single growth which by submucous extension across the lesser curvature had produced a saddle-shaped plaque with an area of ulceration on each side, a section was taken as shown in the drawing. It included the growing edge of each growth, at the point where the cancers approached nearest to each other, with the intervening stomach wall of the lesser curvature, and this showed unequivocally that there was no direct bridging connexion between the two growths. It was therefore established that in this case the condition was either one of two distinct primary gastric adenocarcinomata or that one of the two growths represented a contact transplantation from the other at an early stage of its development by a process analogous to the development of kissing ulcers in the duodenum.

I am indebted to Professor T. B. Davie, University of Liverpool, for his kindly help and criticism as well as for the microscopical reports and sections. My thanks are also due to Mr. R. A. Grant, medical superintendent, for permission to publish this case.

REFERENCES

- Barbier, Cavaillher, H., and Didierlaurent, H. (1938). *Lyon méd.*, 162, 421.
Cade, A., and Roubier, C. (1932). *Ibid.*, 150, 377.

PSYCHIATRIC CASUALTIES IN LONDON, SEPTEMBER, 1940

BY

GEORGE PEGGE, M.A., M.R.C.S., L.R.C.P.

Psychiatrist to the Emergency Medical Service

In the *Journal* of October 14, 1939 (p. 764) I reported cases brought to a London hospital suffering from a variety of psychiatric conditions which had occurred under the stress of the times. Then the fear which was the precipitating factor in their illness was largely of the unknown terrors of air raids which did not come. In a few cases the sirens were an actual stimulus.

September, 1940, at the same hospital forms an interesting contrast. In the latter part of August the Central London population became accustomed to sirens, and a year of war had eliminated by a process of voluntary evacuation many neurotic and potentially neurotic people. Cases of neurosis in which a large element of causation could be attributed to the war were nevertheless occurring. In particular there were relapses among the war neurotics of 1914-18. When intense air warfare broke out over London on September 7, neurotic cases began to appear among those who had been in actual danger, who had been knocked down by blast, or who had been in houses which were rocked or wrecked by high-explosive bombs. Unlike those previously seen, these had experienced actual threat of injury and death. The earlier less concrete threat claimed its victims from a more highly educated, intellectual, and responsible section of the population.

Attributability

In discussing the neuroses of war, whether in the armed Forces or in the civilian population, there has been much argument as to what cases can truly be said to have been caused by war stress; and the idea has become prevalent that if a patient has shown the least sign of neurosis in his previous history he cannot rightly be called a war neurotic. Experience of clinical material such as that described below will reveal how superficial such an argument is. If it is remembered that there exists no absolute dividing line between neurotic and non-neurotic and that probably everyone has some trace of neurotic reaction in his adjustment to reality it will become obvious that any distinction must be quantitative rather than qualitative. It must be decided not whether a patient was previously neurotic but to what extent any previous neurosis is responsible, jointly with present stress, for his condition.

In considering the first 29 cases seen since September 7, therefore, the test of estimating the state of the personality upon which the precipitating factors have been at work has been performed by asking the following questions: (1) Was the patient neurotic previous to the circumstances which are said to have caused his illness? (2) If the answer to the first question is negative: Was the patient nervous or highly strung or unduly apprehensive previously, though not to the extent of being recognized as neurotic or ill?

If the second question is answered in the affirmative the patient must be regarded as an air-raid casualty, though somewhat predisposed. If the first question is answered in the affirmative each case must be considered separately. But the additional question, Would the patient be in his present condition were it not for air raids? is almost invariably answered in the negative. There must therefore be in all these cases some element of war attributability. I have attempted to decide whether in this class of case the present stress or the previous neurosis was the more important factor. Where the present stress seemed to be more important the case was considered to be an air-raid casualty. The results of this survey are given in Table I.

TABLE I (29 Cases)

A: Cases in which there was a history of pre-existing neurotic illness	9
(4 are considered <i>mainly</i> attributable to war stress)	
B: Patients with no such history, but said to have been nervous or highly strung	10
C: Cases showing no discoverable predisposing factors	3
D: Patients showing mild psychotic or psychopathic personalities	4
E: Cases complicated by concussion	2
F: Negative—Patient refused examination	1

Categories B and C are almost entirely attributable to war stress; Category A is partially and to a variable degree attributable to war stress (4 cases, however, are considered principally to be so attributable); and Categories D and E are attributable only to a minor degree. Thus there are 17 cases which owe their causation principally to war stress.

Clinical Material

The majority of cases were brought in from the scene of a bomb explosion suffering from some degree of derangement of consciousness, varying from a completely unconscious or stuporous condition to a mildly dazed state. There was often some amnesia in those not unconscious or stuporous. Tremor, usually generalized and coarse, was common, and became much exaggerated on near gunfire. It was usually accompanied by uncontrolled emotional behaviour and weeping—in men as well as women. One case of localized hysterical paralysis was seen—in a long-standing and versatile hysteric. Only one case of hysterical exaggeration of slight injuries was seen.

Typical Cases

Case 1 (Gross hysterical symptoms in a woman not previously neurotic, but of a well-marked hysterical personality type).—A married woman aged 35 was brought in unconscious and rigid with limbs flexed, head rotated to the left, and hands tightly clenched. Her pulse rate was 130 and the volume poor. This woman had lost a sister-in-law, killed in an air raid the day before. She had been frightened in previous air raids in a badly bombed area in South London. When the mews in which she lived was hit by a bomb she was thrown off her feet. She was brought immediately to hospital, and responded well to treatment—full relaxation and movement, together with speech, being restored, within half an hour. The following night under bombardment she began to relapse into a similar state, but this was easily rectified. She slept well with adequate hypnotics, but though now showing no florid hysterical symptoms she is quite incapable of dealing reasonably with her fear, and has been strongly

advised to leave London and seek psychotherapeutic treatment in the Provinces.

Case 2 (complete loss of power in all limbs, without loss of consciousness but with considerable amnesia).—A girl aged 16 was sitting in a lorry waiting for her brother to come and meet her when a bomb fell within thirty yards. She fell or was thrown on the floor of the drivers' cab, and could not get up. She was brought to hospital unable to move any limb or to talk at first, and with feelings of emptiness and numbness all over her body. There were no physical signs suggesting organic injury. The pulse rate was 130. On encouragement she quickly regained the use of her limbs and faculties, but retained some amnesia for the events experienced. Subsequently this was also resolved by suggestion. She left hospital within two hours of her arrival. A week later she came to report that she was very well.

Case 3 (exhaustion and acute anxiety state of depressive type).—A man aged 44, an air-raid warden, had been on night duty in a badly bombed area for a fortnight. During the daytime he carried on his usual job as a warehouseman. He had thus lost much sleep. He collapsed at work and was brought to hospital. He was shivering violently, and occasionally his whole body went into clonic contractions. He sobbed uncontrollably at times. After his admission the clonic attacks and shivering soon passed off, but they left him tremulous and tearful. Reassurance and explanation were given and sleep was secured with adequate hypnotics. He was much better in two days, but relapsed on leaving hospital. He was sent to a psychiatric hospital outside London for further treatment. This man had served many months in France during the last war, and later in Salonika he had suffered from "malaria and shell-shock," and was invalided out of the Army on a 50% pension. After a few months the pension had come to an end. He had been nervous but not neurotically ill in the interval.

Case 4 (gradual onset of severe anxiety symptoms with great deterioration of self-respect and personal standards).—A male clerk aged 39 had been working for some weeks on night duty in an aircraft factory near London. When the intense bombing started he left work and wandered about London from shelter to shelter, eventually taking to the Underground and becoming a veritable troglodyte. He only emerged to pawn clothes, watch, and so on, in order to buy food. He was admitted in a state of great exhaustion, with generalized tremors and rapid pulse, and was quietly weeping. He has a chronic cough, having smoked immoderately for years, and has pronounced vasomotor instability, blushing very easily. He has been rather a rolling stone, but could always get a good job, and, though nervous, had never previously been frankly neurotic.

Case 5 (anxiety state in a well-balanced woman).—This patient, a widow aged 45, works in a responsible domestic position in a large hotel. She lives alone in rooms and was the only occupant of the house who did not sleep in a shelter. She had no fear of air raids. The next house received a direct hit and she was thrown out of bed and hit by falling plaster. She was able to put a coat on and escape downstairs and to the street. She was brought to the hospital sobbing and shaking. Beyond a rapid pulse there were no physical signs except for a few bruises. She protested that she must be at work at 6 a.m. next day, and was with difficulty persuaded to stay in bed and take a sedative. She was much better in the morning and left the hospital. Two days later she returned, reporting that she was more shaken than she had expected, could not sleep, and was apt to burst into tears in a way very foreign to her. She has, however, carried on with her work, and in another two days has made further improvement, but is unable to stand air raids now and wishes to leave London.

Case 6 (an ex-soldier of this war; an untreated case of war neurosis, relapsed under the stress of air raids).—A man aged 25 was admitted in a state of extreme terror, having been sent from an air-raid shelter. Gross generalized tremor became violently exaggerated and his back arched into opisthotonos when gun-fire was close at hand. He was sweating and weeping, and said that he experienced violent pains at the sound of the detonations. He had been for seven years in the Royal Engineers, having joined with a twin

brother. In Belgium he saw his brother hit by a high-explosive shell burst. He was himself slightly injured, and the two were taken to hospital, where his brother died within a few hours, after amputation of both legs. The patient was sent back to England when the hospital moved home. Shortly afterwards he was boarded out, presumably on account of his neurotic condition. A minor injury to a knee had quite recovered. He soon found a good job, and was doing fairly well when the air raids started, precipitating his dramatic relapse.

Treatment

It is unusual for a psychiatrist to see his cases so soon after they have developed their symptoms. Many are entirely comparable to cases of so-called traumatic neurosis following accidents at work. The rapid response of many air-raid cases to early treatment suggests that industrial cases so treated might lose much of their bad prognosis.

Each case is seen at the earliest possible moment, and the incidents leading up to the breakdown are gone over with the patient in great detail. If the patient is unconscious he is treated as if he had been hypnotized for therapeutic purposes and is given repeated reassurance, specifically referred to the use of limbs and faculties, together with simple explanations of the mechanism involved in the formation of his symptoms. He is then gently commanded to open his eyes and to give his name and address. The physician may feel somewhat overawed by the complete inertia of the patient to whom he is talking. However, the majority of patients do respond eventually. If success seems unlikely or if the patient is excitable or disoriented he may be told that he will be given a sleeping draught and that on waking he will find his mind clear and his memory complete. In all cases the patient is seen again the next day and the whole story is talked over again. If the memory is still not complete (two patients had amnesic gaps of nine months and several years respectively) reassurance is given and he is told to expect the gradual filling in of his amnesia during the next few days, which he is encouraged to spend largely asleep. Large doses of paraldehyde (up to 3 drachms) and small doses of sodium barbitone (5 grains) are used in combination as a hypnotic draught, and will usually succeed in putting the most excitable patient to sleep even during a heavy bombardment. No sedative is given in the daytime. If a patient is not well enough to leave hospital in three days he is sent to an emergency psychiatric hospital outside London. The results of such treatment are given in Table II.

TABLE II

Successfully treated as out-patients	..	..	6
Successfully treated in three days as in-patients	..	..	10
Referred to psychiatric base hospital	..	..	11
Psychotic; sent to observation ward	..	..	1
Refused treatment	..	..	1

The permanence of the adjustments so achieved is, of course, uncertain, and the success is largely in dealing with the florid superficial symptoms. Obviously, no attempt can be made at adjusting the deeper personality anomalies, and recurrence of symptoms is probable in at least a proportion of cases.

Conclusions

These brief notes have been written in the midst of the circumstances from which the cases arose. The report is therefore more topical than considered. It is intended primarily to show that psychiatric war casualties have occurred, though to a surprisingly small extent so far.

Early diagnosis and treatment give results far better than peacetime experience would lead one to expect. A

number of cases occur, however, which do not so readily respond, and these are not always patients previously neurotic, though this is the general rule. Many cases arise in those not previously overtly neurotic but of a nervous or highly strung disposition. A few cases are seen in which no trace of predisposition can be found, but it is ridiculous to regard these as the only true psychiatric casualties of the air raids.

No claim is made for originality in the methods of treatment employed. All were used in the last war, and it was from those who introduced them that I have learnt them.

Summary

The conditions under which cases of neurosis have occurred in recent weeks in London are briefly considered and contrasted with those of September, 1939.

The question of attributability to war stress is discussed.

Six typical cases are reported.

Therapeutic measures are briefly described.

TREATMENT OF ANAEMIA BY TRANSFUSION OF CONCENTRATED SUSPENSIONS OF RED CELLS

BY

D. H. G. MacQUAIDE, M.D., M.R.C.P.

AND

P. L. MOLLISON, M.B., M.R.C.P.

(From the S.W. London Blood Supply Depot)

Transfusion with a suspension of red cells in saline is no new method of therapy. In 1918 Oswald Robertson published a description of a method of preparing suspensions of preserved red cells in gelatin saline for the transfusion of patients with anaemia. His work was based on the experiments of Peyton Rous and Turner (1916). In Robertson's series the cells were diluted to 50% of their original concentration before transfusion. In 1937 Castellanos called attention to the advantages of a concentrated cell suspension and reported successful results. No other workers appear to have concerned themselves with this study until recently, when, with the setting up of blood banks in various countries, pathologists have presumably been stimulated by the sight of bottles containing separate layers of plasma and red cells. In America at least one institution (the Cook County Hospital) now provides a suspension of red cells in normal saline for use in anaemic states. This suspension, however, is more dilute than normal blood.

Lately it has become evident that plasma is much more easily stored than blood, and since it appears to be an adequate substitute for whole blood, in the treatment of shock at least, much of it is being prepared in the London depots. The plasma is pipetted off from bottles of blood that have been allowed to stand for six days. Thus large numbers of bottles containing only red cells remain, and until now no definite use has been suggested for them.

About six months ago we started using a red cell concentrate in the treatment of certain cases of anaemia. Over fifty transfusions have now been given, and the results enable us to put forward some tentative conclusions as to the uses and advantages of this method of therapy.

The Cell Concentrate

Originally the concentrate was prepared from stored blood from ten to fourteen days old. The plasma was

pipetted off, and with it the gel which lies between the red cells and the plasma. This gel is formed mainly from the breakdown of leucocytes, and is probably identical with the "clots" which may hamper the administration of stored blood. The highly concentrated red cell suspension that remained was fluid enough to be poured, and the contents of one bottle were added to another. To this mixture 50 c.cm. of 1.1% saline solution with 1% glucose was added; thus one bottle containing approximately 430 c.cm. of a highly concentrated red cell suspension was obtained, and this was the unit employed in most of our transfusions.

Hypertonic saline was used as a diluent because it was found to produce less haemolysis of the red cells than normal saline. We have since found that haemolysis can be further reduced by adding 8% instead of 1% glucose; this ensures a concentration of glucose of at least 1% in the final mixture. Hypertonic saline is necessary presumably because the citrate saline into which the blood is originally taken is hypertonic (Maizels and Whittaker, 1939), and cells stored with this fluid become hypertonic to normal saline.

Lately, as we have stated, many bottles containing only red cells have become available as a by-product from the preparation of plasma. Actually these bottles contain about 50 c.cm. of plasma above the red cell layer. The preparation of a concentrated cell suspension for transfusion is thus greatly facilitated, since it is only necessary to add the contents of one bottle to another to obtain approximately 480 c.cm. of fluid that contains the haemoglobin equivalent of two bottles of stored blood.

This second method of preparation, though simpler, has the disadvantage of leaving the leucocyte gel in the bottle. We have the impression that suspensions prepared in this way give rise to more reactions than do the saline suspensions. It seems possible that the leucocyte gel may therefore be at least partly responsible for the rather high reaction rate found in our series of transfusions with whole stored blood. This supposition receives further support from the fact that plasma transfusions seem practically reaction-free even when the plasma is prepared from stored blood. If the transfusion of suspensions of red cells is also associated with very few reactions suspicion must fall upon the leucocyte gel.

In preparing the concentrated suspension by either method particular care must of course be taken to avoid infection. It is advisable to use the suspension as soon as possible after it has been prepared.

Administration

The cell suspension may be given through an ordinary administering apparatus. If the leucocytes are not removed it is advisable to use a gas-mantle filter (as recommended by Maizels) or some other type with a large filtering surface. The red cell suspension was not warmed before administration because we desired to compare the reaction rate with that in a series in which we had used unwarmed whole stored blood. In many cases the blood was below room temperature on reaching the patient. The rate of administration and the amount given varied with the clinical condition of the patient.

One bottle of the cell suspension usually raises the haemoglobin approximately 10 to 15%. For instance, in one case, following a transfusion of six bottles of the cell concentrate, the haemoglobin rose from 26 to 90% and the red cells from 1,200,000 to 5,050,000 per c.mm.

The use of concentrated red cell suspensions is contra-indicated in cases of shock, where the immediate need is to restore blood volume rather than to increase the number of erythrocytes.