THE PATHOLOGY AND TREATMENT

OF

DISEASES OF THE OVARIES.

CHAPTER I.

ANATOMY AND PHYSIOLOGY OF THE OVARY AND OVIDUCT.

An Extra Ovary. Société de biologie. Paris, 1875. DR. DE SINÉTY.

Anat. microscop. de l'oviducte de la Cestude. LATASTE. Arch. de phys. No. 3. 1876.

Der Nebenstock des Weibes. KOBELT. Heidelberg, 1847.

Eierstock und Ei. WALDEYER. Leipsic, 1870.

Histoire générale et particulière du dévelopement des corps organisés. COSTE. Paris, 1847.

Homology of the Sexual Organs. MORRISON WATSON. Journal Anatomy and Physiology. 1879.

On the Development of the Ova and Structure of the Ovary. FOULIS. Trans. Roy. Soc. Edin., 1875; and Journal Anat. and Physiol. Vol. XIII.

On the Formation of Ovules, and the Ovary of Mammalia and Oviparous Vertebrata. O. CADIAT. Mémoires de l'académie des sciences, Feb. 23, 1880.

Ovaire pendant la grossesse. DE SINÉTY. Archives générales. I. 1877.

Ovaire surnuméraire. DE SINÉTY. Ann. de gynécologie. Vol. VII.

Ovulation et menstruation. DE SINÉTY. Ann. de gynécologie. Vol. VII.

Phenomena accompanying the Maturation and Impregnation of the Ovum. F. M. BALFOUR. Quarterly Journal of Microscopical Science, April, 1875.

Researches on the Ovary of the Fœtus and New-born Child. DE SINÉTY. Paris, 1875.

Recherches sur l'ovaire du fœtus. DE SINÉTY. Archives de physiologie. No. 5. 1875.

Recherches sur les corps de Wolff. FOLLIN. Paris, 1850.

Recherches sur les ovules et sur l'ovaire. Par M. O. CADIAT. Académie des sciences, Feb., 1880.

Researches upon the Supra-renal Bodies and the Ovary. C. CREIGHTON. Journ. Anat. and Phys. Vol. XIII.

SACHS: Text-book of Botany. London, 1875.

Structure and Development of the Vertebrate Ovary. By F. M. BALFOUR. Quarterly Journal of Microscopic Science. No. LXII. 1878.

Traité pratique des maladies de l'utérus, des ovaires et des trompes. Par PROF. COURTY. Paris, 1872.

Ueber Accessorische Ovarien. Dr. Herman Beigl. Wiener medizin. Wochensch. Heft 12. 1877.

Upon the Formation and Significance of the Corpus Luteum in the Ovary. Otto Spiegelberg. Monatschrift für Geburtskunde. 1867.

Uterus and its Appendages. Arthur Farre. Encyc. Anat. and Physiology. Supplementary vol.

Zur intrauterinen Entwickelung der Graafschen Follikel. Dr. Haussman. Berlin, 1875.

Zur normalen und pathologischen Histologie des Graafschen Blaschens des Menschen. Slawianski. Virchow's Archives. Band LI.

Within the last ten years there has grown up a taste—perhaps I had better say a fashion, lest it should not prove permanent—for popular instruction in biology, and this tendency has had results of the best kind. Among others, it has enabled us to teach women, even girls, a great deal which deeply concerns their welfare, in a way which cannot, or, at least, ought not to offend any. It must ever be regarded as a misfortune that the most important functions of life, those of reproduction, and the most important relations of society, those of marriage, have usually been shrouded in mystery and darkness, have been wilfully misrepresented to the inquiring and innocent mind of youth, and have been left entirely for their solution to the personal speculations or experiment of each adolescent.

Now, by simply telling the life-history of a flower, and by the gentlest hint that what is true there is true all through life up to its highest developments, we may convey all the instruction that is needed, and all that is demanded in the interests of humanity. Teach a child the functions of the anther, the stigma, the pollen, the ovary, and the seed-capsule; let him or her see the conjugation of the *spirogyra*, and the child will be armed with a knowledge which will do much to prevent mischief both moral and physical.

Between the simple mass of protoplasm enclosed in a structureless capsule of cellulose, which forms the ovum of the *alga*, up to the complex ovum of the mammal, with its vascular follicle, there is a marvellous difference in elaboration of detail, but no difference in principle. The cellulose capsule is ovary and uterus in one, and the conjugating buds are at once vagina and oviduct; and from this simplicity the complexity arises only from specialization of structure, and not from the introduction of anything new in principle.

In the *algæ*, and in many other instances even in animal life, as the *aphides*, we have two principles of reproduction, or rather of continuation: the first is the production of the *zoöspore* (swarm-spore), which is effected without the conjunction of two cells, and of which we have the solitary trace, in mammals, of the so-called dermoid tumor of the ovary; the second method is the formation of the *zygospore* (resting-spore) by the conjunction of two elements, male (pollen-grain, antherozoid, or spermatozoid) and female (ovule, oöspore, germ-cell, germinal vesicle), and with that process alone the human ovary has to do in its complete function. It must not be forgotten, however, that the zoöspore and the female part of the zygospore are essentially the same, that their fundamental functions are exactly the same, and that the properties introduced by the addition of the sperm-cell seem rather to be an extension of those already existing than the creation of new ones. How far this analogy is extended to mammals, and especially to man, and how far it has been curtailed, is one of the most interesting questions of biology; and yet it is one upon which we have as yet absolutely no information.

Much unnecessary confusion has been introduced into physiological writing and teaching by the use of different names for the same thing in different places. I must here repeat the protest I have frequently made, in my lectures on biology, against this practice, and my prediction that the whole of our nomenclature will have to be revised and this confusion reduced to order. For example, why should the male element be called a pollen-grain in the foxglove, an antherozoid in an alga, and a spermatozoid in a mollusk? It would be much better to call it an antherozoid in every instance, and still better would it be to drop our old-fashioned names, as *Graafian follicle, discus proligerus*, in human anatomy, and give to these structures names like *oögonium*, which would indicate their common and real biological significance.

It is, I fear, beyond my power to introduce such a reform, yet in the following pages I shall do my best to make such terms more familiar to the purely medical reader.

It is wholly impossible to discuss the pathology and treatment of the diseases of a structure like the ovary without a full understanding of its anatomy and physiology; and here we enter upon a field vast and as yet unexhausted. During the last twenty years perhaps no organ in the body has been so much written about as the ovary; yet much remains to be told, and still more to be discovered. To the naked eye nothing could look more uninteresting and unimportant than a human ovary; and yet upon it the whole affairs of the world depend. As far as the individual owner of the gland is concerned—certainly for her comfort, and, if we take with it its appendages, for her life as well, it is the most important organ in her body.

The descriptions given of the rough anatomy of the organ coincide, of course, closely enough; but between those of its minute structure, its development, and the processes carried on in it, there is considerable diversity of opinion.

From 1870 to 1875 I was much engaged in these investigations, but since then I have been too much engaged in practice to follow them out as fully as has been done by others, more particularly by Mr. F. M. Balfour, the distinguished embryologist. With his conclusions and descriptions, my own work, so far as it has gone, most closely agrees, and therefore, in this part of my subject, I am greatly indebted to his papers for my descriptions; and while I do not desire to depreciate the efforts of other workers, I am bound to say that Mr. Balfour gives by far the most consistent and complete results.

The ovaries are, like most other organs in the body, bilaterally symmetrical; that is, they are similarly situated, one on each side; yet here the usual rule of differences occurs, for I never have seen two ovaries from the same person exactly alike in situation, size, shape, or appearance. Infinite variety in all such details are to be observed, and any description can only be one which is applicable to a particular instance, or one of the average appearances.

The size of the ovaries varies with the different periods of life; and, to a less extent, so does their distance from the uterus. Henning's table of measurements is given below, the chiefly noteworthy fact given there being that the ovary is largest in the first six weeks after parturition. This may have been due to some pathological condition in those examined; but in connection with this it is curious to note the statements of horse-breeders, that a mare is more readily impregnated soon after the birth of a foal than at any other time.

Henning's Table of the Size and Position of the Ovaries at different Periods of Life and in various Social Conditions, in Centimetres.

		Childhood.	Virgins.	Unchaste.	Married.	Multipara.	Puerperal.	Widows.	Divorced.	Menopause.	Old Age.
Length of the ovary.	Right..	1.3 to 3.2	3.8	3.4	3.0	2.5	4.4	3.5	3.5	3.1	2.9
	Left...		3.7	3.8	2.8	2.4	5.5	3.2	3.1	2.5	2.7
Breadth " "	Right..	0.2 to 1.4	1.9	1.8	1.7	1.2	1.3	1.6	1.4	1.5	1.1
	Left...		1.5	1.7	1.5	1.2	1.4	1.7	1.4	1.4	1.0
Thickness " "	Right..	0.2 to 0.6	1.0	0.9	1.0	0.8	0.8	0.8	0.9	0.8	0.8
	Left...		1.0	0.9	0.9	1.1	0.9	0.8	1.0	0.8	0.9
Distance from the uterus...........	Right..	1.0 to 4.0	3.4	4.4	4.7	5.5	8.0	3.8	4.0	4.0	4.0
	Left...	1.2 to 3.7	3.3	4.5	4.7	5.0	7.0	4.2	4.2	3 7	4.5
No. of cicatrices.....	Right..	0	6	14	21	22	8	24	17	15	14
	Left...	0	9	13	21	21	8	26	18	24	11

The color of the ovaries when perfectly healthy, and in the living subject, is of a pinkish, pearly hue, with here and there a hazy blueness showing through the tunic when a follicle is either getting ready for the discharge of its nucleus or is disappearing after having fulfilled its function. When a follicle is either about to burst or has just burst, the site is of a purple-brown color. The glands are oval in shape, and flattened from before backward, the anterior surface being shorter and less convex than the posterior, which is more rounded. The outer extremity is also rounded and bulb-like, whilst the inner is somewhat pointed and thinned off into the broad ligament. By these appearances the ovary of one side may be recognized from the other, if the glands are healthy. The average weight of the ovary is about ninety grains (Farre).

The glands are usually situated on a level with the inlet of the true pelvis, behind the Fallopian tubes and round ligaments. Looking down upon the broad ligament from above, whilst it is on the stretch, it may be seen to be formed of three folds, of

Fig. 1.—Front view of left broad ligament (after Richard): *a*, pavilion and fimbriæ; *b*, body of the tube; *c*, opening of infundibulum; *d*, tubo-ovarian ligament (one of the fimbriæ); *e*, uterine end of tube; *f'*, meso-salpinx; *g*, ovary; *h*, utero-ovarian ligament; *i*, fundus uteri; *l*, round ligament; *h*, *d*, *b*, and *l* are the three points of folding of the broad ligament.

which the ovaries occupy the posterior, the Fallopian tubes the middle, and the round ligament of the uterus the anterior, all these structures being enveloped by folds of the peritoneum in the same way as is the uniform distribution of this most interesting serous membrane.

Recent German writers, especially Waldeyer and Leopold, have asserted that on the posterior surface of the ovary the peritoneal layer does not exist. If so, it has become incorporated with the underlying coat, the tunica albuginea of after-life, for it must obtain a peritoneal covering during its developmental transition. If we consider these facts for a moment, we must conclude that the ovary must be enveloped by both an anterior and posterior layer, just as a piece of small intestine is, for the mesovarium always has two distinct layers.

Fig. 2. — Diagrammatic section of broad ligament: O, ovary; B, Fallopian tube, showing meso-salpinx; D, mesovarium.

Although in the after-life of the gland this posterior layer cannot be removed by the scalpel, it is represented by a layer of squamous epithelium, which covers the whole surface of the gland. I have undertaken a special research on this subject, and find that the posterior surface, when treated by silver and other staining methods, displays the same stomata and stigmata as does the anterior surface, or indeed any other part of the serous surface, provided the delicate arrangements are not disturbed by clumsy handling or by chemical reagents. In this way I have satisfied myself that the statement that the posterior surface of the ovary is destitute of peritoneum is incorrect.

The broad ligament, derived from the foldings already alluded to, is composed of a process of peritoneum by which the membrane, leaving the anterior abdominal wall and the base of the bladder, bends upward over the fundus of the uterus and the upper margin of the Fallopian tube, as far outward as its opening. It then dips down behind the uterus as far as the cervix, and passes backward and upward over the rectum. Just to the outside of the uterus it bends upward, over, and then down behind the round ligament of the uterus. Then over the Fallopian tube it bends down for a distance varying from half an inch to two inches, and makes a very distinct meso-salpinx, at the end of which the peritoneal cavity is opened into by the infundibulum. From the lower margin of this, the folds are continued in an outward direction to the lateral parietes. From the posterior surface of the meso-salpinx the posterior fold bends upward over the anterior surface of the ovary in very many instances, though in others it passes straight over the gland from its upper margin on to its posterior surface—in such cases no mesovarium being found.

In a few exceptions I have seen a crescentic double fold of the posterior layer of the broad ligament pass down behind the

ovary, covering it like the hood of a "Nepenthes" gland. In all such cases the women have been sterile, probably because this hood has prevented the application to the ovary of the opening of the oviduct. I have seen this arrangement give great trouble in the removal of small ovaries.

From the lower margin of the ovary the peritoneum passes downward to the flexure of the recto-uterine cul-de-sac. Between these two folds, besides the tubes and the ovaries, are to be found the parovarium on the outer side, the utero-ovarian ligament on the inner side, and some irregular and faintly marked bundles of muscular fibre, besides a quantity of loose connective cellular tissue.

Behind the right ovary lies the small intestine, and behind the left is the rectum—a fact of great importance in some of the pathological features of the gland. The ovaries, the parovarium and the Fallopian tubes, and the vessels which supply them, lie outside the peritoneum really, and this also is a most important fact in their various diseases. The blood-vessels are the utero-ovarian and ovarian arteries and veins—the former derived from the internal iliac vessels, the latter from the aorta and vena cava. These latter vessels possess so much practical interest that a few words of special description must be given concerning them. The arteries, which are the homologues of the spermatic arteries in the male, arise from the aorta just below the renal branches, and pass obliquely downward over the psoas muscle. When they reach the brim of the pelvis they turn inward and forward (centrally toward the middle point), and run up to the ovaries between the folds of the broad ligament. They give off branches to the Fallopian tube and to the side of the uterus, where they anastomose freely with the branches of the uterine arteries derived from the internal iliac.

The veins have an analogous distribution. They arise from a venous plexus lying below the ovary and between it and the uterus—the so-called bulb of the ovary (Rouget), which has a free communication with the venous plexus at the side of the uterus. From this the ovarian veins have a direction corresponding with that of their arteries, with this important distinction, that the vein on the right side enters the inferior vena cava at an acute angle, and on the left side the vein joins the renal vein at a right angle.

It has long been known that, in the male, varicocele is much more frequent on the left side than on the right, and the explanation usually given of it was the pressure which is, or may be, exercised on the left spermatic vein by a loaded rectum. A much more exact explanation has resulted from a careful study of these veins by Dr. J. H. Brinton, of Philadelphia. His deductions from a carefully made series of inquiries result in the following:

1. That the causes hitherto assigned are insufficient to account for the rare occurrence of varicocele on the right side.

2. That the cause of this non-occurrence is to be referred to the existence of a very perfect valve, hitherto unnoticed, at the termination of the right spermatic vein in the vena cava.

3. That no such valve exists upon the left side, at the junction of the spermatic with the renal vein.

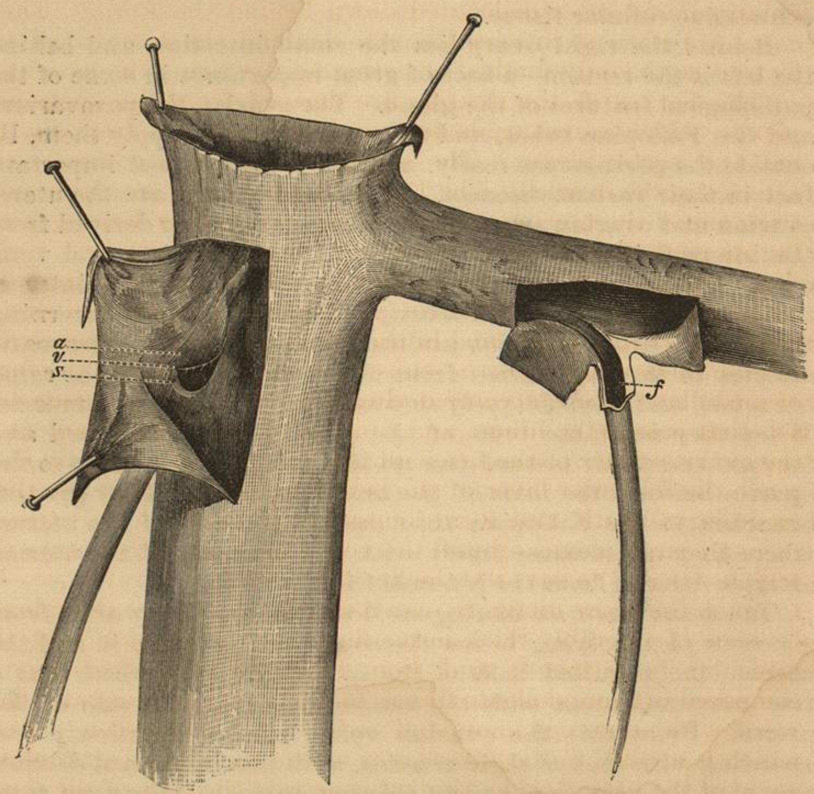

FIG. 3.—Dissection of the vena cava, emulgent and ovarian veins, showing the right ovarian valve: *a*, right ovarian vein; *f*, left ovarian vein, without valve; *v*, valve; *s*, sinus in front of valve.

4. That a similar valve exists in the analogous vein of the female—the right ovarian vein—but that there is none on the left side. (See Fig. 3.)

In this I think there is only one error to be noted: that is, that Dr. Brinton believes these valves have not before been noticed. This is not correct, for in the third edition of Gray's "Anatomy" (1864), now before me, it is distinctly stated that the spermatic veins have valves. Dr. Brinton's merit consists rather in showing that the left vein has not a valve, whilst the right vein is provided with one.

The physiological fact we have further to bear in mind concerning these veins is that during pregnancy they increase enormously in size. These facts explain those distressing cases of chronic ovaritis and ovarian hyperæmia which often start after a first confinement, and which are most frequently characterized by the greatest suffering being in the left ovary, which is always enlarged, and often dislocated down behind the uterus. These cases are often so intractable as to demand the removal of the ovaries as the only method of permanently curing the patients.

The nerves of the ovaries are derived from the spermatic plexus, which in its turn is derived from branches from the renal and aortic plexus. The spermatic nerves accompany the arteries to the ovaries. The Fallopian tube has a special branch from one of the uterine nerves—in this, as in other details, showing its method of development.

Dr. Elischer, from investigations made in the laboratory for embryological research of Prof. Michalkovics, in the University of Buda-Pesth, has satisfied himself that the nerves of the ovary in mammals enter into the substance of the organ in the form of medullated fibres accompanying the looped and tortuous vessels that pass to the hilum, and run also in the proper ligament of the ovary. Some of the fasciculi branch dichotomously till they reach the follicular layer of the periphery, where they lose their medullary sheath, and form loops around the follicles. Others form a coarse plexus around the vessels. The more mature the follicle—that is to say, the thicker the membrana granulosa—by so much the more distinctly can a still somewhat coarse plexus be seen of tolerably thick nerve-fibres in the substance of the follicular investment; and from this plexus another plexus, composed of more delicate fibres, forming a more elongated network, with numerous knots and varicosities, can be seen to arise, which is applied to the outer layer of the membrana granulosa. Some of the branches, he thinks, penetrate the cells of the membrana granulosa, and run up to the nucleus. He recommends the ovary of the sheep as the object best adapted for investigation.

Besides the normal pair of ovaries, accessory glands—or perhaps, to speak more correctly of most of the cases, separated cotyledons—are met with. I have not seen an example of these, and my description is taken chiefly from the observations of Herman, De Sinéty, and Beigl.

Herman was, so far as I know, the first author to notice these interesting structures, and he describes the appearances in the body of a newly born child, where, on the border of one of the ovaries, there was a small, pedunculated body, which proved to be composed of normal ovarian tissue, with its follicles and epithelium, and having in the centre an ovum with its *macula germinativa*. Dr. De Sinéty rather spoils his interesting observation by suggesting that his case is especially noteworthy from the probability that, if the patient had lived, she would have been the subject of extra-uterine pregnancy. This is, of course, nonsense; but if she had had both ovaries removed for disease, she might have gone on menstruating if this adventitious structure had been left; and it is possible that some of the cases of continued menstruation, after the removal of both ovaries, may have their peculiarity from some such cause as this. Similarly she might have been the subject of a third ovarian tumor.

Dr. Beigl has found similar structures eight times out of three hundred and fifty examinations. They were always situated at the hilum of the ovary, at the line of demarcation of the peritoneum (Waldeyer's line), and they varied in size from that of a hemp-seed to that of a small cherry (about 8 mm.). They generally were set upon slender pedicles, and as many as three were found associated with the same ovary. The subjects in which they were found were of all ages, and the substance of the structures was true ovarian tissue.

Waldeyer has described one instance in which as many as six of these additional or accessory ovaries, as he calls them, were found; but he regards them, in some instances, as outgrowths from the ovary in the later stages of its development. He names them "Nebeneierstöcke," which is evidently open to the objection that German writers have already applied that name to the parovarium. In doing so they are, however, mistaken, and I think Waldeyer right upon this point.

These accessory ovaries show, by the active growth of their follicles, that they have a distinct physiological importance.

Before entering upon the difficult and complex subjects of the development and minute structure of the ovary, a few words must be said upon the oviduct and that representative structure, the parovarium, as both of these have great importance in the diseases which truly belong to, or which may simulate the true diseases of the ovary.

In some of the lower orders of fishes (ganoid) the ovaries shed their ova, as soon as they are ripened, into the peritoneal cavity, whence they escape by the abdominal pores, to be fecundated

outside by the shed sperm of the male, as in all fishes. In such cases there is free communication between the peritoneal cavity and the outside water. In higher orders the ovaries are tubular glands, the tubes being continued, as oviducts, to the outside, opening above and behind the anus. In all other vertebrata there is a break between the oviduct and the ovary; and the higher we go in the animal scale, the more complex does this oviduct become, till we get to the marsupialia and mammalia, when a part of it is specialized for the retention of the embryo till it is less or more ready to maintain an independent existence.

At an early period of embryonic life in the mammal the primordial kidneys (Wolffian bodies) are each symmetrically provided with a duct—the Wolffian duct—which passes backward along the outer side of its corresponding gland, and opens posteriorly into the sac of the allantois.

Somewhat later another duct appears on the anterior surface of each Wolffian body, but remains throughout its whole extent distinct from this gland, and never functionally connected with it. Traced backward from the gland it soon comes in contact with the Wolffian duct, and together they form the genital cord. The Müllerian duct opens at its anterior extremity into the pleuro-peritoneal cavity, and posteriorly into the sac of the allantois. In the male the Wolffian ducts persist, and ultimately form the *vasa deferentia*, whilst the Müllerian ducts atrophy, with the exception of a small portion, which persists as the *vesicula prostatica*, or male uterus.

In all animals but the didelphous and monodelphous mammalia, the Müllerian ducts undergo no further modification of any great morphological importance, save in birds, where the right duct is atrophied at an early period and the left only is developed. But in the monodelphous mammalia the two ducts become united at a short distance from their posterior openings, and then, by the disappearance of the coalesced wall, form a vagina with two uterine openings; or, by a further coalescence, form a single vagina and a single uterus, into which two Fallopian tubes open, these tubes being the survivals, in the higher mammals, of the two Müllerian ducts, retaining their openings into what was the pleuro-peritoneal cavity before its division by the diaphragm. In some didelphous mammalia the two tubes remain separate throughout their length, giving two vaginæ, two uteri, and two Fallopian tubes, and instances of all the varying conditions found in antecedent animals are found occasionally in women as reversions.

In female mammals the Wolffian ducts disappear almost entirely in most species, being permanently and constantly represented only by the apparently functionless organ of Rosenmüller (Figs. 4 and 5). When further survivals of them persist they are known as the canals of Gaertner, which in a few mammals,

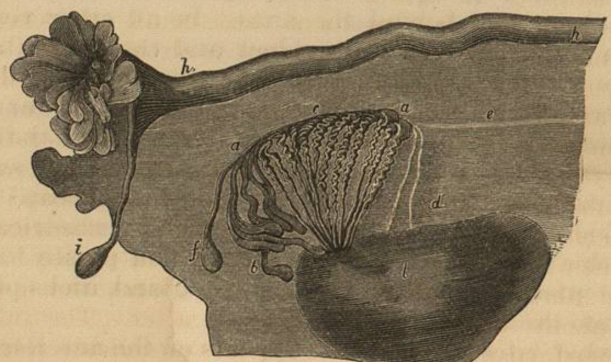

FIG. 4 (after Kobelt).—View of oviduct and parovarium from behind: *a*, *a*, inverted pyramid formed by convoluted tubules of parovarium; *b*, outer tubules, flask-shaped, and often dilated into cysts; *e*, atrophied Wolffian duct, or canal of Gaertner (lower down); *f*, terminal bulb of Wolffian duct, known as organ of Rosenmüller; *h*, Fallopian tube, or altered Müllerian ducts· *i*, terminal bulb of same, known as the hydatid of Morgagni in the male.

as the cow and the pig, retain a large size, but serve no purpose, so far as is known. They commence above, lying in close relation to the organ of Rosenmuller (*e*, Fig. 4), and run down either in the substance of the uterus, or close to it, between the layers of the broad ligament. They open into the uro-genital sinus on either side of the meatus urinarius. In exceptional cases they are found in women, and even during life their openings in the position indicated may be clearly seen.

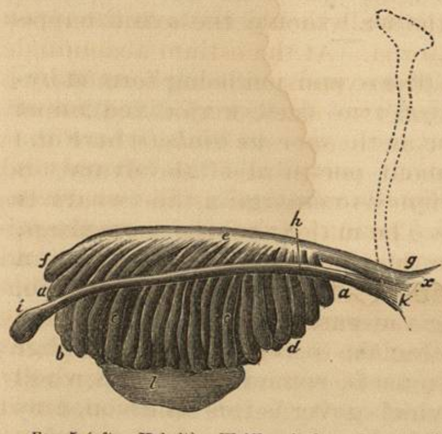

FIG. 5 (after Kobelt).—Wolffian body and ovary of embryo of the sixth week: *a*, *a*, tubules of Wolffian body; *e*, excretory duct; *f*, terminal bulb (organ of Rosenmuller); *h*, Müllerian duct; *i*, terminal bulb (*v*, Fig. 4); *x*, uro-genital sinus, into which both ducts open. The dotted outline shows bent position of Müllerian duct when it has become the Fallopian tube.

When, in the human embryo, the coalescence of the two tubes has so far advanced as to form the utero-vaginal canal, the remaining part of the tube is bent sharply downward and outward, and thereafter occupies its normal (nearly) horizontal position. It leaves the uterus at the cornu (ostium internum), at this part of its course through the uterine tissue being

of very narrow calibre. From this point it extends outward for a distance varying in the adult from three to five inches, its diameter increasing slightly as it leaves the uterus, and contracting again at the ostium abdominale, where it opens out into the infundibulum. It consists of three coats, one derived from the folding over it of the peritoneum, as already described. The greater part of its wall is therefore in direct contact with the outside surface of the peritoneum. The lesser portion of the wall is in contact with the cellular tissue, which occupies the space between the two folds of the broad ligament, at the lower aspect of the tube (meso-salpinx) (Fig. 2). The middle coat is muscular, and consists of a faint layer of longitudinal fibres externally, and a much thicker layer of circular fibres internally. The longitudinal fibres, according to my own observations, disappear entirely about the menopause, or soon after. The internal or mucous surface is thrown into a series of delicate longitudinal folds by the action of the circular fibres, an arrangement exactly similar to that which obtains in the œsophagus and urethra. The mucous surface of the tube is lined with ciliated epithelium, the movements of which are directed toward the uterus, and the function of which is certainly to prevent the passage of spermatozoa up the tube. If this were not so, tubal pregnancy would be much more common than it is. The movement of the cilia also undoubtedly aids the passage of the ovum down the tube, and prevents its adhesion to the wall should the ovum happen to become occupied by spermatozoa. At the ostium abdominale the tube expands trumpet-like, the expansion being formed by a series of fimbriæ, or laciniæ, of two sizes, major and minor. This infundibulum (known also as the *morsus diaboli*) (*a*, Fig. 1) is large enough to embrace about one-third of the ovary, and seems to have a curious tendency to enlarge as the ovary enlarges in diseased conditions. The major fimbriæ have the minor fimbriæ arranged between them somewhat irregularly, and when a Graafian follicle is nearly ready to burst, the infundibulum is said to be applied over the part of the ovary where the ripe follicle is and becomes attached to the surface by a slight cellular adhesion. If so, there must be some peculiar and wholly unknown selective influence which governs this adhesion, but it clearly is a mechanism not of universal or constant accuracy; for I have frequently, during abdominal sections, seen follicles just on the very point of bursting, over which the infundibulum was not fixed. In such a case the ovum must fall free into the peritoneal cavity, and there probably dies in the great majority of instances. There is reason to suspect, however, that, in exceptional instances, it there undergoes cystic expansion.