as showing less reactivity than others, we mean much the same as when we say the depression is deeper. This is quite different from saying that the depression is more endogenous.

Only a very small number of patients (4.5%) were sent to mental hospitals urgently because of acute depression. A larger number (about 13.5%) were admitted, mainly to Westminster Hospital, for a variety of reasons. Elderly patients and those with certain associated physical diseases would be admitted, particularly if they had long distances to travel or lived alone. Patients showing severe associated tension or depersonalization are much better treated as in-patients, so that E.C.T. may be given under a heavy blanket of sedative. Those who have lost much weight will not usually do well with out-patient E.C.T. and should be admitted so that modified insulin can be given as well. Nevertheless a patient referred to hospital with depression can be assured, as these figures show, that he has four chances in five of being treated as an out-patient.

The figures given for treatment by drugs are misleading in that, rather arbitrarily, they were regarded as subsidiary forms of treatment when associated with E.C.T. or with psychotherapy. As a result they would often be omitted from the transcription sheet. The incidence of associated pharmacological therapy must in fact have been very high.

Summary

A study has been made of 525 patients suffering from depression divided into the three traditional categories of reactive, endogenous, and involutional depression.

The constitutional loading in patients developing these illnesses is in all cases high, but the incidence does not suggest any qualitative difference among the three types.

Stress factors are important in all groups, and stresses produced by abnormal personalities are especially so. Again, a study of these stress factors does not suggest a distinction worth making among the three groups.

Domestic stresses appear to be highly important in the genesis of reactive depression, of considerable importance in endogenous depression, and of small importance in involutional depression.

Endogenous depression, despite its name, appears to come "out of the blue" in only 20% of cases.

Of all cases of depression referred to hospital, 25% need E.C.T. straight away, and a further 25% after admission to hospital.

Very few cases of reactive depression received E.C.T., and it is believed that these patients were characterized above all by their "reactivity" to outside stimuli.

It is concluded that the distinction between these three forms of depression, and particularly between the reactive and endogenous varieties, is an unreal one. Constitutional predisposition and the incidence of stress factors appears to be much the same in these groups.

The distinction traditionally made appears to be a distinction between those depressions which show more reactivity, are less severe, and infrequently require E.C.T. and those depressions showing the reverse features.

It is believed that this resolves itself into a distinction between mild and severe depression.

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PROGNOSIS OF TROPICAL SPRUE

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There has long been doubt regarding the prognosis of tropical sprue, some regarding it as a seriously chronic disorder in which those affected suffer severe and protracted disablement, remain continually susceptible to relapses, and seldom recover completely (Low, 1928). Stitt (1945) gives a typical opinion in stating of sprue: "Unless adequately treated, however, severe cases are ultimately fatal within a period varying from about one to fifteen years." A further relatively unfavourable prognosis is expressed in a recent textbook (Mackie *et al.*, 1954), where of sprue it is written that "more commonly fats in the diet must be restricted permanently and parenteral injections of liver continued at intervals of one to two weeks." Others (Rodriguez-Molina, 1943; Woodruff, 1949) have produced evidence that the disease has a more favourable prognosis.

The reason for this apparent divergence of views may well be that in different studies different types of cases have been followed, that those with a poor prognosis have been patients affected with idiopathic steatorrhoea or non-tropical sprue, and that those with a satisfactory prognosis have been suffering from tropical sprue. The question might, it was thought, be resolved by ascertaining the ultimate outcome of the disease in patients affected with tropical sprue during the last war. If these patients are still suffering from symptoms of sprue, then the tropical variety of this disease must indeed be one with a protracted course and may well have much in common with idiopathic steatorrhoea, which is generally held to be a chronic disorder. If, on the other hand, tropical sprue is followed by only a short period of disability, then a point of difference of considerable diagnostic and aetiological importance would be established. The point is also of importance in the management and disposal of patients suffering from the disease and concerning the advice to be given them regarding diet and consumption of fats.

A Previous Study

Woodruff (1949) carried out a study in which patients invalided from India to Britain with tropical sprue were followed for 2½ to 3 years. Ten years have elapsed since that study was carried out, and it is therefore possible to review the prognosis of some of those patients, using a longer time scale than was possible in 1949.

The patients were originally diagnosed, treated, and invalided from a mobile R.A.F. field hospital in the Arakan; they have now become widely dispersed throughout Britain, the United States, and a number of Commonwealth countries, and therefore it has not been possible to examine them personally. A detailed questionnaire has accordingly been sent to them, and this report is based upon the answers given in it. Of the 47 patients reported in 1949 (Woodruff, 1949) it had been possible to follow up 34 at that time. Further letters were recently written to these patients and 17 replies were received.

Original Condition of the Patients

The clinical features of the 47 patients with sprue have previously been described (Woodruff, 1949). The records of the 17 patients who replied to the recently issued

questionnaire have been reviewed and their original symptoms have been found not to differ notably from those of the remainder of the series. Thus among the original 47 patients diarrhoea had been present for a mean duration of 3½ months; among the 17 whom it has been possible now to trace, diarrhoea had originally been present for a mean duration of three months. Tongue lesions, including glossitis, with inflamed and atrophic mucosa and ulceration, were present in 12 of the 17 now followed up, as compared with 39 of the 47 in the complete series. The average amount of weight lost among the 17 now followed up was 21 lb. (9.5 kg.), as compared with 28 lb. (12.7 kg.) for the complete series. The mean haemoglobin values of the original 47 patients and of the 17 now followed up were respectively 12.2 and 11.9 g. per 100 ml. The faecal fat in those now followed up averaged 32.6 g.% of the faecal dry weight, compared with 37.1 g.% among the original 47 patients.

Present Condition of the Patients now Followed Up

Capacity for Work.—All 17 patients reported that they were able to carry on their full work. Their employment varied widely; nine were doing sedentary work, four were on moderately heavy work, and four were employed on heavy manual labour.

Weight.—Since returning to the United Kingdom in 1944–5, 15 of the 17 had gained in weight, the average gain being 11 lb. (5.0 kg.); the remaining two had each lost 1½ lb. (680 g.).

Diarrhoea.—Since their condition was reviewed 10 years ago, 11 of the 17 patients had been completely free from diarrhoea, three have had single attacks lasting 48 hours during these 10 years, another has had a single attack lasting 96 hours, one has had occasional attacks lasting 24 to 48 hours, and one states that he has had many attacks lasting 48 to 72 hours. All state that normally they pass one to two stools a day and that the faeces are formed, inoffensive, and of normal colour and size.

Glossal Ulceration.—Three of the 17 had had some glossal ulceration during the past 10 years. Two had had one or more ulcers of the tongue present for 2 to 10 days and associated with attacks of diarrhoea; the third patient had had a buccal ulcer lasting for two to three days on one or two occasions during this period.

Appetite.—Three patients reported that they still have a disinclination to eat fatty or fried foods, but the remaining 14 stated that their appetite was normal and good.

Abdominal Discomfort, Distension, and Flatulence.—Two patients stated that a minor degree of these symptoms has been present almost continuously throughout the past 10 years, and a third stated that they occurred after ingestion of fatty and fried foods. These symptoms, however, have not been severe enough to limit the patients' activity in any way, and in view of their subjective nature their connexion with the original sprue is doubtful. Similar considerations also applied to two patients who still complained of lassitude after undue exertion but who nevertheless were able to carry out their full work. No patient now complains of cramps.

Discussion

If the 17 patients recently followed up are representative of the whole series—and there is no reason to believe that they are not—then it appears that the long-term prognosis in tropical sprue is good and that after treatment with a high-protein, low-fat diet a patient may be expected to be restored to full health. Alimentary symptoms, except possibly glossal ulceration, in such patients appear to be no more frequent than is to be expected among persons who have not had sprue. Those followed up in this study have been living on a normal diet without any restriction on consumption of fats, so that in tropical sprue protracted dietary limitation appears to be unnecessary.

All the 17 patients were treated before the introduction of folic acid or vitamin B₁₂, and thus their satisfactory return to health demonstrates that, at most, administration of large amounts of these substances shortens the illness but that they

are not essential to recovery. This observation emphasizes a difference between sprue as encountered in the East and that reported in the Caribbean region, where folic acid and/or vitamin B₁₂ have been used extensively for treatment and they or liver extract may be essential for it. Woodruff (1952) drew attention to these differences, particularly to the severe degree of anaemia usual in Caribbean cases and to the common absence of reference to steatorrhoea in reports on sprue from this region. He suggested that the condition commonly described there as "sprue" is nutritional megaloblastic anaemia, with which some alimentary symptoms may be associated and thus be a source of confusion. The satisfactory recovery without the aid of specific haematinics of the patients here followed up further supports this view.

The chronicity of idiopathic steatorrhoea or non-tropical sprue and its failure to be influenced other than temporarily by treatment indicate, firstly, that assessment of the history and/or observation following a period of treatment afford valuable means of differentiating between tropical sprue and idiopathic steatorrhoea, for patients with the former will recover and remain well, while those with the latter will not. Secondly, the difference in course between the two conditions suggests that they are separate aetiological entities; tropical sprue being characterized by a temporary upset in bowel function and in fat absorption, whereas in idiopathic steatorrhoea or non-tropical sprue this upset is permanent. By means of jejunal biopsy, Shiner (1956, 1957), Doniach and Shiner (1957), and Sakula and Shiner (1957) have demonstrated that in idiopathic steatorrhoea mucosal atrophy is present, and a permanent change of this kind with loss of enzyme function in the tissues affected and a similar temporary disturbance in tropical sprue, perhaps secondary to changes in the intestinal bacterial flora, might well account for the difference in course and in prognosis of these two conditions.

Summary

Doubt concerning the prognosis of tropical sprue has arisen probably through confusion between it and idiopathic steatorrhoea or non-tropical sprue, which, it is generally agreed, is a relatively chronic disorder. The prognosis of tropical sprue has therefore been studied by following up patients who contracted it in India and Burma during the 1939–45 war and who were invalided to Britain. It has been difficult to contact the patients because so many of them have changed their residence several times or have emigrated since 1945. Of 34 patients followed up, however, three years after invaliding, it has now been possible to contact 17. It is appreciated that there are pitfalls in drawing conclusions from so small a proportion of the original number of patients, but they are believed to be representative: it is known, for example, that several emigrated in good health.

Those contacted have all been found to be in good health, to be carrying on their full work, and to have gained an average of 9½ lb. (4.3 kg.) in weight. Attacks of diarrhoea, glossal ulceration, abdominal discomfort, and distension have been infrequent.

The long-term prognosis of tropical sprue appears to be good and to contrast favourably with that of idiopathic steatorrhoea. This contrast in course affords one means of differentiating the two disorders and suggests that they are separate aetiological entities.

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