he vomited and asked to be allowed to go to bed. He complained of "noises in his head as if an engine were pumping away outside." At 5 p.m. he became sleepy and refused a proffered cup of tea and a cigarette. At 5.40, 5.45, and 6 p.m. he again vomited and complained that the vomit tasted unusually acid. He also felt "icy cold" but otherwise better. At 8 p.m. he vomited for the last time, and thereafter slept fitfully through the night.

Next morning he "felt a bit washed out" and "uneasy in the stomach," but he worked in the garden for two hours, morning and afternoon, as usual. Three days later, according to a previous arrangement, he travelled home (a long journey with two changes and waits, involving a three-days absence) to attend a meeting of directors, before, during, and after which he used on former occasions to indulge freely in drink. On this occasion he was primed with tetraethylthiuramdisulphide, 0.75 g. night and morning over the period. He did not experience any disagreeable symptoms and did not have any inclination to drink. His institutional treatment will shortly be terminated. Then, as an added precaution when in the outer world, a daily dose of 0.25 g. will be prescribed for a month or two with a view to giving him an added sense of security, as it has done to others.

Comment

There is a hope that in milder cases, with the help of tetraethylthiuramdisulphide, the patient may receive enough help and understanding from his environment to dispense with specialized institutional treatment, or at any rate to shorten its duration. This, however, will require careful judgment, and remains for future experience to evaluate. At present one is justified in considering that tetraethylthiuramdisulphide seems likely to occupy a useful place in the treatment of alcoholics, and that it merits extensive but cautious investigation. The reactions of each individual patient under his usual drinking habit should be carefully tested the day after an initial sensitizing dose of the drug. Under out-patient conditions vigilance is required to see that a patient who has been placed on a small regular dose of the drug is not also managing to consume some alcoholic beverage. Should he do so the dose ought immediately to be quadrupled.

Summary and Conclusions

The use of tetraethylthiuramdisulphide is recommended as a useful ancillary, but not as a substitute for, general and psychological methods in the treatment of alcoholics.

The pharmacological action of the drug is discussed. It is innocuous to man unless followed by alcohol, but certain precautions in its administration are advocated.

Details in a severe case of alcoholic addiction are related in order to illustrate the symptoms and technique in treatment.

BIBLIOGRAPHY

- Bell, R. G., and Smith, H. W. (1949). *Canad. med. Ass. J.*, **60**, 286.
Bruce, A. Ninian (1944). *Brit. J. Ineb.*, **41**, 49.
Carver, A. E. (1945). *Ibid.*, **42**, 65.
Hald, J., and Jacobsen, E. (1948). *Lancet*, **2**, 1001.
Jacobsen, E., *et al.* (1948). *Acta pharmacol. Kbh.*, **4**, 285.
Martensen-Larsen, O. (1948). *Lancet*, **2**, 1004.

Among developments that Governor Dewey has recently announced will be carried out in the New York State mental hygiene programme (*New York Times*, July 20) is the establishment of a new relationship between voluntary hospitals and State mental hospitals; the former will provide preliminary treatment for patients before they become State charges. A second innovation that he described as "my own private brain child" is the creation of a new intern system in which 200 men yearly will serve for two years as interns in every State mental hospital, which would pay interns more than the voluntary hospitals do. "This is a system of which I vigorously disapprove," he said, "unless it is a public necessity, and I think this is a public necessity."

INCIDENCE OF PHYSICAL DISORDERS AMONG PSYCHIATRIC IN-PATIENTS

A STUDY OF 175 CASES

BY

H. E. S. MARSHALL, M.C., M.A., M.B., B.Chir.

(From the Psychiatric Unit, St. George's Hospital)

During my period of duty as resident medical officer to the psychiatric unit I was so impressed by the number of patients needing attention for physical conditions that I reviewed the case records of all those admitted to the unit in 1948 in order to estimate the frequency of such conditions among the patients treated and the relevance of these to their psychiatric conditions.

Material Studied

During 1948 the unit had the use of 28 beds—22 for females and six for males, though, owing to redecorations, not all the former were continuously available. A total of 179 patients were admitted, of whom four did not stay long enough to allow of full examination and so are excluded from this series. The number of patients studied was 175, comprising 124 women and 51 men. All were in need of psychiatric attention, and no purely physical criterion entered into their selection.

The predominant features of the psychiatric conditions found were as follows: affective reactions, 108 (endogenous depression 51, reactive depression 35, anxiety states 16, cyclothymic reactions six); hysterical reactions, 22; schizophrenic reactions, 20; obsessional reactions, 16; organic reactions, five; hypochondriasis, neurasthenia, behaviour disorder, and drug addiction, one each.

Abnormal Physical Conditions

In no fewer than 77 patients (44%) some physical condition needing attention was found. As might be expected, the incidence was higher in those over 40 than in younger patients (61% against 35%).

In four patients serious physical disorders were first discovered during examination in the unit, their presence not having been previously suspected; these comprised one case each of pulmonary tuberculosis, bronchial carcinoma, glioma, and major epilepsy. In two other patients serious physical disorders, not related to the psychiatric condition, developed during their stay in hospital; these comprised one case each of cerebral thrombosis and thrombophlebitis.

In the accompanying tables the various physical conditions found are analysed according to their apparent relevance to the psychiatric conditions for which treatment was required.

TABLE 1.—Physical Conditions Contributing to the Onset of Psychological Illness

	No. of Patients
Gynaecological conditions (menopause, 6; pregnancy, 4; eclampsia, abortion, sterilization, puberty, 1 each)	14
Disorders of central nervous system (epilepsy, 3; cerebral contusion, glioma, internal carotid aneurysm, poliomyelitis, encephalitis lethargica, 1 each)	8
Disorders of respiratory tract (influenza, maxillary sinusitis, asthma, pulmonary tuberculosis, bronchial carcinoma, 1 each)	5
Orthopaedic conditions (prolapsed intervertebral disk, 2; fracture of tibia, 1)	3
Disorders of vision (cataract, Leber's atrophy, 1 each)	2
Endocrine disorders (acromegaly, hypothyroidism, 1 each)	1
Arteriosclerosis	1
Chronic nephritis	1
Intestinal obstruction	1
Otosclerosis	1

TABLE II.—*Physical Disorders Resulting from Psychological Illness*

	No. of Patients
Lesions resulting from suicidal attempts (of which 4 occurred before admission)	6
Asthma	1
Collapse of lower lobe of left lung	1
Physical sequelae of anorexia nervosa	1
Stomal ulcers	1

TABLE III.—*Physical Conditions Not Apparently Related Aetiologically to Psychological Illness, but Requiring Attention*

	No. of Patients
Disorders of central nervous system (epilepsy, 2; frontal lobe injury, cerebral thrombosis, narcolepsy, migraine, ataxia of unknown cause, tremor of unknown cause, 1 each)	8
Disorders of alimentary tract (dental conditions, 6; stomal ulcers, 2)	8
Disorders of respiratory tract (pulmonary tuberculosis, 3; emphysema, maxillary sinusitis, tonsillitis, 1 each)	6
Gynaecological conditions (pregnancy, cervical polyp, cervical erosion, retroversion of uterus, pruritus vulvae, 1 each)	5
Disorders of veins (varicosity, 2; thrombosis, phlebitis, haemorrhoids, 1 each)	5
Endocrine disorders (thyroid adenoma, 2; diabetes mellitus, hypothyroidism, 1 each)	4
Orthopaedic conditions (cervical rib, scoliosis, pes cavus, 1 each)	3
Anaemias	3
Hernia	2
Skin conditions	2
Rheumatoid arthritis	1
Detached retina	1
Otitis media	1
Chronic mastitis	1

Laboratory Investigations.—The number of patients showing abnormal findings from laboratory and radiological investigations are as follows:

Electroencephalography	13	Cerebrospinal fluid	2
Serum cholesterol	5	Blood urea	2
Chest radiograph	4	Basal metabolic rate	2
Skull radiograph	4	Ventriculography	1
Fractional test meal	3	Bronchography	1
Blood counts	3	Electrocardiography	1
Blood sugar	3	Blood Wassermann or Kahn	1
Barium meal or enema	2		

Summary of Findings.—Out of the 175 patients, 77 (44%) presented some physical condition requiring attention. Of the 10 patients (6%) whose physical condition resulted from psychological illness, there were six in whom the physical lesion was consciously induced in a suicidal attempt. In the other four the physical condition found had a definite psychogenesis. In 39 patients (22%) the physical condition was considered to contribute to the development of the psychological illness. In 26 patients (15%) the physical and psychiatric conditions did not appear to be aetiologically related.

Discussion

The importance of the psychiatric aspect in many patients suffering from undoubted organic disease is now widely recognized, and is reflected in the development of the concept of psychosomatic medicine. This has perhaps led to less emphasis being laid on the physical factors in psychiatric syndromes, especially in those which are not obviously of organic type. The figures given above indicate the importance of this aspect of psychiatry. That this may be underestimated in general wards as well as in psychiatric wards is indicated in a study made by Comroe (1936). He followed up 100 patients who after admission to a medical clinic were diagnosed as suffering from neurosis, and found that 24% of them had definite organic disease within an average period of eight months, and that in most of them evidence of the organic disease was present during the original admission to the clinic.

The variety and gravity of physical disorders present among patients attending for psychiatric treatment are illustrated by the three case histories quoted below.

Case 1.—Man aged 72. A case of endogenous depression with a history of three depressive illnesses in the last 16 years. No physical symptoms, and no abnormal physical signs except glycosuria. A glucose-tolerance test indicated a moderately

severe diabetic condition, the patient needing stabilization on insulin as well as electric convulsion therapy for the depressive condition.

Case 2.—Man aged 45. Referred for investigation of attacks of dizziness and fainting, which his doctor was satisfied "were not organic in the main," and a single epileptiform fit a few days previously. The doctor added that the patient had always had some worry—about his job or his mother's health or his own impotence. The left arm had been amputated many years ago following an accident. The clinical findings after admission were summed up thus: "A bad family background and a long history of gastric trouble, probably of emotional origin; evidence of an overconscientious obsessional driving personality. A history of disturbances of consciousness for seven to eight years; these have ranged from transient attacks lasting from a few seconds to a minute, in which he feels his actions are mechanical, to complete loss lasting as long as an hour and followed by vomiting. No physical signs, but sensory disturbances in a phantom left hand may have an organic basis. In the last nine months he has been lacking in libido, has become anxious and depressed, and feels that he is irritable and less efficient than before." After electroencephalography, skull radiographs, and ventriculography a diagnosis was made of glioma in the right frontoparietal region, and the patient was referred for deep x-ray therapy.

Case 3.—Man aged 29. Referred on account of three fugues during the previous 18 months. He complained of headaches and dimness of vision in the left eye, and was stated to have become apathetic and irritable since a subarachnoid haemorrhage eight years previously. Skull radiographs showed a shadow having the appearance of a large calcified aneurysm at the bifurcation of the left internal carotid artery. There were a few rales at the bases of both lungs but no other physical signs and no symptoms referable to his chest. The E.S.R. was 40 mm. in one hour. Radiographs of the chest showed extensive infiltration of both lungs with cavitation, and the sputum contained tubercle bacilli.

Full medical and surgical facilities are clearly necessary for the satisfactory treatment of such cases as these. The modern mental hospital is admittedly provided with such facilities, but there are many psychiatric patients for whom admission to a mental hospital is undesirable, particularly in view of popular prejudice and misinformation. Henderson and Gillespie (1944) state: "Recent experience has shown that with modern methods of treatment a considerable range of mental illness can be treated in the wards of a general hospital; but this is on the whole to be regarded as a provisional arrangement pending the establishment of specially constructed and equipped clinics within general hospitals." Treatment in such a unit is not merely a matter of investigation and transfer elsewhere, and the average duration of stay of a patient there is comparable to that in a general ward (Sands, 1948). At this time, when so much hospital planning is taking place, it may not be inappropriate to call attention to the need for such psychiatric units, as exemplified by the facts quoted in this paper.

Summary

The incidence of physical disorders among 175 patients admitted to a psychiatric unit is analysed. In 44% the physical condition required attention. In 22% a physical condition contributed to the psychological illness; in 6% a physical disorder resulted from the psychological illness; in 15% physical and psychiatric disorders occurred together but were not apparently related aetiologically.

The importance of full physical investigation of all psychiatric patients is emphasized. The need for properly equipped psychiatric units in general hospitals is stressed.

I am indebted to Dr. Desmond Curran and Sir Paul Mallinson for their help in the presentation of this paper and for permission to

quote from the records of patients under their charge, and to Dr. J. B. Randell, Dr. H. F. Osmond, and Dr. L. Ford for their help.

REFERENCES

- Comroe, B. I. (1936). *J. nerv. ment. Dis.*, **83**, 679.
Henderson, D. K., and Gillespie, R. D. (1944). *A Text-Book of Psychiatry*, 6th ed, p. 11. London.
Sands, D. E. (1948). *J. ment. Sci.*, **94**, 799.

FAMILIAL PERIODIC PARALYSIS

REPORT OF A CASE

BY

ERNEST SOYSA, O.B.E., M.B., M.R.C.P.Ed.

Major, Ceylon Medical Corps; Consultant Neuropsychiatrist,
British Military Hospital, Colombo

Familial periodic paralysis presents a well-defined clinical picture. It was first described by Cavaré (1853), whose findings have been supplemented by studies of the electrocardiogram (Janota and Weber, 1928), of the electroencephalogram (Watson, 1946), and of rare features such as non-familial incidence, protracted seizures, visceral involvement, and fatal complications (Smith, 1939). Precipitation of attacks has been ascribed to physical exertion and mental strain, indulgence in carbohydrates or alcohol, alimentary disturbance such as overeating, hunger, diarrhoea, or constipation, and exposure to cold or damp. Postulated relationships between this and other conditions—e.g., endocrinopathy (Shinosaki, 1926), migraine (MacLachlan, 1932), muscular dystrophy (Biemond and Daniels, 1934), spinal vascular spasm (Vernon, 1936), chemical defect of the neuraxis (Pudenz, McIntosh, and McEachern, 1938)—are inconstant and indefinite.

The search for an adequate pathology was initiated by suspicion that muscular metabolism was deranged by some transitory autotoxaemia, which was suggested by arrest of gastric digestion and motility during the palsy (Mitchell, Flexner, and Edsall, 1902), and by transient urinary anomalies—e.g., acetonuria (Pastine, 1918), albuminuria (Shinosaki, 1926), and creatinuria (Ferrebee, Atchley, and Loeb, 1938). Recent studies of the blood chemistry of this syndrome have led to a fundamental advance in the state of knowledge as it existed between the review of the literature made by Singer and Goodbody (1901) and that by Schoenthal (1934).

From a casual observation that the potassium content of the blood serum was lowered during the palsy (Biemond and Daniels, 1934) there developed a new line of inquiry (Walker, 1935). A low serum potassium was found in attacks induced by administration of glucose in large quantities and insulin, separately and together (Aitken, Allott, Castleden, and Walker, 1937), and by adrenaline injection (Allott and McArdle, 1938). Attention has been drawn to alterations in the phosphorus balance of the blood (Milhorat, 1937; Allott and McArdle, 1938), variations in electrolyte features of the blood (Ferrebee *et al.*, 1938), and experimental evidence suggestive of a central controlling factor (Pudenz *et al.*, 1938). The pathogenesis of this disease presumably depends upon an excessive call for potassium in the muscles, its consequent withdrawal from the blood and retention in the body, with parallel changes in phosphorus metabolism. Undue lability of the serum potassium and phosphorus in relation to sugar mobilization perhaps conditions some motor dysfunction, such as interference with transmission of nerve impulses or inhibition of the muscular contractile response.

It has long been recognized that this palsy may be averted or arrested by the ingestion of various potassium salts—e.g., the acetate (Singer and Goodbody, 1901), the carbonate, the chlorate (Mitchell *et al.*, 1902), the bromide (Holtzapfel, 1905), the chloride (Aitken *et al.*, 1937), the citrate (Herrington, 1937), and the phosphate (Allott and McArdle, 1938). The success of prophylactic potassium medication at night (Allott and McArdle, 1938) is probably related to nocturnal lowering of serum potassium in this malady (Gammon, Austin, Blithe, and Reid, 1939). Symptoms have been controlled also by choline esters (Pudenz *et al.*, 1938), pilocarpine (Guttmann, 1931), and pancreatic extract (Vernon, 1936), and averted by cod-liver oil (G.D.H., 1948).

The following case, which illustrates typical familial and clinical features of this rare and remarkable malady, shows a prominent association between muscular exertion and paralytic seizures, a striking hemiplegic distribution of symptoms, and a prompt response to potassium therapy.

Case Report

A South Indian male, aged 24, of a rice-eating race, serving in a labour corps in Ceylon, was referred for neuropsychiatric examination with a history of transient flaccid hemiplegic seizures occurring early in the morning after a hard day's work. A provisional diagnosis of hysteria had been suggested by the relation of these attacks to heavy work, their transitory duration, apparent response to bromides, irregular recurrence, and increasing frequency.

Personal History.—Symptoms had originated at the age of 17 with transient weakness of the lower limbs after strenuous work. As increasing frequency and severity of the disability began to interfere with his work as a cultivator, he had sought *ayurvedhic* treatment (herbals and massage), with apparent relief for several months. After resuming work, however, several relapses compelled him to abandon manual labour and obtain light work in a rural grocery store. This was followed by freedom from the disability. Enlistment in the Indian Army, six months before the time of examination, had been followed by another recurrence of symptoms, this time ranging in intensity from fleeting muscular weakness to profound loss of power lasting 2½ days. The frequency of attacks had increased from one in six to eight weeks to one in two to three weeks, having almost always affected both limbs of the right side, rarely having spread to the opposite side, and never to the trunk, neck, or head. The palsy evidently used to come on insidiously during sleep at night, as it would become apparent on awaking next morning without any premonitory warning. Spontaneous recovery had been the invariable termination of these seizures. Other past illnesses comprised two attacks of intermittent fever suggestive of malaria, and a few diarrhoeic episodes.

Family History.—Six other members of the patient's family, who were of coolie or labourer stock, had been afflicted by disabilities similar to his own, as indicated in the accompanying family tree. A maternal uncle, U, had suffered from occasional paralysis of his legs until his death, by accident, at the age of about 40. A maternal aunt, A, had had intermittent loss of power of her legs, but had gradually become free of her disability after about 25 years. This woman's son, C, was subject to paralytic attacks in his right arm and leg. The patient's elder sister, S, used to suffer from intermittent loss of power of her upper limbs, and one of her daughters, N, had a similar weakness of her legs. The patient's younger brother, B, had died in childhood during a para-

Members of family affected by periodic paralysis are shown in black.