too big a problem to open here, but it is undoubted that a mere fraction of the best trained women will face the responsibility and strain of practice with its poor prospects of advancement and poor economic return.

Good as is the work of these midwives and of the practitioners who help them, the difficulties of both are much greater than need be, and if better co-operation between the two and better provision for hospital assistance could be organized, there would be a great saving of maternal lives.

It may be worth while to take as an example of what might be arrived at throughout the country the figures of an institution which has succeeded better than any other (to my knowledge) in reaching the highest standard of obstetric practice—the East End Mothers' Lying-in Home. Though a self-contained unit with both a district and hospital practice, it works on the same system as the Queen's midwifery service—that is, the ordinary work is carried on by midwives, and the ante-natal supervision and the rendering of medical aid when called for by the midwives are in the hands of a local practitioner, who thereby has gained special experience. Its results are obtained among its own patients; it neither sends elsewhere its complicated midwifery nor takes difficult midwifery from outside its own patients, so that its work in that way differs from the ordinary maternity hospital.

In the past four years, in 8,943 cases it has a maternal mortality of 0.67 per 1,000 deliveries, and a forceps rate of only 2.38 per cent. In other words, it has one death for every 1,500 deliveries, instead of one for every 250 live children born in the country as a whole, and succeeds in obtaining physiological parturition better than the Queen's midwives, as is indicated by a forceps rate of 2.38 instead of 6.4 per cent. As the later figures for the Queen's service show, the tendency there is rather away from than towards the securing of natural function in labour.

This isolated instance of an institution working on the same lines, but with particular advantages in having experienced but not specialist medical supervision, a highly trained midwife staff, a hospital for its difficult cases, and a close co-ordination of all its services, gives an indication of what might be done in reducing maternal mortality and disability in childbed throughout the country, and in the Q.V.J.I. midwifery service in particular. The problem is that of adapting the conditions of a self-contained unit to the varying circumstances of rural, urban, and industrial areas, with scattered populations, differing personnel, and inadequate resources, and surely it can be solved in part if impossible of complete solution.

This analysis encourages hope of a reduction in the maternal mortality. If the results shown by the Q.V.J.I. midwives with the help of local practitioners obtained throughout the country, the maternal mortality would be more than halved, and might even be greatly improved on that by better team work between midwives, practitioners, and maternity hospitals. These figures lend support to those who contend that a country's maternity service is best built on the foundation of a service of midwives with medical help in difficult cases.

A CASE OF THYRO-PITUITARY ENDOCRINOPATHY.

BY

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THE following case of Graves's disease, associated with increased function of the anterior lobe of the pituitary gland and diminished function of the posterior lobe, seems worthy of record.

The diagnosis of Graves's disease (hyperthyroidism) rests upon the following symptoms and signs: enlargement of the thyroid gland, exophthalmos, tachycardia (average pulse rate 130), raised blood pressure (140 mm.), pulse pressure (70), fine manual tremors, excessive restlessness, increased psycho-galvanic reflex and basal metabolism, and a positive Goetsch's test.

Hypersecretion of the anterior lobe of the pituitary gland is indicated by the abnormal length of the long bones for the patient's age, the disproportionate size of the hands and feet, and the slightly enlarged sella turcica. Decreased function of the posterior pituitary lobe is suggested by the smooth, soft skin and general hairlessness, absence of pubic and axillary hairs, poorly developed external genitalia, and the relative lymphocytosis.

Description of Case.

The patient is a boy aged 14; he complains of general weakness, breathlessness and palpitation on exertion, nervousness and nocturnal enuresis.

History.—He was a full-time child with normal birth. He is said to have suffered from rickets during infancy, otherwise no previous illness occurred beyond measles and whooping-cough. During the past three years he has grown very rapidly in stature, but at the same time has lost flesh in spite of a good appetite. He is easily exhausted by physical effort, complaining of dyspnoea and palpitation on exertion. Also he has become very restless, unduly nervous, excitable, and inattentive, and suffers from nocturnal enuresis, the latter symptom appearing six years ago. There is nothing noteworthy in the family history. He has two brothers, aged 18 and 12 years, and one sister, aged 17, all of whom are well and show no physical or mental peculiarities.

General Appearance.—He is a tall boy for his age (height 5 ft. 10 in.) and is very thin (weight 7 st. 5½ lb.). In proportion to the trunk, his extremities are long: arms 26½ in.; legs (great trochanter to heel) 37 in.; trunk (vertex of head to tip of coccyx) 30 in. The hands are very large, especially the carpus and metacarpus, also the feet (size 10). All joints appear of disproportionate size, but the jaws are normal. The skin is generally smooth and hairless; there is no pubic or axillary hair; the penis is of infantile type and the testicles are very small. The thyroid gland shows general enlargement.

Circulatory System.—Heart not enlarged; first sound accentuated at the apex with a soft systolic murmur in the pulmonary area as well as over the thyroid. Average pulse rate at rest 130; blood pressure 140 mm. Hg systolic and 70 mm. diastolic. There is considerable vasomotor instability, as shown by an easily and rapidly produced *tache cérébrale* and a tendency to dermatographism. Also, sweating is very free.

Nervous System.—There is some degree of exophthalmos with positive von Graefe, Stellwag, and Kocher's signs. The pupils are dilated and react normally; vision and optic discs normal, fine lingual tremors; speech hurried. All other cranial nerves normal. The muscles generally lack tone and are easily fatigued. Fine rapid tremor of outstretched hands. The arm, knee, and ankle jerks are brisk and equal; abdominal reflexes normal and plantar reflexes flexor. Mentally he is alert and intelligent, but very restless, inattentive, and easily startled.

Biochemical and other Investigations.—Basal metabolism showed a +20 per cent. increase. The psycho-galvanic reflex, tested on the emetometer, was greatly increased. Goetsch's intradermic test for hyperthyroidism (using 0.05 c.cm. of adrenaline solution 1 in 1,000) was immediately and strongly positive. The urine contained no albumin, sugar, or casts. Blood examination showed 5,880,000 red and 6,800 white cells per c.mm., with haemoglobin 98 per cent. (colour index 0.83). Differential blood cell count revealed a relative lymphocytosis—namely, polymorphonuclears 32.5 per cent., small lymphocytes 63 per cent., and large lymphocytes 1.5 per cent. (total lymphocytes 64.5 per cent.); eosinophiles 3 per cent. The resting blood sugar was 0.147 per cent., rising to 0.186 twenty minutes after the patient had ingested 50 grams of glucose, and falling to 0.182 and 0.158 per cent. one and two hours respectively after the glucose (see chart). Alimentary glucose tolerance test: 250 grams of glucose was given by the mouth; one hour later the urine contained a considerable quantity of glucose, but it was absent in specimens taken two and three hours after the meal. X-ray examination showed the sella turcica to be slightly enlarged and the bones of the hands and feet unduly large for the patient's age; the epiphyseal cartilages were also narrower than usual.

Patient's curve, continuous black line. For comparison: Normal curve, broken line; typical diabetic curve, dotted black line. Fifty grams of glucose given at *.

Commentary.

The blood sugar and glucose tolerance investigations in this case are of interest. It is generally agreed that hyperthyroidism and hypersecretion of the anterior pituitary lobe both tend to raise the amount of blood sugar and to decrease sugar tolerance, while, on the other hand, diminished function of the posterior pituitary lobe increases sugar tolerance. It would appear that in this case the combined influence of the thyroid and anterior pituitary lobe on the carbohydrate mechanism has outweighed the effect of diminished posterior pituitary lobe function, with the result that the blood sugar is somewhat raised and glucose tolerance slightly reduced. Similarly with the basal metabolism, the thyroid and anterior pituitary factors tending to increase the rate have to some extent overcome the tendency of the posterior pituitary dysfunction to lower it.

The explanation of the pituitary gland disorder is probably as follows: The increased secretion of the anterior pituitary lobe is of some years' standing and due to a functionally active adenomatous enlargement of this portion of the gland. The effect on skeletal growth is a tendency to "giantism" with mild acromegalic signs (enlarged hands and feet), thus following the rule that hypersecretion of the anterior pituitary lobe occurring before puberty results in giantism with occasional acromegalic features, while hypersecretion developing after puberty leads to true acromegaly. As the pituitary fossa is a closed box roofed over by the diaphragma sellae, and therefore relatively incapable of expansion, the effect of an increase in size of the anterior pituitary lobe is probably to compress the adjacent posterior lobe and thus to interfere with its functional activity. Such an occurrence would account for the indications of posterior lobe deficiency in the case.

I am indebted to Dr. W. E. Carnegie Dickson, pathologist to the West End Hospital for Nervous Diseases, for his kind help in the laboratory investigations of the case; also to my clinical assistant, Dr. D. Davies, and to Dr. W. W. Phillips.

THE UREA CONCENTRATION TEST IN NEPHRITIS AND ITS PROGNOSTIC VALUE.

BY

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This paper does not aim at entering into a comparison of the various tests of renal inadequacy, but is an attempt to investigate and follow up a series of cases of nephritis, using the simplest test of renal function (the urea concentration test of Maclean and de Wesselow¹) and assessing its value for prognosis. When the opportunity occurred to us of investigating a series of renal cases in which, for various reasons, the most consistently useful of the "renal tests" (the non-protein nitrogen content of the blood) had to be omitted, it appeared to us of value to make a judgement upon them, basing it upon the urea concentration test figures, and then to follow up the cases with a view to an estimate of its prognostic value.

We have records of 156 of these cases, which had been previously diagnosed as nephritis on the ground of albuminuria, with or without other symptoms; 27 of them were found, after examination, to be suffering from something other than nephritis, and were therefore discarded.

Unless the patients were too ill to take anything but fluids, a simple hospital diet was given. Daily specimens of urine were examined, and each case was allowed to settle down into hospital régime before the urea concentration test was made.

The technique of the test is well known. The patient empties his bladder and then takes 15 grams of urea dissolved in 100 c.cm. of water. He passes urine at the end of the first hour and at the end of the second hour, and the total quantity passed in each hour is noted. The percentage of urea in each of the specimens is determined. When the amount secreted during an hour does not exceed 120 c.cm. a percentage of less than 2 in that specimen indicates renal inadequacy, while if the amount falls below 1 per cent. a very serious defect is present.

The patient should not take any fluid after 8 p.m. on the evening before the test, and it is advisable to collect the night urine from that time until the bladder is finally emptied just before the dose of urea is given in the morning. The reason for this is that in many of the cases the percentage of urea is higher in this specimen than in any of the test samples, even though there is no diuresis during the test period. This anomaly was present in as many as 31 per cent. of the cases described in this paper. The percentage of urea varied from 0.8 to 2.8 in these particular cases. Whenever it occurred the systolic blood pressure was above 150 mm. of mercury, though no relationship between these two facts is obvious.

Another point of interest concerns the diuretic effect of the urea. If there is any diuresis it usually occurs, as is well known, in the sample of the first hour. Sometimes, however, there is a greater output of urine in the second hour than in the first, while in rare cases diuresis occurs in both first and second hours. In cases of this type the third sample, at the end of the next hour, is of value. After a long experience of the test we believe that it is advisable to make the taking of a sample in the third hour a routine procedure.

We grouped our cases of nephritis into the following categories:

Group I (14 cases). Cases with high blood pressure (over 150 mm. Hg systolic) and efficient kidneys—that is, urea maximum of over 2 per cent.

Group II (35 cases). Cases with defective kidneys, but with only slight or no cardio-vascular changes (blood pressure under 150 mm. systolic).

Group III (73 cases). Cases showing definite renal and cardio-vascular changes.

Group IV (7 cases). Cases where renal inadequacy was associated with renal stone.

The after-histories of the patients in each of these groups were followed for a period of two years after the test had been performed. In Group IV no deaths occurred. The average percentage given by the urea concentration test was 1.3—the lowest being 1.1 and the highest 1.8. In Group I one death only occurred in the two years. This was a case with a blood pressure of 170/90 mm., and a urea maximum of 2.4 per cent.

An analysis of the urea maximum figures in the two main groups, showing renal damage (II and III), is given in Table I.

TABLE I.

Group II, defective kidneys with slight or no vascular changes:

Above 1.5 per cent. ...	6 cases
1 to 1.5 per cent. ...	22 "
Below 1 per cent. ...	9 "

Group III, defective kidneys with marked vascular changes:

Above 1.5 per cent. ...	24 cases
1 to 1.5 per cent. ...	37 "
Below 1 per cent. ...	12 "

In many of these patients the test was repeated from time to time, and the highest figure is used in the above table.

TABLE II.—Cases which Died within Two Years (Groups II and III).
GROUP II (5 cases).

No. of Case.	Blood Pressure.	Urea Concentration Test.	Time Lived.	No. of Case.	Blood Pressure.	Urea Concentration Test.	Time Lived.
30	140/110	0.5	1 mth.	118	130/90	0.65	9 mths.
32	140/90	0.6	2 mths.	60	125/85	1.0	10 "
142	135/95	0.6	12 "				

GROUP III (15 cases).

146	210/150	0.35	5 days	42	190/120	1.2	8 mths.
51	195/105	0.35	5 mths.	134	190/120	1.2	15 "
17	—	0.9	1 week	43	—	1.3	1 week
33	200/120	0.9	1 mth.	135	180/110	1.4	1 mth.
39	150/110	0.9	11 mths.	111	210/130	1.5	12 mths.
22	180/95	0.95	21 "	7	180/105	1.6	4 days
55	160/115	1.0	1 mth.	65	190/120	1.6	2 mths.
90	210/110	1.0	12 mths.				