work of treating the sick children or the teaching of the students, and so cannot replace the outdoor departments I have previously referred to. It must be a department complete in itself with pathological and biochemical laboratories, or closely allied to the chief pathological and biochemical departments of the university, so that facilities for all branches of investigation are available. The latter arrangement is in many respects advisable, as it brings the pathological and biochemical investigations under the guidance of the expert and unites the clinical and scientific sides of the school, a union which cannot be too highly commended, as each has much to teach and learn from the other.

It must also be understood that this paediatric department be not limited to any one branch of the subject, but that the whole domain of medicine in childhood be represented. It is the neglect of this which, in my opinion, is undermining the influence of paediatrics. To open a ward in a general hospital for infants and feeding cases and call it a children's department is futile. The only real paediatric department must admit all patients under, say, 13 or 14 years of age, and should have special facilities for the care of the common infectious diseases. It is only in this way that a paediatrician with a wide and philosophical outlook can be trained, and the exponents of children's diseases be given the influence which the importance of their subject demands.

In addition to the ward or wards there must be an out-patient department, not only for the purpose of obtaining a wider clinical experience, but also for the observance of series of cases over a long number of years. Infantile

paralysis and the rheumatic infection are good examples of diseases requiring prolonged care, so that an infantile paralysis clinic and a rheumatic or cardiac clinic are essential. Not only, however, is the observance of cases over a prolonged period necessary for the health of the patients, but also for enabling the physician to gain personal acquaintance with the life-history of disease. This is one of the most wanted desiderata of hospital experience, since as a rule so much time is taken up with the examination of new cases and the acutely ill that the patient is entirely lost sight of after his dismissal from the wards. In this connexion the fate of nephritis, of chronic pneumonia, of coeliac disease, and of cerebral tumour are examples which occur to the mind at once.

Nutrition and development are such important aspects of child life that facilities for their study must be provided. This means a liaison between the paediatric department and the welfare centres and school inspection centres in the city. And just as important for a complete understanding of child life is the question of mental development, which is only now beginning to receive attention. The mind, however, cannot be dissociated from the body, and hence one of the chief workers in this field must be the physician.

Such multifarious fields of study demand a large staff properly co-ordinated, but team work in medicine is now, and wisely so, the order of the day. Organized research will not necessarily produce a Pasteur or a John Hunter; genius fortunately will arise and flourish in spite of—in fact, it would almost at times seem to do so in virtue of—adversity, but by organized research the ordinary individual is kept most active and rendered most productive.

THE HIGH ALTITUDE TREATMENT OF PULMONARY TUBERCULOSIS.*

BY

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I AM far from declaring high altitude climate to be a panacea for pulmonary tuberculosis, but an extensive personal experience of over 20,000 patients, not only in Arosa, but also in the course of my travels over the world and in all climates, has strongly confirmed my conviction of the superiority of the Swiss climate to all others. I myself have experienced the benefits. I first went up to Arosa thirty-six years ago suffering from pulmonary tuberculosis, both lungs badly affected, a so-called "hopeless case," against the advice of our family doctor, who thought I was going to lay my bones among snow and ice. I have become fit and well, have been able to prosecute my work in the lowlands, and, without any relapse, have been lucky enough to work hard for nearly thirty years. The high altitude climate is not the only "stimulant," but it certainly has a great tonic effect, and possesses many advantages derived from such beneficial elements as the pure, cold, and extremely dry air, the abundance of sunshine, and the richness in light and ultra-violet rays even on cloudy days. Therefore open-air treatment can be carried out in almost any weather and under the best meteorological conditions.

Especially benefited by treatment at high altitudes are children who are delicate and may have incipient tuberculosis. Children suffering from swollen hilar glands and generally of the glandular type also do very well at high altitudes. They must be kept quiet until they become apyrexial, but afterwards they may be permitted to move about and enjoy exercise in the open air, combined with sun treatment, which can be carried out nowhere better than at high altitudes. To one of the two children's clinics directed by myself, where no infectious cases are taken and where they are staying under medical supervision, an open-air school is attached.

Adults suffering from pulmonary tuberculosis form the majority of our patients at high altitudes, and, of course,

here as elsewhere the early cases do best—those with only slight signs at the apices, slight dullness on percussion, altered breathing, rough inspiratory sounds, prolonged and increased expiration, broncho-vesicular or bronchial breathing with small crepitations, and perhaps a small rise of temperature, following, in some cases, an alarming early haemorrhage. Yet sometimes, although we can detect scarcely any physical changes at the apices, a good prognosis cannot be given, since a continuous process is spreading downwards from the apices into the lungs.

Special care is required in our climate, and we must keep at rest on their arrival even apyrexial patients with initial lesions, in order to let them become well acclimatized. Early infraclavicular infiltration especially requires rest treatment for a considerable time. In this form there is slight dullness below the clavicle and bronchial or broncho-vesicular breathing with fine crepitations or rales, without any very appreciable change at the apex. Sometimes these signs occur in the axilla; the whole affection is acute, and tends to excavation. But such cases do very well at high altitudes, and may sometimes heal without the formation of a cavity or even after a small cavity has been formed. I myself and one of my assistants have published details of good results in such cases, and they are confirmed by various other authors; there is no justification for the statement that high altitude treatment is unsuitable. The necessarily prolonged rest treatment can nowhere be better carried out than in our mountain climate, where patients can lie out on the balconies in their beds, and later on in their chairs, in any weather; moreover, they do not become slack and flabby as in the lowlands or at the middle altitudes. They must, of course, be under strict, careful, and skilful medical supervision at a good sanatorium.

Sometimes, two or three weeks after the arrival of a patient who showed few physical signs at his apices or elsewhere, these become rather more distinct, with better audible crepitations, etc., even though the temperature and the general condition remain quite satisfactory. I term this an "initial reaction," and attribute it to the new and different climatic conditions. This reaction may develop during complete rest, and in some ways is comparable to a slight tuberculin reaction. The completely altered metabolism of the body may be responsible for it, and, to a certain degree, the deepening of the respiration in the thinner air. This occurrence emphasizes the

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necessity of being especially careful, even with the light and so-called "initial cases," during the time of acclimatization—that is, during the first ten to fourteen days.

In early cases treated at our altitudes the lowered weight begins to increase in consequence of the improving appetite, while the cough and expectoration diminish and gradually disappear; the breathing becomes deeper and slower. The patient can then increase his exercise and take up some light sport, such as skating, careful climbing, or tobogganing. After three to six months—even slight cases require this length of time to heal permanently and to consolidate properly—the patient has apparently totally recovered; he has regained his working capacity, and the physical signs of disease have more or less disappeared. A skiagram shows a clearing up of the diffuse shadows over the apices and underneath the collar-bone, and the early infiltration underneath the collar-bone becomes more and more indistinct. Small circumscribed focal shadows appear, the signs of calcification, etc. Sometimes, however, there is a big discrepancy between the wonderful feeling of returning health and a local condition which does not change; in this respect initial and light cases require the same care and watching as more advanced ones.

With the spread of the process over the lungs, mostly downwards over the upper lobes and into the lower lobes, the destruction of lung tissue and the formation of cavities renders prognosis more doubtful; but it is astonishing how even such cases can be benefited by our high altitude treatment, and we often watch a case change from the exudative to the more hopeful fibrous type. When artificial pneumothorax and thoracoplasty were as yet unknown, many of my patients with large cavities in both lungs (and I had such myself) gained a permanent cure from climatic treatment alone. X-ray photographs show shrunk cavities, and even well-defined cavities may disappear.

The existence of pyrexia alone does not contraindicate high altitude treatment, but good results with fever cases depend largely upon whether there has been high temperature of long duration, and whether or not it has been accompanied by a rapid pulse. The pulse rate and the degree of fever enable us to judge the virulence of the infection, the character of the process, and whether these patients are fit for treatment at high altitudes or not. Patients with persistent fever above 101.5° F. and a pulse rate of 120 or more should not, as a rule, be sent to high altitudes. Exceptions occur, however. I remember some patients who came out with obstinate hectic fever over 102.5° F., and with a pulse rate of 120 to 130. After some months of complete rest in bed they showed first a diminution in the pulse rate, which was followed by gradual decrease of the temperature, and they eventually became afebrile in nine to fourteen months. My personal experience indicates that patients who are sent to high altitudes with a temperature above 101.5° F. must not be kept there if, after some weeks of complete rest in bed, the pulse (having been 120 or higher) does not distinctly improve. But if the pulse has a good quality, and not too high a rate, patients with high fever do well; they often, indeed, lose an obstinate fever which did not yield at lower altitudes.

The type of fever, too—whether inverse, cyclic, or hectic—is of great importance. Cyclic fever comes on in attacks at intervals of three, four, or five weeks, and sometimes, in the case of female patients, in relation to the monthly period. Other bouts of fever caused by the absorption of toxins appear suddenly and irregularly from time to time. Such attacks make the prognosis doubtful.

Another interesting fact (to which I first drew attention many years ago) is the unexpected rise of the temperature at high altitudes in patients who had been suffering previously from syphilis. In all cases where obstinate fever persists in spite of complete rest, or where it even becomes higher, I now have a Wassermann blood test performed, and surprises in this respect are not uncommon. A similar phenomenon may occur in the case of old malarial patients who have been free from fever attacks in the lowlands, but have, as I have frequently seen, unexpected attacks of fever up in the mountains.

Cough and expectoration, as a rule, diminish in the cold and pure air, which also puts an end to the fatiguing night-sweats; but, sometimes, the sensitive membranes in the

nose and throat become irritated and inflamed. When this is the case, it will be necessary to moisten the air of the room, and sometimes such patients must be sent down to a lower altitude.

The lessening of the fever, and the tonic effect of the thin air, have a beneficial effect on the appetite. We are able to keep our patients, even bedridden ones, out in the open air all day long, and our modern sanatoriums are so designed that the patient can be moved out in his bed on to the large and sheltered verandah and private balconies in all states of the weather.

Special Indications and Contraindications for Treatment at High Altitudes.

Convalescents after pneumonia and pleurisy do very well in high altitudes in consequence of an improved respiratory function as a whole, aided by a more vigorous action of the auxiliary respiratory muscles.

Small residual effusions after empyema are often absorbed, the lung expanding again. On the other hand, obstinate dry pleural irritation, with rubbing and pain, may become worse in consequence of the deepening of breathing, and make it necessary to send such patients lower down.

Bronchitis generally is influenced for good, especially if associated with tuberculosis, but the rooms of these patients must be kept warm, and special care must be given.

Until a few years ago tuberculous laryngitis was considered to be a strict contraindication to treatment at high altitudes. But the fate of a patient suffering from tuberculosis of the throat depends a great deal on the pulmonary condition, and since at our sanatoriums we have a regular control of such patients by throat specialists, we can, and do, see surprising improvement in this regard too. Circumscribed ulcers are cauterized, and other special and local treatments are given. The treatment—in which perfect silence is insisted on, the patient not being allowed to speak for some months—is most efficacious; but patients with advanced tuberculosis of the larynx who have tissue destruction and large ulcerations do not do well at high altitudes owing to the dry air.

Asthmatic patients benefit if there is sufficient elasticity of the lung tissue, and good heart action.

As a rule, patients suffering from abdominal tuberculosis are not suitable for treatment at high altitudes, but there are exceptions, and systematic heliotherapy may be helpful. The results in cases of urogenital tuberculosis are doubtful.

Otitis media generally does well, the dry air clearly favouring the drying up of the tuberculous process.

In earlier days all persons with weakness or affection of the heart were warned not to go to high altitudes, but clinical observation and experience have proved this to be wrong. Those with compensated heart lesions may go without any risk, and patients with weakness of the heart muscle do well, and are even improved if they start with a long period of rest, exercise being subsequently introduced and slowly increased. But a weak and damaged heart will only withstand the high altitudes if no degenerative process is present, and if the heart has not to call on its reserves. Therefore, patients with uncompensated heart failure and myocarditis must not be sent to alpine stations, at any rate not for a long time.

Anaemia is generally improved, and often cured, but pernicious anaemia and leukaemia can only be benefited temporarily. I have seen splendid results in the case of patients coming from the tropics with grave anaemia, the result of previous malaria. The treatment with fresh liver or liver extracts, which is very useful in many forms of anaemia, is also effective in tuberculous patients.

Special Forms of Treatment.

Since 1902 I have been giving tuberculin to some patients, and I am still convinced that it can be of the greatest help. For many years now I have used only the absolutely harmless subepidermal (or intradermal) method of Sahli. The skin is the place of highly important immunizing reactions, and the local reaction in it indicates distinctly the necessary dosage, without doing harm, and without provoking harmful focal reactions in the lungs. Some authors have asserted that only those patients may be said

to be healed who no longer show any reaction to the very highest dose of tuberculin; but patients have been, and are, healed without tuberculin, and the really important thing is so to improve them that they will be able to undertake full work again after they have lost their expectoration and bacilli, and when crepitations or other signs of activity can no longer be found. Whether, for the time being or later, after years of successful work in normal life, they show a reaction to high doses of tuberculin or not, is, in my opinion, quite irrelevant.

I have tried the gold treatment, but only very rarely, although I have used it a little more often during the past year or two. The results are variable, and I have often seen hideous pigmentation and spotty discoloration of the skin, or skin irritability and bad eczema in patients treated elsewhere with sanocrysin. We are able to avoid such sequels by not giving too high or too frequent doses. But since, on the other hand, too small doses are relatively useless, the individual tolerance has to be determined with great care. I am using sanocrysin, as a rule, at intervals of five, eight, or ten days, starting with 0.05 gram and going no higher than a total dose of 4.5 to 5 grams of solganal. I have seen some astonishing results, especially in the shape of rapid disappearance of tubercle bacilli from the sputum, and the loss of fever.

I am very satisfied with the results of pneumothorax treatment at high altitudes. The practically sound lung runs much less risk there than it does in the lowlands. I have had good results, even in cases with bilateral affections, by treating the worse lung with an artificial pneumothorax. I have seen patients who had been given up lose their fever and obtain lasting benefit as the result of the combination of complete rest and careful pneumothorax treatment at Arosa. Good results also are by no means uncommon with patients treated by a large thoracoplasty, and I have had many who, after this most strenuous operation, have picked up again very soon at our altitudes.

A phrenicotomy is often very helpful in cases where thick adhesions prevent the administration of an artificial pneumothorax, or where a consequent more or less extensive collapse would endanger the other side. Phrenicotomy is also valuable as a preparatory operation for a later thoracoplasty, and enables one to watch the other lung, which has to take over more work from the badly affected one if collapsed or reduced in function. In all cases where this other lung has to be taken into special consideration treatment at high altitudes enables us to give special surgical treatment to the badly affected lung sooner than in climates where there is a risk to the other one from impure air or smoke. Sometimes the operation of Jacobaeus—namely, the burning through (intrathoracically) of fine adhesions—promotes collapse in cases of insufficient pneumothorax.

When treating patients by artificial pneumothorax it must be remembered that the barometric pressure exerts an influence on the pressure of the pneumothorax. Patients who have had injections of air or nitrogen at high altitudes absorb the gas much more quickly when they go down to the lowlands, and more frequent refills are necessary there. It is advisable to give a last injection shortly before the patients go down, and they soon have to be refilled there again. On the other hand, patients who are about to come up from the lowlands to high altitudes must not be injected shortly before their journey, or the last refill must be a very small one. The intrathoracic pressure must be kept *minus* before they travel up to the heights. This is not generally known, and I have seen quite a number of patients arrive after a large refill a few days before starting; they were short of breath, and showed circulatory derangements, dislocation of the mediastinum, etc.

As regards the dietetic treatment of tuberculosis we have long known that feeding is an essential and very important part of the treatment of tuberculous patients; Hippocrates emphasizes this point. Tuberculous patients, if very ill, have a tendency to lose weight, and the word "consumption" speaks for itself. As a matter of fact, a gain in weight by emaciated patients is always a very good and welcome sign, but stuffing patients with the sole object of making them fat is not effecting a cure, and much harm was done in this respect some twenty or thirty years ago,

when tuberculous patients were urged to eat much meat and drink stout, etc.; as a reaction the vegetarian system was recommended, but this alone will not solve our problems, especially in high altitudes where everybody, and certainly the patients, needs more calories. More fresh fruit and raw vegetables in addition to cooked ones are given now, but they are combined with a rational meat diet. Special food preparations containing vitamins are proving valuable.

During the past months a new method of diet has received prominence in Germany; in this "saltless diet," which was inaugurated by Gerson, and improved by Hermannsdörffer at Professor Sauerbruch's clinic, a preparation containing other minerals is given instead of common salt with cod-liver oil twice a day. It requires skilled preparation in the kitchen to make this food palatable, and it calls for great perseverance on the part of the patients. There is no doubt that this diet may produce surprisingly beneficial results in cases of surgical tuberculosis, and I have seen marvellous results in cases of lupus and of tuberculous affections of the bones and joints. Although we tried this saltless diet in a great number of lung cases at the Altein sanatorium at Arosa, we could not obtain any more definite benefit than with our ordinary treatment. We do "individualize," however, the food of our patients where necessary, and all forms of diet are given; but, in common with other lung specialists, I have come to the conclusion that this modern saltless treatment, so far as lung patients are concerned, does not justify the enthusiastic statements which have been made.

In estimating the value of various treatments the blood sedimentation test is most helpful. Figures higher than 5-6 minutes in the average indicate that an active process is present, and a fall of the figures from 60-50 or even 30-20 to 8-6-5 enables us to give a hopeful prognosis. However, the clinical improvement may sometimes occur first and the amelioration of the sedimentation reaction follow later on.

Statistical Evidence.

Thirty years of personal work with lung patients have only served to strengthen more and more my conviction of the superiority of the treatment at high altitudes. The large statistical tables prepared by the late Theodore Williams, and shown at the International Tuberculosis Congress in London in 1902, demonstrated that the best results were obtained at high altitudes. The statistics of the so-called "immediate results" after a course of treatment at Arosa, worked out from 4,000 cases, the material being provided by four different physicians practising as specialists at Arosa, show that in Stage I cases there were 93 per cent. of positive cures; in Stage II cases 74 per cent.; and in Stage III cases 41 per cent.

Statistics of the more permanent results, seven, ten, or more years after stopping treatment, were drawn up by Turban at Davos, Ruge at Arosa, and Bernstein-Kohan, whose investigation was conducted under my supervision from a mass of material accumulated in my own private practice before the time of the Altein Sanatorium; these show that permanent results were obtained in 86.5 per cent. of Stage I cases; in 12 per cent. of Stage II cases; and in 7.5 per cent. of Stage III cases. At the beginning of their treatment at Arosa 83.6 per cent. of patients with a durable result were apyrexial, and 82 per cent. had a pulse rate below 100. In 40.86 per cent. of all patients there were still some physical signs but no evidence of activity one to nine years after their treatment. The sputum still contained bacilli in 3.8 per cent.; 18 per cent. had some active trouble, and continued under treatment. The best results were obtained with patients between the ages of 20 and 30 years (51.9 per cent. of durable results), and with patients who started treatment within six months after the first symptoms were observed. Taking all stages together, 63 per cent. of all the patients were still fully fit for work one to nine years after stopping treatment.

General Notes.

Treatment at high altitudes can be started or continued at any time of the year with absolutely the same effect. Patients who are doing well at high altitude places during the winter sometimes think that they should spend the

summer at home or at a lower altitude; by so doing they generally become worse, and, returning to us in winter, nearly always show a relapse. Nearly all the good and lasting "cures" have been obtained by continuing the treatment until a sufficiently safe state of consolidation has been reached. There is no need to fear the effect of the snow-melting period at the high altitude health resorts in spring; either the weather is beautifully warm and sunny or snow falls; but even this last is preferable to the treacherous windy and damp weather with April showers which is usual at low altitudes at this time. Early spring weather is an especially risky time for lung patients in the lowlands, and induces every year many severe colds. Another difficulty is that some doctors order their patients home at that time, and are astonished that they then grow worse. Those patients would have continued to improve had they been allowed to remain out during the spring and summer. I cannot over-emphasize the importance of continuous treatment, which is far preferable to the "wintering" only.

The patient's co-operation is essential, and he must have full confidence in his medical adviser. Doctors who send patients abroad can do great harm by being too optimistic at first. To encourage the patient so many say: "Oh, a few months out there will put you all right." The few months pass, the patient feels better, and gets discontented at not being allowed to go home. If they were warned at first: "You will probably get well, but it may take a long time; we cannot know it yet, and you must play the game," people would be spared a false idea and much disappointment. Doctors should also warn relations not to urge patients to come home; several patients under my care were completely upset by injudicious home letters. In 99 cases out of 100 it is quite impossible to "cure" at home faithfully. After many years of attending lung patients I must express my conviction that patients will nearly always do much better in a good sanatorium than at open hotels.

TOXIC GOITRE.*

BY

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THE term "toxic goitre" is used in this paper to include all forms of thyrotoxicosis: primary Graves's disease—that is, where no enlargement of the thyroid gland existed before the onset of the disease—and secondary Graves's disease, where toxic symptoms arise in a patient with a pre-existing goitre. "Toxic adenoma" is used to signify thyrotoxicosis where one or more discrete adenomata are present in the gland.

CLASSIFICATION.

Toxic goitre gives rise to a wide variety of clinical pictures. The symptoms of the disease are numerous, and are combined in varying numbers and severity, so that each case is essentially a study in itself. There is, however, a dividing line between the primary and the secondary types; you may see this clearly illustrated by looking at the cut surfaces of glands removed at operation—the primary shows a uniform surface, the secondary a surface marked by various types of degeneration. Clinically, the primary is characterized by exacerbations or crises, with periods of improvement, and may result, with adequate time and care, in a complete cure; or it may pass into a subacute or chronic state, which is difficult to distinguish from the secondary. The secondary type, including the adenomatous variety, is characterized by steady progress, free from ups and downs. The emphasis in the primary form is on the nervous symptoms, whereas the secondary causes a progressive deterioration of the cardio-vascular system. The two types, however, are so interlinked that in many individual cases it is difficult to place the case definitely in either group.

SYMPTOMATOLOGY AND IDENTIFICATION.

The classical group of symptoms of Graves's disease used to be given as goitre, tachycardia, fine fibrillary tremor of the fingers, and exophthalmos, and where these are present the disease is easily recognized. The chief additional symptoms are easily produced fatigue, palpitation, loss of weight, excessive perspiration, nervousness, digestive derangements, and, in advanced cases, auricular fibrillation and even dropsy.

The patient in many cases never dreams of connecting her symptoms with an enlarged thyroid; she will even say that her present complaints have nothing to do with her goitre, as she has had that for years and it has given her no trouble. Neither is it easy for the doctor in many cases to recognize and convince himself of the causal connexion. Such cases fall chiefly into three groups.

The first group includes patients who complain of some falling off in general health, and on inquiry are found to have some palpitation, nervousness, excessive perspiration, loss of weight, and are easily fatigued. That a goitre is often the cause of such falling off in health can be clearly demonstrated by three facts: first, the marked improvement in general health which often occurs after a goitre, considered non-toxic, is removed for mechanical reasons; secondly, the severe toxic reaction which can occur during the first forty-eight hours after operation in a patient with only slight toxic symptoms; and thirdly, the dramatic improvement in this group of cases after operation. The immediate improvement is nearly always obvious on the third to fifth day after operation, and consists in a feeling of restfulness and general well-being, with cessation of uncomfortable pulsations and throbbing in precordia or neck; the ultimate improvement is a return to normal weight, strength, and general health.

The second group consists of patients with cardio-vascular degeneration who for years have had an apparently harmless goitre. The causal relationship of such a goitre to the premature degenerative changes has in the past been often unrecognized; but if such a goitre (which has become toxic) is operated on, a marked change in the outlook will soon follow, unless the organic degenerative changes have been allowed to become hopelessly advanced.

The third group comprises patients with an anomalous or atypical mixture of symptoms. For example, a man, aged 61, sent in as a case of diabetes, complained of excessive fatigue on very slight exertion. He had almost no exophthalmos, a very coarse tremor of the hands, pulse 96, and a slight symmetrical soft enlargement of the thyroid, without any thrill. After hemithyroidectomy he felt better in three days; nine months later, having increased 3 st. in weight, he resumed his work. A female teacher, aged 55, had fallen off in weight and lost her physical and mental energy, concurrently with a slight increase in size of her parenchymatous goitre; four months after a bilateral resection she had put on a stone in weight, resumed work, and regained, as she said, her *joie de vivre*.

It is essential, of course, in all such cases to form a careful clinical picture. A female patient who was sent to me recently because of loss of strength and weakness of the legs, with an obvious goitre, was suffering from locomotor ataxia. Such diseases as phthisis, diabetes, and carcinoma must be excluded. If this care be taken, operations on a coexisting goitre will in the above groups of cases rarely fail to produce a good, often a spectacular, result. Where cardio-vascular degeneration is the symptom early recognition is of vital importance, since if operation is carried out reasonably early it entirely alters the outlook, and if delayed too long the case becomes an excessively bad risk.

TREATMENT.

We are comparatively ignorant of the causal factors of toxic goitre and of the mechanism by which these causal factors stimulate and derange the thyroid gland, as well as of the natural history of the disease. It is not easy to give a prognosis in an individual case. It follows that definite lines of treatment are not easy to lay down. American surgeons give a brief and clear answer to this question of treatment—namely, toxic goitre has become a surgical disease; operation cures quickly and safely; conservative

* Abstract of an address delivered to the Scarborough Division of the British Medical Association.