber Dermoid-Cysten des Ovariums. Pauly. B. f. Geb. V. 4.
Ovarialschwangerschaft. Besuche. Berlin, 1876.
Histologie der Ovarientumoren. Marchand. Cent. f. Chir. V. 4.
Cavernöses Fibrom des linken Ovarium. Dannier. Arch. f. Chir. V. 21.
Ein Fall von Psammocarcinom des Ovarium. Flaischlen. Virchow's Arch., Jan., 1880.
Des Tumeurs solides de l'ovaire. Liembecki. Arch. de Gyn., 1877.
Ovarian Cysts in Infants. Leared. Lancet, 1878, VI.
Fibroma of the Ovaries. Goodhart. Med. T. and Gaz., 1874.
Ovarian Cyst with Muscular Envelope. G. Hewitt. Patholog. Soc. Trans., 1874.
Pathology of the Ovaries. M. Duncan. Med. T. and Gaz., 1875.
Dermoid Tumours of the Ovaries. Med. T. and Gaz., 1877.
Tumours of the Ovary in the Pheasant. Slater. J. Anat. and Phys., 1879.