of neo-natal life saving which has here its special *terrain*. There will, of course, be special difficulties, such as the maintenance of touch between the babies and their mothers, but these are all capable of being overcome. When well enough the mothers will be welcomed in the ward and taught the nursing of delicate babies. The inmates will be all the babies born in the hospital or brought in from outside who call for special care because of injuries in labour, of delicacy of constitution, of the presence of disease, or, and most particularly, of prematurity of birth. A special place and differentiated handling will be afforded for the syphilitic babies and for those suffering from ophthalmia neonatorum. The age of the babies dealt with in the neo-natal ward will correspond with the name of the department; but here it is necessary to add a word of explanation. The ordinary neonate remains such for, roughly, a month after birth; but the fetus born at the seventh month of ante-natal life does not conclude his neo-natal existence till three months after his birth. If this obvious fact had been more generally recognized and acted upon there would not now have been so many neo-natal deaths recorded; such deaths were really ante-natal and not neo-natal in time, although they fell accidentally after the act of birth.

New Responsibilities.

The addition of ante-natal departments to maternity hospitals and their reinforcement with neo-natal departments has had and will have the effect of increasing the responsibilities of these institutions as well as of widening the range of their usefulness; but it will do more. It will increase—indeed it already has—the responsibilities of the hospital as a teaching centre. Both for medical students and nurses in training as midwives it is necessary to supply clinical instruction in the ante-natal and neo-natal departments. It is more than time that the exclusive or at least preponderating attention paid to teaching on the parturient and puerperal patient tacitly enjoined by the present regulations of the General Medical Council be extended and that tuition in ante-natal clinics and in the ante-natal and neo-natal wards be at least recommended in addition to the more usual and compulsory part of the training. It is, of course, essential that future practitioners should know about the handling of labours and the management of the puerperium, but it is most desirable that they shall be made familiar also with the examination of pregnant patients at all stages and with the hygiene and maladies of newborn, and especially of prematurely born, infants. Further, these additions will give a scope and a status to clinical obstetrics such as it does not now enjoy. It will then be a more complete presentation of the subject and will be less meagre in its content in comparison with clinical medicine and clinical surgery than it is at present.

The teaching of theoretical obstetrics will in turn be similarly affected. The lecturer will be led to give and pay more time and attention to ante-natal diagnosis and pathology and to neo-natal hygiene and disease than he commonly does now; and, again, as with the clinical aspects of the subject, a greater fullness will be introduced. The term "midwifery" is more truly descriptive of the teaching given to women in training for the examinations of the Central Midwives Board; something which both in nature and in extent surpasses this is what should be offered to the medical men and women of the future. The lectureship or chair might have been given the eminently and correctly descriptive name of genetics, but that term has been appropriated. Apparently we must fall back upon the term obstetrics, using that word in its widest sense.

The bearing on gynaecology of these ante-natal and neo-natal additions to the equipment of a maternity hospital is not necessarily direct. In Edinburgh the gynaecological department is in the Royal Infirmary, but in many places it is conjoined with the practice of the maternity hospital. In some respects this is admirable, for one large part of a gynaecologist's work is devoted to the repair of injuries and their results which are directly or indirectly due to faulty midwifery, and there is a distinct advantage in their being carried out in the same building. Thus the gynaecological department of a maternity hospital would serve the same purpose for the wounded puerperal woman which the neo-natal department discharges for the delicate infant. But it must not be forgotten that another large

part of gynaecology is concerned with the treatment of morbid states, such as malignant and myomatous tumours of the uterus, cystomata of the ovaries, and malformations, which have no obvious or common connexion with child-bearing. These are best dealt with in a surgical hospital, for they are really nowadays a part of surgery. It looks almost as if gynaecology were on the point of breaking up into two parts—one containing conditions due to or militating against childbirth, and the other dealing with diseases and tumours common to surgery and gynaecology, and special only in respect of the sex of the individual suffering from them. For the management of the first subdivision of gynaecological cases a department in the maternity hospital would be perfectly suitable; for that of the second subdivision the gynaecological ward of the general hospital would seem to be appropriate. The progress of the art and practice of obstetrics, as reinforced and aided by the work of the ante-natal department, will be in the direction of limiting more and more the occurrences calling for reparative gynaecological operations, and happily, in time, of abolishing them altogether.

THE TREATMENT OF UTERINE HAEMORRHAGE NOT ASSOCIATED WITH PREGNANCY.*

BY

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IN normal menstruation, when the superficial layers of the endometrium are cast off and blood is extruded from the abraded surface, clotting takes place very rapidly with abundant fibrin formation. Whitehouse¹ says: "The high thrombo-kinetic [blood-clotting] power of the endometrium is a provision of nature to facilitate clotting and prevent excessive haemorrhage. Even in well-marked cases of haemophilia profuse haemorrhage very rarely occurs during menstruation . . . Clinically . . . it is well known how rapidly, during the operation of curetting, the blood clots when mixed with the curetted endometrium, and special precautions are necessary to obtain tissue for microscopical purposes unmixed with clot." If, however, normal menstrual blood is examined after it has reached the vagina, it will be found to be almost completely fluid. Blood collected from the uterine cavity in a test tube is found to clot rapidly, but after some hours it becomes liquefied again. In other words, there is not only a blood-clotting substance present, but also a clot-dissolving substance, which normally produces liquefaction of the blood in the vagina, and so facilitates the evacuation of the menstrual discharges. There is evidence which suggests that the stroma cells of the endometrium secrete the clotting substance and the uterine glands the liquefying substance.

That ovarian secretion also exercises a profound control over menstruation is certain, and most probably the hormones of other endocrine glands are also potent, but little is known of how these act. Mechanical factors no doubt come in—for example, uterine muscular contractions may reduce menstrual loss by limiting the supply of blood to the endometrium. But the broad fact remains that the amount of menstrual bleeding is determined by the balanced action of various internal secretions about the mechanism of which we are at present without the knowledge which would enable us to control or regulate it. In practice we find that excessive menstrual loss usually occurs about the age of puberty or when the menopause is approaching. Excessive uterine haemorrhage during the child-bearing period is almost always associated with organic disease of the uterus or with some blood disease. The most frequent cause is, of course, fibroid tumours, and when a fibroid is accompanied by severe bleeding it will almost always be discovered either to be involving the endometrium, and thus likely to modify its secretory action, or it has itself undergone some degenerative change—necrobiosis, mucoid degeneration, red degeneration or malignant transformation—with consequent considerable chemical changes.

Until our knowledge has so improved that we are able to control the delicate balance of internal secretions, on

* Read at a meeting of the Bradford Medico-Chirurgical Society.

the upset of which appears to depend for the most part excessive uterine haemorrhage, in my opinion it is desirable to perform hysterectomy in all such cases whenever the bleeding is severe enough to make the patient to any extent an invalid. I am old enough to remember the time when it was considered so dangerous to remove a uterine fibroid that gynaecologists more often than not suggested not operation but rest and drugs when a woman anywhere near the menopause had a fibroid which did not actually threaten her life by reason of the profuseness of the bleeding. One of my most vivid memories is of a Sunday in 1896 when, on coming away from a visit to a lady of some 50 years of age, who had spent perhaps a dozen years constantly lying down either in bed or on a couch in an adjoining room, I was told that she had been all these years awaiting the cessation of a metrorrhagia due to a fibroid. I had watched Greig Smith remove large myomatous uteri safely and easily, and had seen more than one blanched feeble creature return a few months later to thank the surgeon for renewed vigorous health; and the contrast of a highly educated woman, whose keenly enjoyed activities had been brought to an end at the age of 40, was my first big stimulus to do surgical work—not just to save a patient from impending death, but from the far more ghastly death-in-life which constitutes existence for so many chronic invalids.

Briefly, in turn, bleeding (1) at puberty, (2) during the child-bearing years, and (3) about the period of menopause must be considered. Bleeding at puberty (1) may be severe, but practically always it rights itself, and I never even heard of any case which required hysterectomy. As I have indicated, it is probably due to imperfect balance between the various internal secretions.

Excessive bleeding during the child-bearing years (2) is, as stated before, most commonly due to fibroids, and, in my opinion, hysterectomy is indicated in almost every case where excessive bleeding, either menstrual or intermenstrual, is associated with the presence of a fibroid. Apart altogether from the bleeding or other urgent symptoms, there can be no doubt that fibroids interfere with good health. The association of myocardial degeneration and aortic disease with large fibroids is too frequent to be merely coincidence, and if a fibroid which has been found in the course of an abdominal section for some other condition is removed, the patient is almost certain to remark on her subsequently improved feeling of well-being.

Excessive bleeding may be associated with hypertrophy of the ovaries.

A year ago I operated on a patient of Dr. Lankester at the Bradford Royal Infirmary. She was a young woman, aged 26 years, who had had six children, and since her last confinement had had too frequent and profuse haemorrhage. When she was admitted she was obviously blanched, and had a soft, low tension pulse. The uterus was slightly subinvolved but otherwise appeared normal. I kept her in bed for a few days until her general condition had improved, and then did a subtotal hysterectomy. She had the most hypertrophied ovaries I have ever seen. Whitehouse has treated such cases by repeated curettage without success. He suggests partial excision of the ovaries, but does not quote any case which has been successfully so treated.

It is, however, about the menopause age (3) when the most trying and frequent cases of haemorrhage occur.

(a) In cases of cervical cancer, by the time the growth has developed sufficiently to produce considerable haemorrhage it is practically certain to be too far advanced for radical treatment.

(b) Bland-Sutton has suggested that uterine fibrosis is the cause of many cases of severe uterine haemorrhage at the menopause, and in a not very large percentage of uteri removed for this condition thick-walled blood vessels can be demonstrated.

(c) A condition much more frequently found is one which affects chiefly the endometrium, known as hypertrophic glandular endometritis, but the microscope does not usually show the small cell infiltration indicative of inflammation; and it would probably be more correct to regard the condition rather as a degeneration of the endometrium. The uterus is rarely much if at all enlarged. It may be retroplaced, but is more frequently in normal position. There is, as a rule, nothing abnormal found about the appendages. After removal the uterine wall is, on section, distinctly pale, but the obviously abnormal condition is an oedematous thickened endometrium, usually in places forming one or more mucous polypi from $\frac{1}{4}$ in. to over 1 in. in length. I

have hardly ever seen any blood clot in the uterus in these cases even when the operation has been undertaken as an emergency for severe active haemorrhage—which points, of course, to a probable deficiency of thrombokinase (blood-clotting substance).

(d) In other cases of irregular menopausal haemorrhage no abnormality is discovered in the uterus, either macroscopically or microscopically.

I think there can be little doubt that in all these cases, whether an obvious lesion of the uterine wall or of its lining membrane exists or not, the essential cause of the bleeding is an abnormality in the internal secretions. Some day we may learn how to regulate the functioning of these substances, but until we do I am strongly of the opinion that whenever the bleeding is so severe and so persistent as to make the patient's life a burden to her, the only certain means of curing her is to remove the uterus. Packing the vagina, curettage, ergot and similar drugs are most uncertain remedies and at best produce only temporary improvement. For beyond a doubt the patients who consult their doctors about bleeding of this sort as a rule never feel well; apart altogether from the haemorrhage there are symptoms, none of them perhaps very bad, but in the aggregate producing a sense of illness enough to make most women willing to risk operation in order to get rid of it, if they are not definitely discouraged by their medical attendant.

REFERENCE.

¹ H. Beckwith Whitehouse's Hunterian Lecture on Physiology and Pathology of Uterine Haemorrhage, February, 1914 (*Lancet*, March 28th, 1914).

SOME DEDUCTIONS FROM THE STATISTICS ON THE PREVENTION OF PULMONARY TUBERCULOSIS.

BY

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STATISTICS show us that, in spite of all that has been said and done for the prevention of tuberculosis, our efforts in regard to pulmonary tuberculosis have not been attended with the anticipated success. The decline in mortality from this cause dates from 1838, and has continued steadily ever since down to 1913. Koch's discovery of the tubercle bacillus in 1882 does not appear to have affected it in any way. On comparison of the statistics of the four principal zymotic diseases (measles, scarlet fever, whooping-cough, diphtheria) with those of pulmonary tuberculosis, in the fifty years 1861–1910, we find the following decline:

Comparison in Deaths per Million Living.

	1861-70.	1871-80.	1881-90.	1891-1900.	1900-10.
Zymotics	2,061	1,633	1,367	1,219	909
Pulmonary tuberculosis	2,590	2,231	1,810	1,418	1,143

Representing a decline of 55.89 per cent. in zymotics and of 55.86 per cent. in pulmonary tuberculosis.

Comparing the average mortality per million living in the first six years of the period 1902–1913 with the last six years, in the air-borne diseases the following result is found: Pneumonia shows a decline of 14 per cent., phthisis of 11.6 per cent., bronchitis of 10.68 per cent., and the four principal zymotics of 21 per cent. Pulmonary tubercle is only one of the air-borne group of diseases. The chart below, prepared from the statistics of the Registrar-General for 1916, shows clearly that whatever the causes of these diseases, the same causes are common to the whole group. The death rates from the individual items that go to form the group show corresponding variations in different sections of the population. The curve of tubercle shows a slight deviation only from the other diseases of the group in the case of London and Southend, but I think this is explained from the fact that London is a big hospital centre, while Southend is one of our health resorts. It will be seen that for the whole of England and Wales and for the other sections of the population bronchitis causes a higher death rate than pulmonary tuberculosis.