but 16 patients did so, and, as in previous examinations, the basal metabolic rate was estimated and a careful four-hourly pulse chart kept. The basal metabolic rate and the mean pulse collected from the charts show that these results are pleasing, but not quite so convincing as the immediate results. Four cases in which one lobe was removed are given, and in each the basal metabolic rate has remained above normal limits.

TABLE IV.

No.	Years since Operation.	B.M.R.	Pulse.	Operation.
		Per cent.		
1	1½	+ 3	80	Thyroidectomy.
2	2½	+40	99	Lobectomy.
3	1½	+10	80	Thyroidectomy.
4	1	+ 7	80	Thyroidectomy.
5	1½	+19	95	Thyroidectomy.
6	1	+25	95	Lobectomy.
7	5½	+ 8	70	Thyroidectomy.
8	2½	-12	80	Thyroidectomy.
9	1	+40	100	Lobectomy.
10	1	+15	84	Thyroidectomy.
11	1	+10	84	Thyroidectomy.
12	1	+12	80	Thyroidectomy.
13	1	+ 5	60	Thyroidectomy.
14	1	+27	90	Thyroidectomy.
15	1	+14	85	Thyroidectomy.
16	2	+60	95	Lobectomy.

In the cases shown it would appear that about 80 per cent. of patients operated on are cured or are considerably benefited by thyroidectomy, and these figures hold good for at least one year after operation. The best result that has been obtained from x-ray therapy is improvement or cure in 12 out of 23 cases—that is, 52 per cent.; if the surgeon's mortality rate is not above the average the difference of 28 per cent. between the surgical and the x-ray results certainly seems to justify surgery and to give it the premier place in the treatment of the disease. Many surgeons who do not operate frequently on exophthalmic goitres have a rather appalling mortality rate, and whereas one may advocate surgery for some cases, it cannot be too strongly emphasized that surgical intervention should only be undertaken by an experienced surgeon. In few diseases will care and discrimination in the preparation and selection of the cases be rewarded by more gratifying results.

There are many patients with Graves's disease who are improved or cured by x-ray therapy; in view of this it seems only fair that the radiologist should be given a chance before the case is sent to a surgeon. The patient ought to be treated for about six months by x-ray therapy, and if at the end of that time the basal metabolic rate, weight, and pulse have not improved, it is probably useless to continue.

SUMMARY.

An attempt is made to compare the results of treatment by medical measures, x-ray therapy, and operative procedures. Any improvement or failure to improve is supported by the basal metabolic rate, the pulse, and in many cases the weight.

I am able to support the view held by many that iodine causes only a temporary amelioration of symptoms and signs, and that prolonged iodine treatment is of no benefit to the patient. The stopping of iodine after it has been given for some months did not cause any change in the patient's condition, as judged by the basal metabolic rate and pulse. A second course of the drug does not give the uniformly good results of a first.

X-ray therapy is considered; it is found that in only 52 per cent. of cases does any material improvement result, and improvement will be obvious in six months from the start of treatment. Cases in which there is no improvement after six months of treatment should be referred to a surgeon for operative procedures.

Operative treatment is dealt with, and a list of cases is given showing the basal metabolic rate and pulse before and after operation; it is found that over 80 per cent. are cured or improved. Emphasis is laid on the fact that usually only patients in whom the basal metabolic rate was under + 30 per cent. and the pulse under 95 after iodine therapy were operated on. A second list is given showing the basal metabolic rate and pulse a year or longer after operation, and it is found that about 80 per cent. maintain their improvement. The fact is stressed that the most unsuccessful cases are those in which too little of the goitre is removed.

In conclusion, it is considered that iodine should be reserved until it is considered necessary to operate; that the patient should be given a six months' trial with x-ray therapy; then, if improvement does not occur, or if it is not reassuring, the patient should be sent to an experienced surgeon for operation if suitable.

I wish to thank the physicians, surgeons, and radiologists who allowed me to carry out these investigations on their patients.

REFERENCES.

- ¹ Marine and Lenhart: *Arch. Int. Med.*, 1909, ii, 440. ² Noisser: *Berl. klin. Woch.*, 1920, lviii, 461. ³ Beebe: *Med. Record*, N.Y., 1922. ⁴ Loewy and Zondek: *Journ. Amer. Med. Assoc.*, 1922, lxxviii, 551. ⁵ Plummer and Boothby: *Journ. Iowa State Med. Soc.*, 1924, 14. ⁶ Cowell and Mellanby: *Quart. Journ. Med.*, 1924, vol. xviii, 69, 1. ⁷ Cole: *Lancet*, April 16th, 1927. ⁸ Fraser: *British Medical Journal*, 1925, i, 1. ⁹ Goetsch: *New York State Journ. Med.*, 27, October 1st, 1927, 10.5. ¹⁰ Walton: *British Medical Journal*, January 21st, 1928, p. 83. ¹¹ Hayes: *British Journ. Radiol.*, vol. 32, February, 1927. ¹² Sanger: *Arch. Int. Med.*, 37, p. 627. ¹³ Borak: *Journ. Amer. Med. Assoc.*, 87, December 18th, 1926. ¹⁴ Murray: *Lancet*, 1923, ii, 293.

A NOTE ON NARCOLEPSY.

WITH REPORT OF A CASE.

BY

A. M. KENNEDY, M.D., M.R.C.P.,
PROFESSOR OF MEDICINE, UNIVERSITY OF WALES.

THIS curious condition is characterized by paroxysmal attacks of sleep, frequently coming on during the day and often quite irresistible. Gelineau¹ apparently first described the condition in 1880, and very few cases had been recorded when, in 1923, Worster-Drought² directed attention to the subject by reading a paper before the Medical Section of the British Psychological Society, giving an account of three cases which had been under his care. Last year Kinnier Wilson³ summarized the current knowledge of the various forms of narcolepsy and collected records of 43 cases from the literature. At the beginning of the present year (1929) Fulton and Bailey,⁴ writing from the surgical clinic of Dr. Harvey Cushing, published an interesting contribution to the study of tumours in the region of the third ventricle, and discussed their diagnosis and relation to pathological sleep.

Attacks of sleep may, of course, be symptomatic of other definite pathological lesions, such as cerebral arteriosclerosis, dyspituitarism, suprasellar cysts, encephalitis lethargica, etc., but there is a group of cases which would appear to be "idiopathic" or "functional" in so far as no underlying organic disease has been discovered. Some of these "idiopathic" cases may have cataplectic attacks associated with the narcoleptic.

The patient whose case is now recorded was a motor car driver, who first came under my care about the beginning of November, 1928. He was then 26 years of age, and the narcolepsy was well marked. Symptoms had commenced about thirteen months previously, but it was not until four months after coming under observation that cataplectic attacks set in.

His sister, when about 23 years of age, had a "nervous breakdown," and was unable to follow her occupation as a clerk for about two years. During this period she had a constant feeling of fullness in her head, and was subject to attacks of hysteria, depression, and crying, but never had any sleepy attacks. In his own personal history there was nothing of note until he reached the age of 15 or 16 years, when he was off work for three months with a bad attack of "influenza." He seemed to have had no serious effects or sequelae of this illness, except that for some time after he suffered from "blueness" of the hands, suggesting to his doctor at that time a mild Raynaud phenomenon. Eventually, however, this condition disappeared, but later he began to have occasional "flushings" of the face, and these have troubled him from time to time since.

At the age of 22 he began to have occasional transient attacks of double vision, lasting five to ten minutes. At first, and for

a long time, he would only have an attack about once a month, but eventually they became a little more frequent. It was his custom during such an attack to close one eye so that he could drive straight. About three years later, when about 25 years of age, he began to suffer from a feeling of fullness and throbbing in the head, and it was just about this time that he first began to be troubled with attacks of drowsiness—a tendency to fall asleep—while driving the motor car. These sleepy attacks came on quite suddenly; he had no “aura” or warning, and although he never actually fell asleep while driving it was only by a very great effort of will that he was able to ward the sleep off. Usually he just dozed for a few seconds, and then his employer, sitting beside him, would rouse him by a nudge or shout, telling him to mind where he was going, as he would be driving zigzag. He had many a “narrow squeak.” Sometimes when he felt an attack coming on he would make an excuse to his employer to stop the car, jump out, and look at the engine, as he found that by this manoeuvre he could get a chance of waking up and so warding off the attack.

Occasionally, when an attack was threatening, his driving would be so erratic that he slowed down for a short time till he could ward it off. He always felt that if he did not “pull himself together” he would have gone right off to sleep. Sometimes, when he had to wait outside a shop for his employer, he would fall asleep completely, and once or twice he has fallen asleep while smoking, and the cigarette has dropped from his mouth and burned him.

The attacks at the outset always occurred when he was engaged driving the motor car, and naturally caused him great and constant anxiety. He carried on for another six months in spite of almost daily attacks, until one day he dozed off and nearly crashed into another car. He then realized that he would have to give up his occupation. That night, while shaving, and for no apparent reason, he “seemed to lose control of himself” and threw his razor and brush across the room. A few days later he was admitted into hospital under my care.

He appeared to be a bright, active man, and weighed 9 st. 9½ lb. He had rather an anxious expression, and was easily startled, any slight stimulus—for example, a noise—causing his limbs, body, or head to jerk spasmodically. On inquiry he stated that these spasmodic movements had only affected him since the day he gave up work (that is, the day he nearly crashed with his car), and that they frequently occurred at night just as he was dropping off to sleep—particularly if the room was dark or his eyes were covered up by the bedclothes. His reflexes were all very active, but, apart from this, physical examination failed to reveal any abnormality. The fundi of the eyes and fields of vision were normal, and the ears and throat showed nothing of note. On x-ray examination of the skull a few faint opacities suggesting lime salts were seen at the site of the pineal gland, but no abnormality of the sella turcica was made out. He had no vomiting, no adiposity, no abnormal thirst; the urinary output was normal, and examination of the urine revealed nothing of note. His Wassermann reaction was negative, blood sugar normal, and systolic blood pressure 138 mm. of mercury.

When in the ward he slept soundly at night, and frequently dropped off to sleep during the day if the ward was quiet. He often shouted out in his sleep, and at times he would have sudden and fairly violent spasmodic movements of his limbs, body, or head when any unusual noise occurred. He had occasional flushings of his face, and he began to complain of his forehead feeling hot. His forehead undoubtedly felt hot to the touch, and this curious phenomenon has persisted. Throughout his residence in hospital he complained of a feeling of fullness in his head, and at times he had definite headache. He had been much troubled with dreams since a month or two before coming into hospital, and after coming in never slept without dreaming—whether by day or night—and occasionally he had definite “night terrors,” which woke him up. Notwithstanding having wakened up in a bad dream he would go off to sleep again quite easily.

During the seven weeks he was under observation in hospital he became less easily “startled,” the sleepy attacks became less frequent and he felt less “tired,” and before he left the spasmodic jerkings had practically ceased. After leaving he went for a week’s holiday, and was decidedly better then. He ascribed the improvement to the fact that he was among strangers, for he felt that he was then better able to control himself.

On returning to his own home the sleepiness recurred as bad as ever. Going to bed at 10.30 p.m. he would sleep till awakened for breakfast about 9.30 a.m., and after having breakfast he would sleep again until roused about midday or he woke of his own accord. When out in the afternoon he always felt that he wanted to drop off to sleep. He would, however, fight against it by keep-

ing on walking, or if somebody accompanied him and kept him occupied by talking the drowsiness was not so troublesome.

About two months after leaving hospital he had his first cataplectic attack.

One afternoon while crossing a busy street, accompanied by his wife, he saw some cars coming towards him, when, suddenly, he became quite limp and unable to move. He had to be supported by his wife, otherwise he might have collapsed to the ground. During this attack, which lasted two or three minutes, he was quite conscious and could see the traffic going round and past him. His wife with difficulty managed to get him across to the pavement, where, after a few minutes, he felt better and was able to walk home. He was weak and rather limp for the remainder of that day. Three days later he had another similar attack.

The spasmodic jerkings returned after the first cataplectic attack, but they and the cataplectic attacks became less troublesome, and about two months later had almost passed off. He was then less drowsy, and felt he had more control of himself, although rather “weak about the knees,” and occasionally he would have transient double vision.

His condition has remained much about the same—at times rather better, at other times rather worse. He says that if he worries about himself—for example, about not getting better—he is worse, starts to shake, and gets “jumpy turns.” When he does not think about himself he is better. His sleep is just like ordinary sleep, but he never feels properly refreshed afterwards, and always has the feeling of fullness in his head. He sometimes has attacks of continuous yawning, and he thinks that if he “let himself go” he would sleep continuously.

It is now twenty months since the onset of his symptoms, and he has never shown any of the ordinary signs of intracranial tumour. At first the periodic diurnal drowsy attacks—narcoleptic—occurred alone, but later cataplectic seizures were superadded to the clinical picture, and tended to confirm the opinion that the case should be included in the “idiopathic” group of the narcolepsies.

One point only in the previous history is worthy of further mention. He had had an attack of what he called “influenza” when 15 or 16 years of age, and in consequence was off work for three months. There is always the possibility that this might have been encephalitic in nature, but of this one cannot be sure. It was, however, six years later before he began to have occasional and transient attacks of diplopia, and a further three years elapsed before his narcoleptic symptoms began.

REFERENCES.

- ¹ *Gaz. des Hôp. de Paris*, 1880. ² *Erit. Journ. of Med. Psychol.*, vol. iii, 1923. ³ *Brain*, vol. 51, Part 1, 1928. ⁴ *Journ. Nerv. and Mental Dis.*, vol. 69, Nos. 1, 2, and 3.

A NOTE ON A COMPARATIVELY RARE DISPLACEMENT OF THE INTERNAL EPICONDYLE OF THE HUMERUS.

BY

E. STANLEY BRETNALL, M.B., F.R.C.S.ED.,

HONORARY ORTHOPAEDIC SURGEON, STOCKPORT INFIRMARY; ORTHOPAEDIC SURGEON, CRUMPSALL INFIRMARY, MANCHESTER; HONORARY ORTHOPAEDIC REGISTRAR, ANCOATS HOSPITAL, MANCHESTER.

In February, 1928, I operated on a boy of 15, who, as the result of a fall on his hand, had, without any dislocation, driven his internal epicondyle within his elbow-joint. At no time was there any ulnar nerve block. The fragment was withdrawn from the joint and removed. The attached soft parts were used to close the gaping defect in the capsule. Within two months recovery was complete, except for an almost negligible loss of extension that disappeared quickly after his discharge from treatment. Normal appearance and function were regained. X-ray outline drawings are shown (Figs. 1 and 2).

It seemed at this time that the lesion was a very rare one, as references to it in medical literature were difficult to find. Since then, however, two papers have appeared which describe the condition, and in one of these the author claims twelve cases. Early this year I met a second case precisely similar to the one briefly described, and