

Holland and from Edinburgh spread its influence not only in Scotland and Ireland but also in England, where clinical studies were already habitual among physicians.

The systematic teaching of medicine in the University of Edinburgh began at the end of the first quarter of the eighteenth century and was largely due to the example and exertions of Alexander Monro, the father of the anatomist after whom the cerebral foramen is named. He studied under Boerhaave at Leyden in 1718 and lectured on general anatomy and physiology, comparative anatomy and surgical operations in one comprehensive course lasting from October to May for 39 years from 1725. He edited in 1732 the first volume of the "Medical Essays and Observations published by a Society in Edinburgh." These essays were many of them dissertations on some particular subject, yet among them are sufficient clinical observations to show that the publication had the effect of encouraging clinical observations in Scotland and elsewhere. Dr. John Rutherford, another pupil of Boerhaave, who had also received instruction from Dr. James Douglas in London, gave in 1748 the first clinical lectures in Edinburgh. Rutherford's lectures, of which there is a manuscript volume in the library of the Royal Medical and Chirurgical Society, are good clinical descriptions of patients with comments upon their symptoms and the treatment. Similar lectures were given by his successors John Gregory in 1768 and William Cullen in 1769, but neither of these shows the same power of directing the attention of the student to what is to be seen in the patient. Robert Whytt gave clinical lectures at the Edinburgh Royal Infirmary in 1760 and his "Observations on the Nature, Causes, and Cure of those Disorders which are commonly called Nervous, Hypochondriac, or Hysterical," which appeared in 1764, contains many notes of the symptoms and daily progress of cases of nervous disease. He also had studied under Boerhaave.

The influence of Boerhaave on medical studies of all kinds at Edinburgh may be further understood from the fact that when Dr. John Fothergill, who took his M.D. degree in 1736, studied there his five teachers—Monro, Alston, Rutherford, Sinclair, and Plummer—had all been pupils of that illustrious Dutchman. The aphorisms of Boerhaave were first published in 1708 at Leyden. Their point, clearness, and comprehensiveness show upon how much clinical observation they were based. Men naturally flocked to Leyden to receive instruction from a teacher who knew so much and who could impart his knowledge in a style so easy to comprehend. No one who went was disappointed. The aphorisms were even translated into Arabic and from Constantinople to Dublin pupils of Boerhaave were to be found. The learned but never heavy commentary of Van Swieten added after Boerhaave's death to his influence, so that his floreat as a teacher of medicine lasted nearly a century. The clinical and the systematic medicine of Scotland were altogether derived from Boerhaave. Rutherford, Gregory and Cullen spread his fame with their own wherever the doctors they had taught went to dwell. Many were carried to Ireland, among them a pupil of Alexander Monro, Dr. George Cleghorn, whose "Observations on the Endemic Diseases of Minorca from the year 1744-49" shows a high degree of clinical observation. He lived in Minorca, then a British possession, from 1736 to 1749. He had noted the meteorology and collected the plants and animals of the island and had made systematic notes on the diseases of the natives and of the troops both as to symptoms and post-mortem appearances. He gives a clear account of cases of continued fever, of pneumonia, and of dysentery in men who already had certain agues, and some of these seem certainly to have been examples of enteric fever, others perhaps of Mediterranean fever. It was widely read, for four editions appeared in his lifetime. He went to Dublin in 1751 and there remained for the rest of his life practising medicine and lecturing on general anatomy, of which he became professor in the university. He died in 1789.

Cleghorn when a student at Edinburgh formed a friendship with John Fothergill which lasted throughout his life. Both had a taste for botany and both cared for clinical medicine. Fothergill is perhaps an example of the spread of the influence of Boerhaave to England. He took his M.D. degree at Edinburgh in 1736 and in 1748 published "An Account of the Sore-throat attended with Ulcers." The book contains some clinical observations. He shows that the cases of malignant sore-throat which he describes are quite distinct from quinsy, but does not follow out the cases sufficiently in detail to establish their identity if they were

identical or, if they were not, their differences. Some of them seem to have been examples of diphtheria and more of a form of scarlet fever. The work is good as far as it goes but the investigation is imperfect.

Dr. John Huxham is another example of the influence of Boerhaave in England on the study of clinical medicine. Huxham studied under the master at Leyden in 1715. His "Essay on Fevers" which appeared in 1755 contains many original observations. His treatise "On the Malignant Ulcerous Sore-throat," famous as it is, is not, in my opinion, so good an example of clinical observation as the work of Fothergill. It has the same fault of failing to distinguish between cases which we should call diphtheria and others which were probably scarlatina anginosa, but Huxham excels Fothergill in that he seems to have noticed that paralysis of the soft palate followed some of his cases of malignant ulcerous sore-throat.

These pupils or members of the school of Boerhaave seem to be more on the look-out for something startling or suitable for clinical demonstration than were the followers of Glisson and of Sydenham, who were content to make no selection but to observe every circumstance of an illness and by observing everything in many cases hoped to arrive at useful conclusions of general application. Yet the effect of the teaching of Boerhaave and of that of the University of Edinburgh which was derived from him was to increase the enthusiasm for clinical observations. The study of clinical medicine among English physicians originated in the learning of the Renaissance, while the origin of clinical study in Scotland is to be found in the teaching of Boerhaave. Such has been the history of the study of clinical medicine in the British Isles. Methods of clinical observation have been improved and elaborated since it has been fully established. Amidst the pursuit of the extensive sciences related to medicine it is for us, the physicians of to-day, to see that the precise observation of disease at the bedside is never displaced in teaching or in practice by other studies.

## THE RECIPROCAL RELATIONS BETWEEN AFFECTIONS OF THE UTERUS AND ITS APPENDAGES AND THE REST OF THE BODY.<sup>1</sup>

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As far back as authentic history extends specialists were engaged in the practice of different departments of medicine. In ancient India a special group of surgeons were devoted to rhinoscopy, performing operations for improving deformed ears and noses, and forming new ones. Of the old Egyptians Herodotus writes: "Medicine is practised among them on a plan of separation; each physician treats a single disorder, and no more; thus the country swarms with medical practitioners, some undertaking to cure diseases of the eye, others of the head, others again of the teeth, others of the intestines, and some those which are not local." Their priest-physicians were pronounced specialists, and when a summons was received to the house of a patient the superintendent of the temple selected the practitioner best acquainted with the part affected. Similarly in ancient Rome along with the usual general practitioners there existed a large number of specialists of all kinds—doctors for the eyes, the teeth, the ears, and the diseases of women; rupture curers, wine, water, and milk doctors; not to mention wizards and exorcists who did not rank as medical men.

Much of the specialism thus practised in all ages has been of the narrowest kind, each department of medicine having not only its own peculiar methods of treatment but also its own particular pathology. Each set of practitioners ploughed a lonely furrow, taking no heed of the work and achievements of the other branches of medicine. By such means medical science never has been, nor ever will be, advanced. True specialism must be built upon a foundation of scientific principles common to the whole of medicine, and it is only by

<sup>1</sup> An address delivered to the Stourbridge Medical Society on Oct. 4th, 1906.

paying due attention to these principles and by studying them in relation to the local anatomical and physiological peculiarities of the organ or part of the body specialised upon that real progress in knowledge and in practice can be expected. The connexions between the whole animal body and every one of its constituent parts are so intimate that no part can be the seat of a lesion or departure from the normal without causing some change in the rest of the organism. The change may be too small to be appreciated by our coarse methods of investigation or may be so long in developing that the originating cause is lost sight of, but change in greater or less degree there always must be. In illustration of this great law I propose to glance briefly at some of the effects produced by diseases of the uterus and its appendages upon the rest of the body, and from the other point of view to consider the influence of general affections and of lesions of distant organs upon the female pelvic organs and their functions.

The intimate relations between the female sexual organs and the rest of the economy are easily recognised at puberty and the climacteric and in connexion with pregnancy and parturition. At the time of puberty the putting on of the bodily and mental qualities of the adult is accompanied by a rapid change in the appearance and functions of the ovaries and the uterus. When conception takes place the remarkable phenomena that follow are not confined solely to the pelvic organs and the breasts, but extend to the whole body and mind of the woman. The general nutrition is often profoundly modified. The subcutaneous fat is increased round the pelvis and on the nates, so that the hips become broader at the same time as the face often becomes thin. Pigment is deposited in the skin of the abdomen, the breasts, and frequently of the face. The characters of the blood are modified, the heart and kidneys, and probably also the liver, are hypertrophied, and the thyroid gland becomes enlarged. Not infrequently remarkable changes take place in the mental condition—a bright and lively woman becoming sad and despondent, or a dull and apathetic one becoming light-hearted and cheerful. When normal lactation takes place equally remarkable changes occur in the genital organs; the uterus passes into a condition of well-marked but temporary atrophy and the ovaries cease their function of periodically developing perfect ova. At the climacteric local atrophic changes begin to take place at the same time as the well-known general symptoms of that epoch, and after the menopause atrophy progressively and more or less rapidly increases with the woman's years until the pelvic organs become relatively insignificant.

The uterus and its appendages are brought into intimate relations with the rest of the economy by the nervous system and by the circulation of the blood and lymph. The nerve supply of the ovaries is abundant, branches passing to these organs along the ovarian arteries, and in part also along the ovarian branches of the uterine arteries. A large part of these nerves are intended for the vessels and for the muscular fibres, but sensory and reflex nerves are also undoubtedly present, since palpation of the ovary gives rise to a peculiar painful sensation, and may cause various reflex actions. The action of the nerve supply of the uterus is more easily studied in detail than that of the ovaries, and much knowledge has been acquired by experiments carried out chiefly on bitches. According to Gaskell three groups of efferent fibres pass to the uterus as to the other hollow muscular viscera, and govern the vascular muscles, the visceral muscles, and the glandular secretion respectively. These fibres are derived from the sympathetic system, mainly from the solar plexus which lies on the anterior wall of the abdominal aorta near its upper end, and from the hypogastric plexuses with which are connected branches from the second and third sacral nerves. The external genitals and perineum, the lower end of the vagina and urethra, have an abundant supply of spinal as well as of sympathetic nerves. Centres governing the generative organs exist in the base of the brain and in the lumbar portion of the spinal cord, and possibly also in the medulla. Electrical irritation of the centre in the brain causes contraction of the uterus. Stimulating or inhibitory impulses may be started in this centre by sounds, sights, or smells, or by psychical agencies. A shock or fright may prevent the onset of an expected menstrual period, or cause sudden stoppage of a period already commenced; in a pregnant woman a similar mental disturbance may determine the premature emptying of the uterus, while the arrival of the accoucheur is well known to be a common cause of temporary

cessation of labour pains. A second centre probably exists in the medulla in near connexion with the respiratory and vaso-motor centres and with that for vomiting and retching. The influence of asphyxia in causing the pregnant uterus to empty itself is probably exerted upon this centre, which may also help to explain the vomiting of pregnancy. The best known centre is in the lumbar swelling of the cord and is sufficient of itself to control all the movements of the uterus; contractions occur regularly, even when the spinal cord has been completely divided above the centre, and in some cases of paraplegia labour has been observed to take place normally. From the lumbar centre periodical impulses pass to the uterus, giving rise to the intermittent contractions of pregnancy and the pains of labour. The action of the centre may be excited by stimuli from the medulla or from the brain, or reflexly through either the cerebro-spinal or sympathetic nerves. The influence of the spinal nerves is seen when the uterus is excited to contraction by the child's head or the accoucheur's hand in the vagina or by the child being put to the breast, or when a menstrual period is postponed or suddenly stopped by the exposure of the surface of the body generally to cold, or by the use of a cold vaginal or rectal injection. Reflex action through the sympathetic nerves may be set up by the presence of a dead foetus in the uterus, the escape of the liquor amnii, by dilatation of the cervix, or by the separation of the membranes, as, for instance, by the passage of a bougie. The close and widespread nervous connexions of the uterus with the rest of the organism are also well seen in the effect of labour pains in causing acceleration of the pulse, rise in temperature, perspiration, rigors, vomiting, and sometimes hysteria and loss of mental control.

The close connexion that has always been believed to exist between the uterus and the nervous system is embodied in the term hysteria. In this affection and in many disorders of the mind derangements of menstruation are frequent, the commonest being more or less prolonged periods of amenorrhœa. Certain other neuroses have intimate relations with the condition and functions of the generative organs. The crises of migraine and of epilepsy in some patients occur only or chiefly at the menstrual periods. Asthma occasionally appears to depend upon some condition of the uterus or its appendages. Thus Peyer in a clinical lecture published by the New Sydenham Society in 1894 relates several cases in females of what he calls neurasthenic sexual asthma. In one case severe asthma was brought on by coitus; in another there was uterine catarrh and the attacks of asthma ceased during pregnancy; in a third hysterical and asthmatical attacks were associated with vaginismus, vaginitis, and catarrhal endometritis; and in a fourth severe case there was a uterine fibroid and the removal of a polypus was followed by the cure of the asthma. Of five female cases related in this paper only two had a hereditary nervous taint.

In exophthalmic goitre changes in the female sexual organs or their functions are frequent. Often one of the first symptoms of the affection is amenorrhœa, which may be prolonged. Atrophy of the genital organs has been observed in at least 15 cases (Theilhaber). The affection may improve or get well during pregnancy or the puerperium, but more frequently it becomes worse or makes its first appearance in these circumstances. Occasionally it has begun after an operation on the genital organs. I have observed the effects upon the generative functions or organs in eight cases of the disease.

CASE 1.—The patient, single, aged 22 years, had had symptoms of exophthalmic goitre for two years. The catamenia began at 14 and continued regular until the age of 20 years, when they ceased entirely. There were well-marked signs of atrophy of the vulva, vagina, and uterus similar to those normally seen in women some years after the natural menopause.

CASE 2.—The patient, single, was first seen at the age of 22 years. Symptoms of Graves's disease began at 19 years of age; in the course of the next five years the catamenia were scanty and infrequent and for two of these years there was no menstrual period at all; at the end of this time no sign was present of atrophy of the vulva or uterus, and the periods subsequently became re-established, at the same time as the symptoms of exophthalmic goitre became less marked.

CASE 3.—The patient, aged 20 years, single, had had severe symptoms for two years and there had only been one menstrual period in the last nine months.

CASE 4.—The patient was single and aged 30 years. The

first symptoms of the illness in this case was a sudden severe flooding without obvious cause and without recognisable changes in the uterus and its appendages.

CASE 5.—The patient was single and aged 26 years. Menorrhagia began three years before symptoms of exophthalmic goitre and had persisted along with symptoms of the latter disease for a further three years.

CASE 6.—The patient was married and aged 41 years. Symptoms began during the third pregnancy at the age of 37 years and there was no effect on menstruation.

CASE 7.—The patient, single, aged 44 years, had had symptoms for four years, and for the same time the periods had been regular but very scanty, only lasting one day.

CASE 8.—The patient, a IV-para, aged 39 years, had had a large mesenteric cyst removed by operation. 15 months later there were well-marked symptoms of exophthalmic goitre. Menstruation had ceased for five months after the operation and then became regular.

It appears that in only two out of the eight patients menstruation continued normal; in two there was menorrhagia; in the other four there was more or less prolonged amenorrhœa or marked scantiness of the flow, and in one of these there was premature atrophy of the whole of the sexual organs. One of the cases appeared to have commenced during a pregnancy and one followed on a severe abdominal operation. It appears, therefore, that exophthalmic goitre is frequently associated closely with abnormal conditions of the uterus and its appendages, but the exact relation between the two sets of phenomena is not known. In Raynaud's disease there does not appear to be a similarly frequent close relation between the general affection and the female pelvic organs, although among six patients, one a single woman, aged 24 years, had prolonged periods of amenorrhœa, one of these extending over two years, and a second had diminution of the catamenial losses.

Alterations in the vascular supply of the female pelvic organs may be set up by affections of distant organs, and conversely, primary changes in the pelvic organs may give rise to changes in distant organs through the medium of the circulation. In the case of valvular disease of the heart there has long been a widespread opinion that in failing compensation and consequent back pressure menorrhagia is the rule. Gow, however, investigated the relation of heart disease to menstruation in 50 cases, and found that in 28 menstruation was unaltered, and in 17 it was absent or scantier than before, while in only five was it more profuse or frequent. In many cases of mitral disease there is, no doubt, passive congestion of the uterus, which, however, appears more likely to lead to prolonged amenorrhœa than to menorrhagia, though in many cases menstruation continues unaltered. According to the same observer when conception takes place mitral disease appears greatly to increase the tendency to premature expulsion of the ovum. Certain pulmonary affections have a marked effect on the catamenial function. In the acute exacerbations of chronic bronchitis it appears to be the rule that a persistent and sometimes profuse flow of blood from the uterus takes place. In pulmonary tuberculosis amenorrhœa is usual and a premature menopause is common; the diminution or arrest of menstruation in this disease appears usually to be due to the general condition of malnutrition, but in not a few instances is to be ascribed to simultaneous tuberculosis of the ovaries, tubes, or occasionally of the endometrium.

On the other hand, certain conditions of the generative organs appear to exert an influence on distant organs by disturbing the circulation. In pregnancy, for instance, not only are certain veins commonly made varicose as the result of pressure, but the whole arterial circulation is affected, as shown by alterations in the radial pulse and by the left side of the heart becoming hypertrophied. How far these changes are due to mechanical influences and how far to alterations in the constitution of the blood cannot be determined. In the case of uterine fibroids which attain a sufficient size and importance to enable their presence to be diagnosed functional and organic affections of the heart and circulatory system are found to coexist, according to the experience of several writers, including myself, in from 40 to 50 per cent. of the patients. The most frequent cardiac changes in these cases are brown induration and fatty degeneration. The heart appears to become affected in several different ways. In some instances valvular disease is present before the fibroid begins to grow, and in these compensation is very likely to be upset. Sometimes the fibroid

attains an excessive size so as to impede the circulation by mechanical means; or the tumour may press upon the ureters and lead to renal degeneration with consecutive affection of the heart. In the great majority of the cases menorrhagia due to the presence of the fibroid tumour gives rise to severe and persistent anæmia and so to malnutrition and consequent degeneration of the cardiac walls. In a further group of cases disturbances of the circulation, such as irregular or intermittent action of the heart or by tachycardia, appear to be set up through the medium of the nervous system; these symptoms seem to be more frequent in cases where severe and often repeated pain is a prominent symptom of the uterine tumour. In a certain number of patients there is evidence of hypertrophy of the heart even when the uterine fibroid is of moderate size; in some of these there is reason to believe that the increased local circulation of blood in the tumour may be the cause of the cardiac hypertrophy; another possible explanation that has been offered is that the circulatory affection and the growth of the uterine fibroid may both depend upon a common cause, an analogy being suggested with exophthalmic goitre, in which disease symptoms at first sight remote and unconnected are believed all to arise from a central nervous affection. In whatever way the cardiac affection may be set up by the growth of a uterine fibroid, its presence is of the utmost practical importance from the point of view both of medical and surgical treatment. If the heart's action is already weak it is not safe to give ergot for the treatment of menorrhagia. If the cardiac or circulatory symptoms persist in spite of medical treatment they become an urgent indication for operation, and when this has been successfully practised the prognosis of the cardiac condition is good. Operation in such cases is, however, somewhat more risky than usual and should be preceded by a period of rest in bed.

Alterations in the constitution of the blood itself may be due primarily to affections of the uterus and its appendages, or when due to other causes may secondarily affect these organs and their functions. Scurvy, purpura, or hæmophilia may give rise to hæmorrhages into some of the pelvic organs or to profuse loss of blood from the uterus. In Bright's disease the vitiated blood may be the cause of diminished or of excessive and prolonged menstruation. In diabetes amenorrhœa may result. Anæmia from whatever cause arising is frequently accompanied by amenorrhœa. Chlorosis particularly has close associations with absent or scanty menstruation; in fact, amenorrhœa is as regular a feature of the disease as is imperfect evolution of the red blood corpuscles. The amenorrhœa does not appear to depend on the chlorotic state, but both are probably symptoms of a peculiar constitutional condition. The affection is not necessarily associated with impairment of the development of the body, nor is it frequently associated with defective health previous to its onset. Stieda, however, has shown that it is often associated with infantile types of structure, especially with ill-developed pelvis, labia, uterus, pubes, and breasts, and he believes that chlorosis is only one of the symptoms of general ill-development, being neither the cause nor the effect of any of the other symptoms. The close connexion between the condition that gives rise to chlorosis and the state of the pelvic organs was well illustrated by the case of a young woman who was under my care some years ago for frequently recurring attacks of severe chlorosis; during the course of a severe and rather prolonged attack the patient married and promptly conceived; in the course of the first three months of pregnancy the greenish complexion was replaced by the ruddy hue of robust health and has not since returned.

The close associations between chlorosis and amenorrhœa has suggested that the conditions depend upon diminished activity of the ovaries, and has led to the administration of ovarian extract in these cases; a moderate degree of success is said by a number of authors to have attended this method of treatment, and this is claimed as one of the proofs that the ovary manufactures and passes into the blood stream some substance or substances that are of service to the economy, either by supplying a need or by destroying other substances that are harmful.

The marked results that follow upon the complete removal of both ovaries have long been well known, but the exact mechanism by which these changes are brought about is still very imperfectly understood. A considerable amount of evidence has been accumulated in favour of the theory that they depend upon the internal secretion of the ovary,

and not upon the action of the nervous system. In osteomalacia it has been found that removal of the ovaries results in the arrest of the diseased process. The disease is characterised by a softening of the bones and in the later stages by a destruction of proteids not only in the bones but in the whole organism; there is a decided increase in the amount of calcium, magnesium, and phosphorus, and of the nitrogen excreted in the urine. The removal of the ovaries is followed by a great diminution in the excretion of phosphorus and by the restoration of the normal firmness of the bones.

The results that have been obtained from implantation experiments on animals afford another proof that the ovaries exert their influence on the organism by means of their connexion with the blood and not through the nervous system. Knauer and others found that the ovaries could be removed from rabbits and grafted on to peritoneum or muscle. A certain part of the ovary lived and was able to ripen and even to expel ova, and such ova could be impregnated, normal pregnancy resulting. The influence which the ovaries exert upon the organism is intimately connected with their main function—the development of ova. The atrophy of the uterus which follows double oöphorectomy is due not to interference with the blood-supply but to cutting off ovarian influence, and these implantation experiments prove that this influence is not a nervous one. As long as a functionally active ovary is present it does not matter in what part of the body it is situated.

On the analogy of thyroid medication, and in accordance with the theory of internal secretion, the treatment of certain affections by ovarian extract or by administration of the gland itself, either fresh or dry, has been tested with varying success. Good results have been obtained by numerous observers, chiefly German, in the treatment of the troubles of the menopause, both natural and post-operative, and in chlorosis and amenorrhœa a moderate degree of success has been obtained. The varying results obtained by different observers may depend upon difference in the preparations or in the ovaries employed. It is necessary to remember that only the ovaries of sexually mature animals are likely to be efficacious. The ovaries of heifers, for instance, are probably inactive; those of the sow are said to be the best for the purpose.

Specially intimate associations exist between the pelvic organs and certain glands at a distance. The influence of pregnancy upon the activity of the mammary glands and the common occurrence of abnormal sensations, fulness, and tenderness in these organs at the menstrual periods are common knowledge. So also is the frequent association of mumps with orchitis, and it has been suggested possibly with ovaritis. On the other hand, the occurrence of inflammation of the parotid gland as a common sequel of operations upon the pelvic organs of the female has been supposed to depend upon some subtle nervous relationship; it appears now, however, to be proved that the relation of the parotitis to the pelvic condition is not so caused, but that it is due to the infection of Steno's duct from the mouth in the course of prolonged and severe operations, or of the shock and torpor which follow them.

The relations between the thyroid gland and the female genital organs are of the greatest interest. Goitre is about ten times more frequent in females than in males and is much more common in parous women than in nulliparæ. The thyroid enlargement is often found to begin at, or soon after, puberty, and the increase in size is apt to be notably greater during the menstrual periods. The enlargement often begins during pregnancy and it is commonly observed that it becomes greater during each successive pregnancy. Many observers have stated that even when the thyroid appears to be normal it is practically always found to be larger in pregnancy, at least in the later months. Myxœdema also is much more frequent in women than in men. An antagonism has been supposed to exist between the action of the thyroid gland and that of the ovary. In Graves's disease amenorrhœa, as has already been pointed out, is common; in myxœdema there is frequently menorrhagia, and conversely uterine bleeding has been successfully treated by thyroid extract. The treatment of myxœdema and cretinism by thyroid medication proves that the gland has a profound effect in stimulating general metabolism. Oliphant Nicholson believes that the activity of the thyroid gland is of the utmost importance in preventing the toxæmia of eclampsia. He refers to Lange's observations on 133 women in the last 12 weeks of pregnancy, in 81·2 per cent. of whom the thyroid gland was hypertrophied. Of 22 patients

who did not show enlargement of the gland, 16 had albuminuria and tube casts, and six of these cases terminated in eclampsia. Of 108 women who had normal thyroid hypertrophy only two had albuminuria, and in these two there was a history of renal disease previous to pregnancy. Nicholson thinks, therefore, that the phenomena of eclampsia are the result of thyroid inadequacy, and he records a series of cases in which the symptoms of eclampsia and of the pre-eclamptic state were alleviated in a striking manner by the exhibition of thyroid extract.

Tumours and other conditions of the uterus or its appendages frequently give rise to injurious effects on other organs by purely mechanical means. Occasionally an ovarian or a uterine tumour may attain so great a size as to fill the abdomen, pressing upon the diaphragm so as to impede respiration and interfere with the oxygenation of the blood, and compressing the large vessels at the back of the abdomen as well as the heart itself, so as seriously to embarrass the circulation. Retroverted gravid uterus commonly, and uterine fibroids occasionally, give rise to retention of urine by pressure or dragging on the urethra; sometimes a fibroid with pelvic development presses upon one or both ureters; in either case if the cause persists backward pressure is set up with eventual dilatation of the pelvis of the kidney and hydronephrosis, and consequent predisposition to infection of the urinary tract by pyogenic or septic organisms. In prolapse of the uterus and vagina the bladder is one of the commonest contents of the hernial protrusion, and along with the anterior vaginal wall and base of the bladder the lower ends of the ureters are pushed or dragged down. I am indebted to Dr. R. Saundby for directing my attention to the serious consequences that may ensue from this cause. A woman admitted under his care with renal hæmaturia was found to be the subject of an old prolapse, and as none of the ordinary causes of hæmaturia were present it appeared probable that the prolapse with the accompanying dragging of the ureters had given rise to dilatation of the ureters and kidneys, and that the bleeding was due to an acute congestion supervening upon this condition. In support of this view Dr. Saundby kindly referred me to a paper by Ch. Féré in *Le Progrès Médical*, Vol. XII., 1894. In this paper are related six post-mortem examinations on cases of prolapse in women from 63 to 91 years of age; in each of the six there was vaginal cystocele with dilatation of the bladder, and in every one the ureters and the pelvis and calyces of the kidneys were dilated, the distension being due not merely to retention of urine in the bladder but to the lower ends of the ureters being pulled down by the descent of the uterus. In five out of the six cases the bladder and ureters were also inflamed; the pelvis and calyces had thickened walls and were filled with purulent fluid; and the kidneys were the seat of multiple abscesses. In the only case in which there was no inflammation the kidneys were hydronephrotic. Féré adds that he has several times observed uræmic symptoms which disappeared after the reduction of prolapse of the uterus. From these observations it is apparent that in cases of old-standing prolapse a look-out should be maintained for symptoms of renal insufficiency. Having regard, however, to the fact that the dilatation and inflammation of the urinary tract are progressive affections and incurable, it is of the utmost importance that every case of prolapse should be early taken in hand and effectively treated, or better still that the lying-in period should be so managed as to prevent the beginning of the condition.

In the time at my disposal I have been able merely to glance briefly in passing at a few of the links of the great chains that bind obstetrics and gynaecology to the rest of medicine. No mention has been made of the influence on the female pelvic organs of certain constitutional conditions, such as the rheumatic and gouty diatheses. Nor of the important changes that frequently take place in these organs in the course of the acute specific fevers, such as scarlet fever, measles, small-pox, cholera, and diphtheria; that the effects of these diseases on the uterus and its appendages are not more fully known arises from the fact that they are often overlooked by reason of the graver and more striking symptoms of the general disease. Neither has special attention been directed to the extreme interest and importance of the general results of local septic infections of the generative tract, to the spread of cancer from the uterus and its appendages to the rest of the body, nor to the baneful remote results of syphilis and gonorrhœa.

Enough has been said, however, to show that those who



practise general medicine and surgery can no more afford to lose touch with obstetrics and gynaecology than the special practitioner in these subjects can dare to neglect medical science as a whole. The former have to bear in mind that distant and apparently remote symptoms may have their origin in some condition of the pelvic organs; thus, for instance, in a case of severe and persistent vomiting the possibility of pregnancy must be borne in mind. I have seen a necropsy on a case where death took place from vomiting and exhaustion supposed to be due to a gastric ulcer, but really depending upon a pregnancy that had not been suspected. On the other hand, the presence of a vulvitis may lead to the diagnosis of diabetes, or menorrhagia may turn out to be due to Bright's disease or to an acute specific disease. A girl, aged 19 years, who came to me at the special department for diseases of women at the General Hospital stating that her last period had persisted for a fortnight longer than usual, and that she was feeling somewhat out of sorts in consequence, turned out to be suffering from typhoid fever.

In life generally specialisation is one of the first principles. Wherever two or three cells are gathered together to form one organism each cell has its own special functions, and as we go higher in the scale of life, animal or vegetable, differentiation of the functions of different cells, organs, and tissues becomes more pronounced. So it is with knowledge; from the days when the philosopher was able to take all learning for his province until now specialisation has been an increasing necessity and has become more clearly defined as knowledge has advanced. But there are always two kinds of specialism in knowledge and in practice, in science and in art. The one is selfish, living for itself alone, drawing no sustenance and giving no return to the great stock of which it should be an organically connected branch; such false specialism at best takes on a rank and unwholesome growth and timely dies, as has happened in the case of phrenology. The great unity of Medicine has given origin to, and is in return nourished by, many special branches, and each of these branches will live or die according as it maintains or loses hold of its true organic connexion with the parent stem.

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## DESCRIPTION OF A HEART SHOWING GUMMATOUS INFILTRATION OF THE AURICULO-VENTRICULAR BUNDLE.

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IN THE LANCET recently<sup>1</sup> Dr. Charles W. Chapman recorded the remarkable case of a man who for some 12 years before his death had a slow pulse—about 42 beats per minute—and great dilatation of the veins of the right side of the abdominal wall. Dr. Chapman had shown the patient at the Clinical Society in 1898 and again in 1899; and we are indebted to him for his kindness in allowing us to make use of the very full clinical record of the case as reported in the Transactions of the Clinical Society.<sup>2</sup>

A man, aged 48 years, was admitted into the National Hospital for Diseases of the Heart on Oct. 6th, 1897. He complained of occasional palpitation on exertion and a shooting pain in the head. He further complained of a sense of suffocation when he leaned forward. Twenty years before he had a small itching sore on the penis which caused him no inconvenience and for which he had two months' treatment (1877). His first illness of any note was influenza in 1892, and the attack was a severe one. Six months later he began to suffer from palpitation; three months later, from a sudden sense of fulness in the head, accompanied by swelling and redness of the face which soon passed off. About this time he saw a medical man, who called his attention to some fulness in the superficial veins of the abdomen. During the attacks of palpitation he would sometimes become suddenly faint, fall down, and remain unconscious for a few seconds. Examination revealed that he was well nourished and had a dark-red face. The veins of the right leg and abdominal wall were dilated and tortuous and there was one large vein in the right axilla. The left leg was affected to a minor degree. The heart was beating feebly 54 to the minute, the apex was in the fifth space, one and a quarter inches to the right of the middle line, and a systolic murmur was heard at the apex. He was in hospital five weeks and the pulse varied from 54 to 32 with an average of 42 per minute. A provisional diagnosis was made of obstruction of the inferior vena cava by the pressure of a gumma or by phlebitis. He was given iodides for many years with some improvement. In 1905 he died in the London Hospital, aged 56 years, from peritonitis caused by perforation of the appendix; the only additional note made was that the abdominal veins filled most quickly from above.

At the suggestion of Professor W. Osler we have made a complete examination of the auriculo-ventricular connecting system<sup>3</sup> of muscular fibres of this heart to see if an explanation could be found for the marked diminution of the pulse-rate. The results of our inquiry throw a very definite side-light on the nature and function of the auriculo-ventricular connecting system. The symptoms led Dr. Chapman to diagnose some obstruction to the inferior vena cava of a syphilitic nature. The diagnosis was approximately correct, for there was some fibrous induration at the base and in the root of the right lung, but it was the superior, not the inferior, vena cava which was affected by the gummatous infiltration of the heart. The inferior vena cava at its entrance to the right auricle was nearly double its usual size, while the superior vena cava—lumen, wall, and orifice—was completely obliterated, only a small scar marking the site which it had once occupied (see Fig. 1, a, b). Since the musculature of the superior vena cava is believed to be the situation at which the heart's beat commences, it is important to determine approximately the date at which it was destroyed. The veins of the abdomen had been prominent for 13 years before death and at that period the man began to suffer from fulness of the head, palpitation, and fainting fits. About that time, or soon after, the musculature of the superior vena cava must have been destroyed. The collateral venous circulation appears to have opened up without causing any great inconvenience.

Since the musculature of the coronary sinus, as well as that of the superior vena cava, is derived from the sinus venosus one may suppose with good reason that the sinus may also be a site at which the heart's beat commences. In this heart the orifice and neighbouring parts of the coronary sinus are involved in, and form part of, a cicatricial mass which extends into and has destroyed all the musculature of the inter-auricular septum (see Fig. 1, e). The heart rhythm could not have commenced at the coronary sinus in this case. The orifice of the coronary sinus was contracted; it measured 6 by 5 millimetres.

It is probable, but the statement lacks experimental proof, that the contraction of the left auricle may commence in the musculature surrounding the terminations of the pulmonary veins. In this heart that musculature was but slightly involved in the gummatous infiltration. The musculature of the vestibule<sup>4</sup> of the left auricle was only slightly damaged, but all the musculature of the sinus of that chamber (Fig. 2, b), including the left tænia terminalis, was reduced to a ring of cicatricial tissue—a ring only

<sup>1</sup> THE LANCET, July 28th, 1906, p. 219.

<sup>2</sup> Transactions of the Clinical Society, vol. xxxi., p. 234, and vol. xxxiii., p. 34.

<sup>3</sup> For an account of the auriculo-ventricular connecting system see article by Keith and Flack, THE LANCET, August 11th, 1906, p. 359.

<sup>4</sup> See Evolution of the Muscular Structures of the Heart, by A. Keith, THE LANCET, March 12th, 1904, p. 704.