tubes over the thyroid seems sometimes to be followed by diminution of the swelling. I have already referred to the local use of iodine. We may also employ for the same purpose glycerine of belladonna, or, what is a cleaner preparation, glycerine of atropine (St. Thomas's Hospital Pharmacopoeia). The latter may be applied over the precordium for the relief of palpitation.

Local electrical treatment and light treatment have also been tried. Electrical treatment has proved disappointing, and my belief is that any beneficial effect it has depends on the impression made on the patient's mind. Electrical treatment has been diligently applied to the neck to influence the cervical sympathetic as well as over the thyroid, the eyes, and the heart. Recently the x rays have been used, being applied locally over the thyroid gland; and reports of benefit obtained have been published, especially where the x rays have been used after thyroidectomy.

Medical treatment, general or local, it must be admitted is sometimes most disappointing. In spite of all our efforts the patient occasionally does not improve. Our best results are obtained in cases which have required least help from drugs. Where we most want them, drugs seem to fail us. It is not surprising that surgical methods of treatment have long been advocated and employed, with the object of bringing about a more certain and speedier cure.

If we could assure ourselves that the disease was nothing more or less than a hypertrophy of the thyroid gland it would seem that the most rational method of treatment was to reduce the enlarged gland to something like normal proportions by surgical means. But we cannot altogether ignore the part obviously played by the thymus in the disease. It is many years since partial thyroidectomy was first performed for exophthalmic goitre, and a good many successful results have been published. Unfortunately, the operation is, even in the hands of the most skilful surgeons, a dangerous one, and the risks are greatest in the class of case which responds least to medical treatment. Some surgeons, such as Kocher of Berne and Friedheim of Hamburg, appear to have been particularly successful with their operations, but even Kocher speaks of the operation as *sehr gefährlich*.

In cases where there has been little or no exophthalmos I have had good results from thyroidectomy, but I have also had lately two patients who have died as the direct result of the operation. The risk from operation is an immediate one, the patient dying usually within twenty-four hours. Kocher and others maintain that the operation should be performed under local anaesthesia, and that a general anaesthetic adds greatly to the danger. I have, however, no personal experience of operations on exophthalmic goitre performed in this country under local anaesthesia which enables me to form a judgement as to the comparative merits of operations done under local and general anaesthesia. My friend Dr. Nicholson of Marlow has informed me that one of his patients was greatly benefited by thyroidectomy performed by Professor Kocher.

The statistics of Allen Starr, published some years ago, showed that there was a mortality of 16 per cent. directly from operation. I am indebted to Dr. P. Frank, and to my house-physician, Dr. Inman, for the following references to more recent surgical literature.

Of Kocher's cases, 59 in number, there were:

Cured	...	...	...	76	per cent.
Improved	...	...	...	14	"
Slightly improved	...	...	...	3	"
Died	...	...	...	6	"

A general anaesthetic was only employed three times, and in every case marked thyroidism followed, 2 being fatal.

Friedheim of Hamburg has recently reported observations on 20 cases treated by thyroidectomy, and says a lasting cure has been effected in 14 and in 5 others improvement has occurred. He thinks that the cases in which only a betterment has occurred have still too much gland left behind. In the report which I have seen no details, either of the cases or of the technique of the operation, are given.

Thomas Huntingdon, in reviewing the detailed histories of a considerable number of cases resulting fatally within a short time after operation, says: "We cannot escape the conviction that general anaesthesia is in a very large proportion of them seriously at fault. There is no difference of opinion among operators as to the impropriety of general anaesthesia in this relation, and especially in advanced cases."

Thyroidectomy, however, often fails to cure the disease. A patient was recently shown at one of the provincial medical

societies in whom the exophthalmos became much worse after the operation. It may be, as Friedheim argues, that in those patients who are not cured too little of the thyroid has been removed.

Various other operations, such as resection of the sympathetics, have been performed. Sympathectomy appears to be quite as dangerous as thyroidectomy, and although the immediate results, if the patient survives, are said to be far superior to those of the latter operation, it is difficult to understand how it can exercise a curative effect.

Ligature of the thyroid arteries is another operation which has been frequently performed, but, if less dangerous than thyroidectomy, it is also less likely to cure.

On the whole, I consider the risk attending thyroidectomy is too great to justify the adoption of the operation save in exceptional circumstances. For the present, one must trust to medical treatment on the lines I have indicated, and, with good care and perseverance, there is a fair chance of our efforts being rewarded by the recovery of the patient.

A CASE OF ADDISON'S DISEASE

IN WHICH GREAT IMPROVEMENT TOOK PLACE UNDER OPEN-AIR TREATMENT AND THE ADMINISTRATION OF SUPRARENAL EXTRACT.

By BYROM BRAMWELL, M.D., F.R.C.P.E.,

Physician, Edinburgh Royal Infirmary, etc.

THE beneficial effects of the open-air treatment in many tuberculous affections, and especially in phthisis, is now well established. So far as I know, this plan of treatment has not been as yet employed in Addison's disease. In the following case remarkable improvement took place under the open-air treatment and the simultaneous administration of suprarenal extract. The notes of the case are as follows:

R. W., aged 36, married, a ship's steward, was admitted to the Edinburgh Royal Infirmary on November 2nd, 1903, complaining of great weakness, loss of weight, and occasional pain in the stomach.

HISTORY.

The patient stated that he had been ill for eighteen months; during this time he had lost 4 st. in weight, but recently had gained 8 lb. of this loss. The fact that the patient had gained weight seemed to negative the view that the symptoms might be due to malignant disease of the stomach. The examination of the abdomen and the subsequent progress of the case confirmed this view, and showed that there was no malignant disease.

CONDITION ON ADMISSION.

On examination the patient was found to be well covered with fat. The loss of weight was evidently due to loss of muscle, not to loss of fat. The asthenia was extreme. The pulse was small and soft, the heart's impulse could not be felt, and the heart sounds were very faint and difficult to hear.

The appetite was good. There had been no vomiting. The pain in the stomach was not aggravated by food, and was only occasionally felt. The tongue was clean. There was slight tenderness on pressure in the upper part of the epigastric region, but no hardness nor tumour could be felt. Chemical analysis showed that the stomach contents contained no free hydrochloric acid—a fact which has been previously observed in cases of Addison's disease, and which is presumably due to impaired digestive function.

The mucous membranes were somewhat anaemic. The red blood corpuscles numbered 3,800,000 per c.mm., the white blood corpuscles numbered 8,000 per c.mm., and the haemoglobin equalled 70 per cent. Stained films showed that there was a considerable excess of lymphocytes (40 per cent.); this was suggestive of a tuberculous lesion.

The skin of the face, hands, and wrists which had been exposed to air was deeply pigmented; the nipples and scrotum were deeply pigmented, and there were two or three pigmented spots on the lips, both the upper and lower lips, at the junction of the skin and mucous membranes, but no pigmented patches on the interior of the mouth. There were several brown patches on the abdomen, which were, the patient said, the result of poulticing.

The patient complained of some pain in the back over the region of the suprarenal capsules, but there was no tenderness on pressure in the lumbar region.

DIAGNOSIS.

The diagnosis was Addison's disease.

TREATMENT.

After the patient had been in hospital for three weeks it was decided, after some hesitation (owing to the fact that most patients affected with Addison's disease are very susceptible to cold, and that the weather at that time in Edinburgh was very cold and inclement), to try the effect of open-air treatment. The patient was placed on the balcony outside the ward. The weather at the time, as has been already stated, was cold and inclement, wet, windy, stormy, and sometimes a sharp frost at night. The patient stood the exposure well; he felt quite comfortable, and did not complain of cold. At the same time, suprarenal extract (5 gr., three times daily) was administered.

RESULT OF TREATMENT AND SUBSEQUENT PROGRESS OF THE CASE.

Remarkable improvement resulted from the open-air treatment. The patient gained 1 st. 6 lb. in weight; the pigmentation of the skin and the asthenia became markedly less. He was discharged from hospital on 21st March, 1904.

After his discharge he presented himself from time to time as an out-patient, and on each occasion expressed himself as feeling well. Soon after I last saw him (November 23rd, 1904) he returned to work (he was a steward on board a ship) without asking my permission to do so.

On Friday, February 24th, 1905, while on board ship returning from the Baltic, he complained of great weakness and inability to do his work. On Saturday, the 25th, he was able to move about and attend to his duties. About 5 p.m. on that day he asked for whisky, saying "I am done for now"; he went to his bunk and lay down. On Sunday, the 26th, he appeared to the captain to be unconscious—he did not respond to questions and was unable to take nourishment. The ship arrived at Mentrose on Sunday, the 26th, at 5 p.m. Dr. Middleton Connon, to whom I am indebted for these particulars, was at once called to see him, but found, at 5.45 p.m., that he was dead. The final attack and death seem to have been due to rapidly developed asthenia and failure of the heart's action, perhaps the result of auto-intoxication—a not uncommon cause of death in Addison's disease. There was, unfortunately, no *post-mortem* examination.

REMARKS.

This history is very interesting and very important. It shows that in Addison's disease, even when marked improvement takes place, the patient's life, owing to the abolished function of the suprarenal glands, is an extremely precarious one. There can be no doubt, I think, that patients who have greatly improved, or apparently recovered from Addison's disease should lead inactive lives; the fact should be impressed upon them that they are not cured, that although greatly improved the disease is still in existence, and that any strain or over-exertion, anything likely to depress the heart's action, such as diarrhoea, exposure to cold, etc., may be attended with great danger.

The improvement which resulted from the open-air treatment (together with the administration of suprarenal extract) in this case was remarkable, and suggests that a further trial should be given to the treatment in cases of Addison's disease. It is probable, however, that it is only in a certain proportion of cases of Addison's disease that the treatment can be satisfactorily borne. In the only other case in which I have had the opportunity of employing the treatment—that of a ploughman, aged 25, who was admitted to the Edinburgh Royal Infirmary on March 13th, 1905—the treatment was not successful. In that case all the symptoms of Addison's disease were extremely well marked—I have never seen more marked pigmentation of the skin and buccal mucous membrane than there was in this (second) case. This patient was unable to bear the exposure in the inclement, variable weather which we were at that time experiencing in Edinburgh; the open-air treatment consequently had in his case to be given up.

I may say that in this second case there was no anaemia; the red blood corpuscles numbered 5,300,000, the white blood corpuscles 8,800 per c.cm., and the haemoglobin equalled 80 per cent. The condition of the blood in this case was interesting, since Addison himself laid stress upon anaemia as a symptom of the disease; Sir Samuel Wilks has, however, pointed out that in this respect Addison's description was erroneous. My own experience confirms Sir Samuel

Wilks's observations, for in most of the cases of Addison's disease which have come under my notice, the lips, gums, and conjunctivae were well—indeed, in several cases deeply—coloured.

I may also add that in this second case, as in the first case, analysis of the stomach contents showed the complete absence of free hydrochloric acid.

A CASE OF TUMOUR OF THE SPINAL CORD
REMOVED BY OPERATION.

A REVIEW OF THE CHIEF DIAGNOSTIC POINTS, VARIETY, AND OPERABILITY OF TUMOURS MET WITH IN THIS REGION.

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The following case is interesting, both from its comparative rarity and from the difficulty in diagnosis which it presented.

R. W., aged 24 years, a spring maker, was admitted into the St. Marylebone Infirmary on August 14th, 1903, complaining of pain in his back.

Family History.—His mother died of cancer; there was no history of consumption.

History of Present Illness.

Eight years before he had fallen downstairs, striking his back as he fell; the pain soon passed off, and the following day he was about as usual, and free from pain. Four months later he began to suffer with dull aching pain in the lower part of his back; this pain was constant, worse at night, increased by stooping, and especially severe on raising the body from the stooping to the upright position, and in every way resembled lumbago; for which, as a matter of fact, he was treated in the institution for three months, at the end of which time he was discharged as cured. He then remained quite free from pain for two years, when a series of exactly similar attacks began; these attacks would last for about two weeks at a time, incapacitating him from work for the time being, recurring about every three months, and spread over a period of five years. In January, 1903, seven months before admission, the pain became worse, but still remained localized to the lumbar region of the spine; he had to give up his work altogether, and had the greatest difficulty in getting up and down stairs, which he could only do a step at a time. He described the pain "as feeling as if the spine was being compressed in a vice"; he could not lie down, for that made the pain worse, and he always slept propped up in bed. Six months before admission he had what he called a hard sore on his glans penis, but did not consult a doctor about it; there was no discharge from it, and no buboes, rash, or sore throat followed. He had a breaking-out on his legs soon after, and there are some coppery stains there now. There is a well-marked depressed scar on the glans penis, which is more like that left by a soft sore. On August 14th, 1903, he was again admitted into the St. Marylebone Infirmary, and at that time had slight weakness of the legs, but said that sensation in them was perfect. He was kept in bed for two weeks, and then allowed up for a few hours daily, when he noticed that his legs were rather weaker than on admission, especially the right; some days later, while walking along the passage, his knees suddenly gave way under him and he fell forward; he was unable to get up by himself, but after being picked up he managed with assistance to walk back to his bedside; afterwards he got up in the wheel-chair only, and noticed, whenever he rested the ball of his right foot on the foot-board with his heel clear, that clonic spasms of the calf muscles would take place, shaking his whole body; a week or so later the left leg began in the same way, and about this time, too, his legs first began to get stiff, and he noticed numbness in the groins, with shooting pains round his body and girdle sensations; the numbness gradually spread down his legs, and for some time he could feel better below the knees than above; he was at this time having the faradic current, and so had frequent opportunities for testing his sensation. From this time until the following notes were taken the pains in the back persisted, with shooting pains and girdle sensations round the body from the upper lumbar region behind to a point midway between the pubes and the umbilicus in front.

The following notes were taken on October 20th, 1903:

The patient has marked spastic paraplegia, with no voluntary control of any muscle in either lower limb; the spasticity