hysteria alone, he found that at the end of four years out of 89 cases 43 were well, 23 improved, and 23 unchanged. No analysis according to symptomatology was made.

Luff and Garrod (1935) analysed the results in 500 cases of psychoneurosis treated at the Tavistock Clinic between 1928 and 1931. There were 75 cases of hysteria, and on discharge 13 were "much improved," 25 "improved," 17 "slightly improved," and 20 "not improved." After three years the figures read in the same order 17, 21, 6, and 16, the remaining 15 having relapsed. The "much improved" and "improved" groups are taken together to give a "relieved" figure of 50.6%, which after three years is the same as on discharge; these people were at work, and the "much improved" group would here be labelled "well."

This present report shows a higher symptomatic recovery rate than that obtained by other authorities, as 83% of patients were still at work for four to six years after discharge. This result has occurred in spite of inadequate psychotherapy, and the factors determining this outcome must be considered.

The selection of patients with a florid, clear-cut symptomatology and the comparative absence of cases of chronic hysteria in this series have probably improved the prognosis as a whole. Patients may also have come somewhat earlier and been more co-operative initially at a general as opposed to a psychiatric hospital, and the importance of an unusual precipitating factor such as aerial bombardment may not have been sufficiently stressed. These four considerations taken together form quite a weighty bias towards natural recovery. Moreover, although it is not always possible to know what standards are used by others in judging recovery or improvement in psychoneurotic patients the recovery or otherwise from a disabling symptom is easy to judge. Perhaps not even one out of the 66% who are here labelled well four to six years after treatment might be thought recovered at all in the psychiatric sense, although he or she is back at work, symptom-free and feeling well. Therefore this investigation of the prognosis of certain hysterical symptoms is not comparable with the results of others who have given statistics regarding the prognosis of psychoneurosis in general or in particular.

Relation of Particular Symptoms to Their Prognosis

Owing to the small number of cases and the numerical variation of each particular symptom only a suggestion of certain trends in prognosis is justified, and no one symptom can be labelled malignant or benign. Aphonia and amnesia seem to have an excellent immediate outcome—probably whatever treatment they receive within reason—and the result seems to be maintained in the follow-up. Paralysis showed a slightly less favourable result, but 18 out of 23 were well five years after leaving hospital, although these were not quite the same 18 that recovered immediately, as one of these relapsed and one of the early failures recovered after expert psychotherapeutic treatment elsewhere.

Tremor was the one symptom that supported the psychiatric theory that removal of a hysterical symptom is quite unrelated to improvement of the psychoneurotic illness itself. The immediate recovery of all 10 cases and the follow-up finding of only four well out of 10 speaks for itself.

Fits appear to be a more difficult immediate problem, as only two out of six recovered in hospital; these remained well.

Vomiting was more hopeful at first, five out of six stopping this symptom in hospital; only three of these were well five years later.

Blindness was found in only three cases, and these seem to have made an excellent recovery.

Conclusion

There is very little to add on recapitulation. The word "recovery" will never mean the same to a psychiatrist as to a physician, and one can only try to correlate physical and psychological terms. It would seem that an acute hysterical episode has not the rather grave prognosis that it is usually stated to have, and that it does not always need skilled psychotherapy or psycho-analysis to produce an apparent recovery. It is tempting to think of the hysterical personality in degrees of instability with differing thresholds of resistance, some people needing a more powerful stimulus than others to produce the reaction—rather like cerebral dysrhythmia and epilepsy in which the concept of differing grades of liability to produce clinical epilepsy is accepted. Perhaps the most stable of us would under sufficient stimulus produce a hysterical symptom in the same way that we would produce an epileptic fit if sufficient strength of electric current were passed through our brain. If so, there is at least the suggestion that in some cases of hysteria it is unnecessary to do more than relieve the symptom and discuss the patient's problem with sympathy, interest, and common sense.

Summary

One hundred cases of acute hysteria are analysed symptomatically, and the results of treatment by suggestion are recorded.

A follow-up four to six years later was successful in 90 of these cases, and the results of this are tabulated and discussed.

The suggestion is made that the outcome of such cases is better than is generally believed even although long, skilled, formal psychotherapy is not available.

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NUTRITIONAL MACROCYTIC ANAEMIA IN TEMPERATE ZONES

BY

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AND

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The nutritional anaemias may be divided into primary types, in which the dietary deficiency has been the main cause of the anaemia, and the secondary types, in which utilization by the body of a complete diet is defective, usually because of some organic disorder. Occasionally the anaemia may be due to combined causes.

Macrocytic anaemia resulting from nutritional deficiency is commonest in India, Malaya, and China; it also occurs frequently in Macedonia, where it presents some different features from the "tropical" variety. A nutritional macrocytic anaemia may, however, occur in temperate zones. Such a case occurring in England is here recorded.

Similar cases have been described in England, U.S.A., Canada, Holland, and Denmark (O'Hara and Grewal, 1927; Aykroyd, 1930; Kern, 1931; Ungley, 1933, 1938; Groen and Snapper, 1937; Alsted, 1939; Townsend and Begor, 1942; Watson and Castle, 1946). Most of the authors remark on the deficiency of protein in their patients' dietary. Evidence of the relation of animal protein to tropical nutritional macrocytic anaemia was provided by

Taylor and Chhuttani (1945) in a survey of anaemia in Indians.

Of the two cases in England reported by Ungley the first showed a slow and submaximal response to "marmite," while the second was successfully treated with "campolon" liver injections.

Case Report

A widow aged 56 had been employed as a factory hand, but had not worked for the eighteen months previous to admission to hospital on May 14, 1947. She came with a letter from her doctor, which stated: "She was investigated at another hospital a year ago with the ultimate diagnosis of pernicious anaemia, but refused treatment at the time and now turns up looking like death, as you can see. She has no one to look after her." A letter from another hospital in London stated that she had attended as an out-patient on May 7, 1946, and a blood examination then showed: red cells, 3,000,000; haemoglobin, 65%; colour index, 1.08; white cells, 6,210 (P. 54%, L. 42%, E. 2%, M. 2%).

On examination it was at once noticed that she was mentally subnormal, and no reliable history could be obtained. She was quite uncooperative, refused all food on the day of admission, and was very noisy during the first night in hospital. Her appearance was one of gross physical neglect; pediculi were present on the scalp and body, and numerous scratch marks and abrasions were found. There was no abnormal pigmentation of the back of the hands or of the face. She was of small stature and of thin, spare build. The mucous membranes were pale; there was no icteric tinge. The tongue was smooth and glazed and looked sore. The parotid and submaxillary salivary glands showed bilateral diffuse enlargement. There was no lymphadenopathy. The nails were normal. Pitting oedema of the legs was present. The chest showed signs of bronchitis, and the heart sounds were faint. The B.P. was 105/65. Examination of the abdomen revealed no ascites, and the spleen was not palpable. Her speech was slow.

She complained of numbness of the legs, but, so far as her mental state would allow, no sensory loss was found to pin-prick or light touch. There was no muscular weakness or dystonia. The abdominal reflexes were absent; the biceps-jerks were present on each side, the triceps-jerks, supinator-jerks, knee-jerks, and ankle-jerks were absent on both sides. There was no plantar response.

The social history was difficult to elicit, but the salient features were: her second husband had died about eighteen months previously, since when she had lived alone in one room. Her sole source of income was from the periodic sale of personal valuables. According to a friend who lived near by, her room was in gross disorder and her culinary arrangements were chaotic. Her meals were irregular in quantity and quality, and appeared to consist mostly of tea, bread, buns, etc. Exact details of diet were not obtainable. She had been in a mental hospital on two occasions during the 1939-45 war. There was evidence that her father, stepbrother, and daughter had also been in mental hospitals.

She was interviewed by a psychiatrist on Aug. 1, 1947, who reported: "She is in a state of mild mania. She admits having been a patient in Hanwell Mental Hospital twice. She has persecutory ideas about her late husband, whom she accused of putting her away. When her medical condition allows she should be transferred to an observation ward."

Laboratory Investigations.—A radiograph of the chest revealed signs of bronchitis. A blood count showed: red cells, 1,150,000; haemoglobin, 27%; colour index, 1.16; white cells, 4,900 (P. 51%, L. 45%, E. 2%, M. 2%). A film showed anisocytosis and poikilocytosis; P.C.V. 15%, M.C.V. 130 c. μ , M.C.H.C. 25%; reticulocytes, less than 1%. Stools contained no ova, cysts, or pathogenic organisms. Sternal-marrow examination resulted as follows:

Report on Myelograms.—Before folic acid: Megaloblastic erythropoiesis. On ninth day of treatment: Considerable reversion to normoblastic erythropoiesis. Urine showed a faint trace of protein and a few leucocytes; it was sterile on culture. W.R. and Kahn negative. A fractional test meal showed free hydrochloric acid after histamine up to a concentration of 38 ml. of N/10 HCl after 1½ hours.

Myelograms

	Percentage of Nucleated Cells	
	Before Folic Acid	9th Day of Treatment
Polymorph. neutrophils	14.8	40.0
" eosinophils	0.8	3.0
Metamyelocytes	8.8	14.0
Giant metamyelocytes	11.8	0.7
Myelocytes: neutrophil	15.0	3.0
" eosinophil	1.2	—
Lymphocytes	7.4	3.5
Plasma cells	0.6	—
Late normoblasts	4.8	22.0
Intermediate normoblasts	1.2	8.2
Early "	0.2	0.6
Late megaloblasts	10.6	5.0
Intermediate "	18.2	—
Early "	4.6	—
Total nucleated cells	126,000	—
Myeloid series/nucleated R.B.C.	1.3/1	1.7/1

Treatment.—"Anahaemin," 2 ml. daily intramuscularly, was started on May 23, and two "fersolate" tablets, two vitamin B tablets, and 50 mg. of ascorbic acid were given three times a day. On May 27 and 30 and June 2 the reticulocytes were less than 1% and anahaemin was replaced by "plexan" crude liver extract 4 ml. daily. On June 6 the red cells numbered 780,000, with less than 0.5% reticulocytes. In view of this fall it was decided not to continue with plexan, and folic acid, 20 mg. daily, was started on June 9. Next day her blood count showed 1,090,000 red cells and less than 1% reticulocytes.

Progress.—Following this treatment there was a rapid rise in the reticulocyte and red cell counts, as shown in the accompanying Graph. On July 12 there were 1,260,000 red cells; reticulocytes, 6%; nucleated red cells, 124 per 100 white cells. The stained film showed anisocytosis, poikilocytosis, and polychromasia. Clinical improvement proceeded rapidly with the haematological response to folic acid. The blood pressure rose to 120/70 and all reflexes were present, though sluggish, after 10 days' treatment. The patient soon began to eat voraciously and her skin lesions healed, but her mental state remained essentially unchanged, and it was eventually found necessary to transfer her to a mental observation ward.

Comment on the Case

Davies (1945) and Holmes (1945) have drawn attention to the incidence of oedema in anaemia, due to hypoproteinaemia, especially during the stage of recovery, when much protein is being used to form haemoglobin.

The presence of pitting oedema of both legs without ascites in this patient on admission to hospital was an expected accompaniment of the severe anaemia, low blood pressure, and poor nutritional state. However, it did not improve commensurately with the clinical and haematological improvement, and when it did subside it reappeared on two occasions. No adequate explanation could be found on the last occasion of its appearance, 67 days after the beginning of treatment and when the red cell count was rising: estimation of plasma proteins showed normal values. The patient was eating a full normal protein diet. No conclusion could be drawn about the relation between the oedema and the rate of haemoglobin formation. Unfortunately the relationship of hypoproteinaemia to recovery from anaemia was not realized at the time, and earlier plasma protein estimation was not carried out.

In Groen and Snapper's two cases oedema is not reported, and the plasma proteins were normal in one of them. In the cases described by Alsted, by Townsend and Begor, and by others, oedema and plasma protein values are not recorded.

Discussion

The special interest of this case lies in the failure to respond to large doses of active liver extract, both crude

and of the Dakin and West type, and, in contrast, the immediate response to folic acid. This feature distinguishes the case from the previously reported cases of nutritional megalocytic anaemia occurring in temperate zones.

The rapid response to folic acid has been stressed recently by Kemp (1947), and the maximal reticulocyte response of 28% on the fifth day is in agreement with his findings.

It is debatable whether or not our patient would have responded to anahaemin or plexan if these drugs had been continued for longer periods. In Kemp's cases, though the response to "hepatex" was slower than to folic acid, all had shown some improvement within 18 days, whereas in our case after intense therapy not only was there shown a reticulocyte count of less than 1% but the red cell count was falling and giving rise to serious anxiety.

Oral preparations of proteolysed liver were not tried, and hence it is hypothetical whether response would have been obtained. Watson and Castle (1946) recorded a case in Boston, U.S.A., of nutritional macrocytic anaemia in a woman aged 76 who responded to intravenous injections of 20 ml. daily of the supernatant from the suspension solution of liver extract (Lilly) after failure with the usual liver extract, and also *Lactobacillus casei* factor, but the amount of the latter was only 1.3 mg. daily. Davis and Davidson (1944) have successfully treated several cases of otherwise refractory macrocytic anaemia, but none of them showed such a prominent nutritional aetiological basis as in our case.

The precise role of folic acid cannot be stated with certainty, and the mechanism of liberation from its conjugate by a liberating factor, as postulated by Davidson and Girdwood (1947), has not been widely accepted. Our patient was apparently deficient in folic acid but not in Castle's haemopoietic factor.

Summary

Nutritional macrocytic anaemia may occur, though rarely, in temperate climates, and is associated with a deficiency of protein. Previously recorded cases are reviewed and a new case is reported.

There was an immediate response to folic acid after the failure of intensive liver therapy.

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Workers at the National Institute for Research in Dairying and at the Courtauld Institute of Biochemistry have investigated the widely recognized fact that cows, on "going out to grass" in the spring, often give an increase in milk greater than the amount ascribable to the extra nutrients ingested. From their preliminary results, which were published in *Nature* (1948, **162**, 845), they concluded that the galactopoietic effects of spring grass in lactating cows may be due to the presence in the grass of oestrogen.

STREPTOMYCIN IN FINGER INFECTIONS

BY

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The use of penicillin in infections of the hand has been shown to reduce sepsis, pain, and time of healing (Florey and Williams, 1944; Grossmark and Plewes, 1945).

Streptomycin is as yet little known as a local therapeutic agent, and we have attempted to compare the results of treatment with this newer agent with those of penicillin. Two types of infection—pulp whitlows and paronychias—are used for comparison because these infections were more true to type than others and because the more serious types, such as deep palm infections, were admitted to hospital and given systemic penicillin. No case which required systemic chemotherapy of any kind has been included.

Principles of Technique.—All cases presented were incised by standard procedures under general anaesthesia and with the use of a tourniquet. Streptomycin (5,000 µg. per g.) or penicillin (1,000 units per g.) was applied as a cream. This was smeared on a vaselined gauze wick which remained *in situ* for two days. Dressings were carried out in a special "perspex" dressing-box under continuous ultra-violet irradiation—all the dressings of each day being done by the same dresser with "no touch" technique. They were changed at intervals of two days, the discharge being cultured each time. Streptomycin or penicillin was applied until culture revealed "no growth."

Bacteriology

The frequency with which various organisms are isolated from a wound depends to some extent on the bacteriological technique employed (Williams and Miles, 1945). In our cases it consisted in swabbing the affected site and seeding on blood-agar plates; these were incubated aerobically and examined the following day. A very small quantity of the cream used in treatment was included on the plate in the penicillin series, and a hole containing streptomycin, 500 µg. per ml., in the streptomycin series; in practice this gave a good indication of the sensitivity of the organism grown.

The term "coliform organism" is used to include all Gram-negative bacilli having the cultural appearances of *Bacterium coli*, *Pseudomonas pyocyanea*, or *Proteus*; the streptococci isolated were all reported as "haemolytic streptococci," but grouping was not carried out as a rule; a coagulase test was done on all the staphylococci isolated, and was positive in all cases on first culture (coagulase-

TABLE I

Organism	Pulp Infections		Paronychia	
	Penicillin Series (60 Cases)	Streptomycin Series (66 Cases)	Penicillin Series (49 Cases)	Streptomycin Series (74 Cases)
		Primary	Infection	
Staphylococci	58	64	42	64
Staphylococci and streptococci	1	1	2	5
Staphylococci and coliform	1	1	3	3
Streptococci	—	—	—	—
Coliform	—	—	2	2
		Secondary Infection		
Streptococci	—	2	—	—
Coliform	12	—	11	2