encounter the fantastic terminology, with its wealth of superlatives, that so often colours the account given by the hysterical patient in describing his pain.

It is unsafe to assume that cutaneous hyperaesthesia, muscle tenderness, erection of the nipple, and goose-flesh in the left pectoral region necessarily imply that the pain is of muscular origin. Signs more gross even than these may accompany true hysterical pains.

The natural tendency to classify pains as "physiological" or "psychogenic" may be quite unjustified. We know that a psychological stimulus can activate a physiological mechanism: the common blush is an example of this.

On a few occasions during the course of examining an affected soldier I have noticed a curious erection of the left nipple; left mammary pain or discomfort was prominent and the pectoral muscles were tender and sensitive. It is presumably only a manifestation of the hyperaesthetic state of the tissues of that region in these individuals. Lewis has commented on "the myotatic irritability of the pectoral muscles" in the more seriously affected cases, and I believe erection of the left nipple has been observed during true anginal paroxysms.

Psychoneurotic Symptoms

The majority of published accounts of the effort syndrome have dealt mainly with its somatic manifestations. There are probably two main reasons for this. First, *bodily* symptoms and signs more readily attract the attention of both patient and doctor, and the presence of *psychological* difficulties may not be suspected. Secondly, when during the last war the syndrome first received wide recognition knowledge of the psychoneuroses was very limited and their study was hindered by an emotional bias. Despite much scornful talk there is no doubt that a wider and saner outlook on these conditions characterizes the attitude of the younger medical men to-day. On the other hand, in certain circles, judging from recent utterances and from one's personal experience, the complaints of the neurotic still arouse mistrust and his treatment still tends to be of the hearty "smack-on-the-back" type or else an irritated resort to "discipline."

Probably the commonest symptom in the effort syndrome is *anxiety*. In many cases it is at once obvious, while in others both patient and doctor may at first be unaware of it. This apparently unmotivated anxiety expresses itself in periods of vague fears which the subject is not usually willing to discuss. Patients often deny the existence of any psychological difficulties, and persistent inquiry may be necessary before their presence is acknowledged.

Treatment

Continued observation of these men has not been possible, so that remarks upon treatment cannot usefully be made. However, the importance of recognizing the true nature of the complaint when the soldier first reports sick cannot be exaggerated. Diagnosis by exclusion, as is the traditional advice in neurosis, is no longer necessary. It postpones early diagnosis and consequently makes treatment more difficult. The patient needs an explanation of his condition and reassurance at the first interview. Indecision, the adoption of a light manner, and repeated examinations of the heart by different medical officers serve only to aggravate the trouble.

Summary of Conclusions

The group of patients who are diagnosed as suffering from the effort syndrome are psychoneurotics in whom somatic manifestations, in the cardiovascular sphere, are prominent. Psychological difficulties are also present, but

are frequently masked. There is no evidence that a fundamental physiological defect is at work in the majority.

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SULPHONAMIDE THERAPY IN LUPUS ERYTHEMATOSUS

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The treatment of lupus erythematosus is still in an unsatisfactory state. Discovery and eradication of a toxic focus will often cause the condition to clear up, but frequently no focus can be found, and even when performed on reasonable grounds tonsillectomy and teeth extractions, etc., often give very disappointing results. Gold therapy cannot be said to have solved the problem. In view, however, of the probable streptococcal origin of the disease it seems feasible that drugs of the sulphonamide class might be of value in treatment.

For about two years patients attending the Liverpool Skin Hospital have been treated with sulphonamide preparations subsequent to investigation for any toxic focus. In the majority of cases sulphapyridine (M & B 693) was used, but a few were treated with sulphanilamide. Force of circumstances necessitated that in all cases the treatment be ambulatory. In the earlier cases the dose was 1.5 grammes daily, but later this was reduced to 1 gramme and in some cases even 0.5 gramme daily. 1 gramme daily gave a very satisfactory response on an average and appeared to reduce the incidence of undesirable effects. Gastric symptoms were common, but with the exception of two cases were of a trivial nature.

As the patients attended only at weekly intervals it was difficult to estimate accurately the percentage who suffered from a febrile reaction, but probably this occurred in four cases, and two of these had erythematous eruptions of a transient nature. It is debatable whether this reaction can be classed as drug fever. Hageman and Blake (1937) encountered drug fever in 15.6% of a series of cases of various conditions treated with sulphonamide. Barber (1940), on the other hand, while treating cases of lupus erythematosus observed a febrile reaction in as many as 72.7%. He quotes this high percentage in support of his view that the reaction is not due to drug fever but to streptococcal toxin liberated by the drug from latent foci of infection.

The four cases mentioned above constitute 25% of our series and are therefore inconclusive. We found, however, that readministration of the drug resulted in a

diminished reaction, whereas in drug fever the reaction is often accentuated.

Owing to the fact that every case responded in some degree the treatment of the more resistant was prolonged, frequently at the entreaty of the patient as there appeared hopes of a complete cure. The risk of causing blood dyscrasias is, of course, admitted, and blood examinations were made both *during* and *after* the cessation of treatment. Two patients suffered from a mild degree of anaemia, but otherwise no pathological changes in the blood were encountered. It is possible that such changes occur where concentrated amounts are administered rather than where the dose is spread over a prolonged period. Details of the cases are as follows.

Case Histories

Case 1.—A woman aged 25 had a patch involving the left cheek and the nose of five years' duration. She had been treated with local applications, bismuth injections, and gold injections with no improvement. She was given 1 gramme of sulphapyridine over a period of four months with two intervals of one week. At first there was steady improvement: the scales disappeared and the erythema faded. The condition later became stationary. After a month's interval she was treated with a total of 75 grammes of sulphapyridine and 50 grammes of sulphanilamide over a period of six months. No further improvement occurred, and since the cessation of treatment the disease is slowly spreading.

Case 2.—A woman aged 39 had a patch on the scalp of three years' duration and three lesions on her fingers. She had been treated with bismuth injections with little improvement. She responded rapidly, and after a month's treatment with 1 gramme of sulphapyridine daily was much better. The dose was increased to 1.5 grammes daily, but complete cure was not obtained. After an interval of two months she had a further course of 0.5 gramme of sulphanilamide daily. Her fingers cleared up completely, but after months of treatment a small patch still remained on her scalp.

Case 3.—This patient, a female, had a patch involving the right cheek and side of nose of two months' duration. She had 17 grammes of sulphapyridine in a month. By that time the condition had completely cleared and there has been since no sign of the disease.

Case 4.—A woman aged 33 had a characteristic butterfly lesion of three months' duration. This completely cleared up after she had taken 25 grammes of sulphapyridine. Two slight relapses necessitated further treatment. She had in addition gynaecological treatment for a cervical erosion which had been overlooked, and has now been free from any sign of disease for four months.

Case 5.—A woman aged 44 was affected on both cheeks and nose. The condition was of eight years' duration. She had been treated with bismuth and gold injections without improvement. In five weeks 35 grammes of sulphapyridine produced a marked improvement. The disease then tended to become stationary. The dose was increased after a rest period to 1.5 grammes daily, but her condition failed to clear completely.

Case 6.—A woman aged 53 had had an attack thirteen years ago which cleared up. In 1931 there was a recurrence involving both cheeks very severely. Her teeth were extracted and her tonsils removed and a long course of bismuth was given without any benefit. She had a total of 112 grammes of sulphapyridine over a period of six months. Improvement was rapid, but treatment was delayed owing to febrile reactions. At the end of six months pigmentation was the only sign of the disease. She has now remained clear for over a year.

Case 7.—A woman aged 45 had been affected over both cheeks and the brow for seven years. She had been treated with bismuth with no result. She received 1 gramme of sulphapyridine daily for three months with two intervals of a week. At first she improved greatly, but later relapsed and further treatment gave no benefit.

Case 8.—A woman aged 41 had a butterfly lesion on the face. The disease was of eight years' duration, but during that time she had two remissions. Neither gold nor bismuth had helped her during her present attack. Over a period of five months she received 112 grammes of sulphapyridine. There was steady improvement and the condition cleared completely. We subsequently lost trace of her.

Case 9.—This patient, a man aged 36, had a patch on the scalp of three years' duration. He was treated with 1 gramme of sulphapyridine daily for three months with slight improvement. After a rest he had another course of treatment, but without further benefit.

Case 10.—A woman aged 45 gave a history of the disease of sixteen years' duration. It had spread over the greater part of her face in spite of repeated bismuth injections. She was treated with 1 gramme of sulphapyridine daily with marked improvement. She was, however, troubled by febrile reactions and gastric irritation, and when these recurred on the resumption of treatment refused to continue. She subsequently relapsed into her former condition.

Case 11.—A woman aged 43 had a butterfly lesion of one year's duration on the face. She was treated with 1.5 grammes of sulphapyridine daily, but ceased treatment owing to a febrile reaction. She was induced to start again, and after four weeks' treatment with 1 gramme daily was completely clear, and has remained so for five months.

Case 12.—A woman aged 44 had a patch on her nose of six months' duration. She was treated with 1 gramme of sulphapyridine daily for three weeks. The condition cleared completely. After a month she relapsed. A further three weeks of treatment again healed the lesion. She has since remained clear.

Commentary

There was a definite response to sulphonamide therapy in each of the twelve cases cited, a point which strongly supports the theory of a streptococcal origin of the disease. In fact, even among the failures some of the chronic sufferers were very loath to abandon the treatment owing to the hopes to which the initial success had given rise. Six cases, or 50%, were completely healed and have remained so. The existence of some latent and resistant focus of infection is the probable cause of failure in the other cases. Case 4 illustrates this point. This patient relapsed twice, but after a previously overlooked cervical erosion had been dealt with she was completely cured.

The successful cases included all those patients who had not suffered from the disease for more than a year. When it is considered that roughly 25 grammes of sulphonamide administered over a period of about four weeks has been successful in clearing up what is regarded as an intractable disease the effect of the drug appears well-nigh specific and suggests that the prognosis in early cases is very favourable.

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A. H. Petiot (*Thèse de Paris*, 1940, No. 326) records twenty-two cases in children aged from 2 to 15 years who had undergone removal of tonsils and adenoids and were treated prophylactically by application of x rays to the spleen and administration of calcium chloride by mouth. The technique was as follows. Every child who showed an abnormal bleeding or coagulation time was treated by irradiation of the spleen, and twenty-four hours before the operation was given calcium chloride by mouth in doses of 4 grammes daily. In eighteen cases a single application, and in four two applications, of x rays were sufficient to make the bleeding and coagulation times normal. None of the children showed any abnormal haemorrhage either at the time of the operation or after it.