not be expected to improve, leaving only 12 who were not benefited by treatment.

In the case of the women the figures often refer to estimated work capacity, as many had previously been employed in domestic duties only.

Follow-up

When those with irremediable organic and mental disease (e.g., cerebral arteriosclerosis and chronic schizophrenia) were excluded the immediate results were so surprisingly good for neurotic illnesses of such duration that it was felt desirable to follow up as many as possible. Practical difficulties allowed of this being done for only 29 patients, who were interviewed by a trained psychiatric social worker, and 7 about whom information was received from other sources. The average length of time between discharge from hospital and the follow-up was over 6 months.

The follow-up enabled the condition to be compared with that at time of discharge and the actual work record to be compared with that anticipated when leaving hospital. In both these respects the condition after this interval agreed very closely with the estimated prognosis. Of the 36 cases followed up, 26 corresponded exactly, 5 did somewhat better than anticipated, and 5 not so well. They appeared to be a fair sample of the whole, and if this is so the policy of arranging for specialized in-patient treatment of neurotic casualties would appear to be well justified by the results.

Summary

Investigation was made of 100 patients referred by the Ministry of Pensions because for a prolonged period they had been receiving "war injury" allowances for neurotic illness caused by enemy action. Over and above this total very few were referred. This suggests that the number of severe neurotic casualties in the country was small.

The average age was higher than the average age of other patients attending practitioners.

Judged by ordinary standards a large proportion had good personalities prior to the incident, which in most cases was severe.

Coincident physical injury did not prevent a neurotic illness, as it often does in soldiers on active service.

Feeling a bomb was a much more severe psychological trauma than hearing one.

The factors which prolonged the neurotic illness were numerous and had to be analysed in each instance. They were often unrelated to the war.

The bad cases prognostically were not those patients who had been most bombed, but those in which some other factor played an important part.

In spite of prolonged illness and allowances these patients responded quickly and satisfactorily to hospital treatment, unlike patients with compensation neuroses in peacetime.

76% were able to return to work of some kind.

A follow-up showed that the symptomatic recovery or improvement was maintained and that they were usually able to continue at the work to which they went when discharged.

Care of the feet is an important part of the medical services of the A.T.S. Certain foot complaints, due to different shoes, unaccustomed standing, and, in some instances, to drill, occur within a few weeks of enrolment, and regular examination is necessary if the feet are to be kept in a good condition and such disorders to receive early treatment. An appeal is therefore being made for women chiropodists up to the age of 43 (50 for ex-Service women) for the A.T.S. They will be sent to a basic training centre for one month and afterwards posted, with the rank of corporal, to A.T.S. groups or training centres and will receive pay at the rate of 3s. 8d. a day. They will be supplied with a complete set of instruments and all felts, pads, and lotions required for treatments. All chiropodists work under the direction of a medical officer, and cases which do not respond adequately to treatment are referred to an orthopaedic surgeon in a hospital. It is intended to have a corporal chiropodist for every 600 auxiliaries.

THE CURE OF SCABIES, AND A NEW REMEDY

BY

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The time required to destroy an acarus infestation may not be long enough to allow the structural disorganization of the epidermis caused by the parasite to have righted itself entirely by the end of the treatment period. A treated case of scabies may be free from acari—that is to say, cured of scabies—but need not present a skin entirely free from lesions. Immediately after successful treatment with any of the recognized remedies scratch marks and pin-head blood crusts, subsiding pustules, crusts, and scaly tags may still be seen on the abdomen, buttocks, thighs, and anterior axillary folds. Such residues are less pronounced after the use of ointment preparations than when the remedy has been employed in the form of a liquid to be painted on the skin. While the presence of lesions following treatment does not mean that the object has not been attained, the absence of itching may not indicate a cure, for this symptom may disappear temporarily in a case in which treatment has failed, only to return in about ten days, during which time the surviving parasites have increased sufficiently to cause symptoms. The discovery of live acari at the end of a period of treatment proves its failure at once, but failure to find the acarus immediately is no proof of cure. It can only be regarded as such if repeated examinations over a period of two weeks are negative. By this time, however, if cure is not complete, lesions and symptoms will have developed which will be visible to the naked eye and obvious to the patient, except in the very rare instances of latent scabies, if such a state exists.

Observation Period after Treatment

The majority of cases of scabies to which one or other of the known efficient remedies are adequately applied are cured, and in them no acari would be discovered. In a few uncured cases, and perhaps in a given series in all uncured cases, no acari might be found immediately after treatment, and a period of observation would be necessary to demonstrate their continued presence. Only in a very few cases can the discovery of acari immediately following treatment, and not the failure to demonstrate their presence, at once give the desired information as to the result. It follows, therefore, that only in an extremely small proportion of cases can the observation period be dispensed with if the result is to be established with certainty.

This observation period subsequent to treatment of scabies is necessary and of practical importance only when the value of a new drug is first being assessed. If it is then established that a drug in a definite concentration is capable of curing the disease when tested on a reasonable number of cases and following a definite routine, the criterion of cure, for practical purposes, when the drug is used in conditions where known new cases are numbered monthly by the thousand in a single community, is the efficiency with which the prescribed routine of application is carried out. In a large treatment centre it is not possible either to examine for acari closely enough for the examination to be of any practical value or to multiply visits by insisting on the period of observation. Apart from staff shortage, it is difficult to obtain regular attendance during the treatment period.

It cannot be asserted that the prescribed technique of treatment with any remedy is capable of success in every case, but failures following the correct application of sulphur ointment are extremely rare (Mellanby *et al.*, 1942). When the patient personally carries out the instructions the percentage of failures depends on his intelligence, home surroundings, and the care with which the instructions have been explained to him. A patient may reasonably be expected to be able to take a

teaspoonful of cough mixture three times daily, and failures in the technique of this procedure must be few indeed. Similar success in the carrying out of instructions is not met with in the treatment of scabies or, for that matter, in the treatment of skin disease in general.

Choice of Remedy

The technique of the commonly used remedies is more or less similar and the choice has up to the present been governed by cost, cleanliness, time, and freedom from irritant properties. It may be, however, that the availability of the remedy will become the deciding factor.

Sulphur is the oldest remedy for scabies, and according to Hebra its indirect use dates back to the cure of Naaman's presumed attack of the disease. Its outstanding worth as an agent lethal to the mites and eggs of the acarus has been demonstrated recently by Mellanby, Johnson, and Bartley (1942). It should be noted, however, that the standard treatment for scabies is not three applications of sulphur ointment as stated by them. Authors differ slightly in the technique advised. That laid down by Walker and Percival (1939) is six applications of 5% sulphur ointment over a period of three days, preceded and followed by a bath, no bath being taken during the period of application. Sulphur is cheap and can be incorporated in a more elegant base than lard or soft paraffin if so desired, but to be efficient it must be applied in the form of an ointment to be rubbed in. This necessary use of fats and oils in conjunction with sulphur at a time when these substances are in short supply justifies the trial of possible substitutes which do not require fats and oils in their application or which need a less amount.

Tetraethylthiuram Monosulphide

Another substance has recently suggested itself as possibly being of use. There is no reason to anticipate a shortage in its supply, and this fact alone should recommend its trial on a large scale. This substance is tetraethylthiuram monosulphide, and since 1940 I have used it in the treatment of human scabies. Because of unavoidable delays it has been employed in only a small number of cases. It was found to be non-irritant to the human skin when applied in the form of the pure powder, and no case of cutaneous idiosyncrasy to it has been encountered. It has proved curative in a strength of 5% in the form of a liquid preparation in 50 consecutive cases, 21 of which were treated as in-patients in the ward of the skin department of the Edinburgh Royal Infirmary, and 29 as out-patients at scabies treatment centres. Of 25 cases treated with a 0.25% solution 4 were cured; 1 case was treated with 5% tetraethylthiuram monosulphide in a vanishing cream and was cured; 3 were treated with a prepared tetraethylthiuram monosulphide powder mixed with water to form a paste, which was then smeared on the skin, and 1 was cured. The liquid preparation used was an emulsifiable oil having the composition: tetraethylthiuram monosulphide 25%, polyglycerol ricinoleate 10%, industrial methylated spirit 65%. One part of this oil was added to four parts of water immediately before use. While the 25% concentration remained stable at room temperature it tended to crystallize out if kept at lower temperature, but gentle heating sufficed to redissolve the crystals. Unfortunately the diluted oil separated, giving a layer of pasty consistency which did not redissolve. This necessitated preparing the required 5% dilution immediately before use. The 25% solution may stain material yellow, but this discoloration washes out easily. The mixture has a slight odour, not noticeable, however, in the 5% dilution.

The liquid preparation was rubbed over the whole body, with the exception of the head, face, and neck, twice daily for three days, as in the case of sulphur ointment. The duration of treatment is an important point in the cure of scabies with any remedy, and repetition reduces the possibility of inadequate application. If staffed by a trained personnel, the scabies treatment centre can be relied on to ensure at least one adequate application even if there are difficulties in enforcing the necessary return visits (Percival, 1941).

Observations by Gordon and Seaton (1941) on the lethal properties of tetraethylthiuram monosulphide for acari in animal scabies have shown that it is more toxic for the mites and eggs and more rapid in its action than either benzyl benzoate or dimethylthianthrene (mitigal). During their experiments they

were also able to prove conclusively that mites, especially larvae, can migrate from their burrows and infect surrounding clothing, which is capable of reproducing the disease if applied to another animal. These experiments on the possible transmission of animal scabies cast some doubt on the advisability of omitting to disinfect clothing in the case of human scabies, a view originally advocated by Mellanby (1941), although later modified by him.

Summary

Tetraethylthiuram monosulphide in a concentration of 5% is capable of curing human scabies. So far it has been found to be non-irritant to the human skin, and no instance of cutaneous idiosyncrasy to it has been encountered. It is cheap, clean, easily available, and economizes in fats and oils. Its trial on a more extensive scale by independent observers is suggested.

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BENZYL BENZOATE IN TREATMENT OF SCABIES

A COMPARISON OF THE EFFECTS OF AQUEOUS AND SPIRIT EMULSIONS

BY

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At the request of the A.D.M.S. a series of cases of scabies was treated during a three-months period to ascertain the value of an aqueous emulsion of benzyl benzoate. During the previous 12 months many cases of scabies had been treated in this camp reception station by various methods, and it was evident that the benzyl benzoate one was the best.

The cases were not selected, every second admission being treated with the aqueous emulsion, regardless of the extent of the lesions present. The control group was treated with the spirit emulsion. The emulsions used contained equal parts of benzyl benzoate, soap, and spirit or water. The number of cases upon which these figures are based was 1,000, and the slight discrepancy in the final figure is due to the fact that benzyl benzoate was at times difficult to obtain. As a result more cases were treated with the spirit emulsion and a few with sodium thiosulphate and hydrochloric acid. The latter treatment was used to a considerable extent in the earlier part of the year, but was discontinued because of the number of cases of dermatitis that resulted.

Method

The number of beds available was 39; but at times room had to be found for more cases, and these were accommodated on stretchers. There were only two baths to be had, and these were in constant use for the bathing and scrubbing of the patients. During the three months under review the number of baths given averaged 25 per day.

On admission the patient's clothes were checked and sent to the pack store, where the articles, which included the bedding, were disinfested in a hot-air disinfector of the Millbank type. The clothes were then stored away until the patient was ready for discharge. The patient was given a bath and scrubbed by an orderly, and was treated with either type of emulsion. He was then dressed in pyjamas and put to bed. On the following day he received the same treatment. On the third morning he was seen by the medical officer, and if there was no active lesion he was given a treatment of calamine lotion and discharged the next morning. In the cases in which there was a secondary infection, such as impetigo, he was transferred to the main block of the camp reception station for further treatment. These cases with another infection are