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All correspondence regarding the Journal must be addressed to the **Honorary Editor, Fellowship of Medicine, 1, Wimpole Street, W.1,** except that dealing with advertisements and business matters, which should be addressed to the **Business Manager, Post-Graduate Medical Journal, 33, Sherington Avenue, Hatch End Park, Middlesex** (Telephone: Hatch End 1675).

Post-Graduate Medical Journal

LONDON, AUGUST, 1942

The Effort Syndrome

Although war brings in its train every kind of trouble, trial and tribulation, yet there are very few real medical diseases of the war. Such diseases used to be extremely common, and it is perhaps the greatest feather in the cap of preventive medicine that war to-day brings in its train very few medical diseases.

There is one, however, the so-called effort syndrome, which appears in war and very seldom is seen in peace. Last year PAUL WOOD[1] gave a series of lectures on this syndrome, which he called "Da Costa's syndrome" to honour DA COSTA, who recorded the incidence of this malady in the American Civil War and published his first account of it in 1871.

It is undoubtedly an important syndrome, for, if it is not properly dealt with, one tends to clutter up the fighting services with men who may break down and become incapacitated and finally have to be discharged. Recently BERNARD OPPENHEIMER,[2] an American who served in the last war and worked with Sir Thomas Lewis during this period, has reviewed the subject in the Bulletin of the New York Academy of Medicine.

The syndrome has borne various names at various times, but probably is better referred to as neuro-circulatory asthenia. Da Costa thought that this syndrome was followed by cardiac hypertrophy, and he not only followed up his patients, but he described post-mortem findings of a patient who died accidentally in which there was left ventricular hypertrophy. This view is not widely held at the present time, and it may be that some of Da Costa's patients had their symptoms grafted on to some preceding organic condition. His view was that these men were entirely unfit for ordinary field service in the army, although they might be quite capable of doing light duty.

There is also some reference to this condition in the British Blue Book of the Crimean War, and is mentioned by TYSON[3] as occurring during the South African War, where, it was said, the busby was the cause of this condition.

The aetiology is unknown, but disturbances in the hypothalamic region have been postulated as a possible cause, and it is suggested that pharmacological studies with adrenergic and cholinergic drugs might help to eludicate the problem. It seems more likely, and the view is widely held in this country, that the syndrome may have a psychological basis. If for instance, a man enlists because he feels that the war is a thing he should fight for himself and his family, then there is not likely to be any conflict, but if he goes to war against his own personal inclination then there is a basis for an anxiety state.

In a fairly extensive investigation conducted under Sir Thomas Lewis by Dr. Oppenheimer and Dr. Rothschild in the last war, a personal or family history of several characteristics selected was obtained in a large percentage of the group of effort syndrome. From the military point of view the practical deduction was that such patients frequently show neuro-psychic factors in their family and personal histories, and the value of their combatant service in the past was found to be negligible. It was found that many of the patients had always been short of breath, unable to play a strenuous game, or liable to fainting and becoming dizzy. The principal symptoms of the syndrome are, of course, dyspnoea, palpitation, pain in the chest,

[1] Wood, P., (1941), *B.M.J.*, **1**, 767.
[2] Oppenheimer, B. S., (1942), *Bulletin of the N.Y. Academy of Medicine*, **18**, 367.
[3] Tyson, W. J., (1906), *Clin. J.*, **28**, 205.

extreme fatigue, dizziness, nervousness and headache, and the symptoms were found in this order of frequency.

In addition, electro-cardiographic abnormalities were found, and paroxysmal tachycardia, premature beats and sinus arrhythmia were often met with. Exceptionally, there was prolongation of the P.R. interval and changes in the Q.R.S. complex, especially inversion of T.2 and T.3. Recently it has been shown that fear can temporarily produce such changes in the electrocardiogram.

In 601 men followed to the fifth year, 22 were finally diagnosed as pulmonary tuberculosis. It is of considerable interest that not one of these 600 patients developed Graves' disease within a five-year period. The question of hypertension is more difficult, and in the United States draft examiners are not instructed to take blood pressure. The reason for this, of course, is that the excitement of the examination elevates the blood pressure. Personal experience seemed to show that the systolic pressure was raised but not the diastolic.

PAUL WOOD, for instance, using the cold pressure test, came to the conclusion that 90 per cent of the cases he examined were not instances of incipient hypertension. OPPENHEIMER himself is uncertain what the position is in regard to this and is not at all sure that some of these cases will not eventually prove to be subject to essential hypertension in civil life. He quotes the latest figures as showing that there were 2,978 rejections for persistent high blood pressure in 115,569 people examined in New York City.

The question of prognosis is, of course, of great interest. It appears that during the last war the men were graded when they left the military hospital at Colchester, and the following figures are given:

Fit for general service	20 per cent
Fit for hardening or labour	30 per cent
Fit for light or sedentary work	30 per cent
Permanently unfit	20 per cent

It appears that this grading was generally found to be fairly correct, as tested by the subsequent military careers of the soldiers concerned, but the ultimate prognosis is dealt with by GRANT, who made a follow-up study of the 601 soldiers mentioned for five years. He came to the conclusion that the prognosis was modified by the age of the patients and their tolerance for exercise, for in the group between 17 and 20 years 25 per cent were finally classified as fit, whereas in the group between 41 and 50 years only 2·1 per cent.

Cases of neuro-circulatory asthenia were entirely disqualified by the Board unless they were very mild cases, in which case they were accepted for field service.

With regard to the question of preventive treatment, it is important to allow proper convalescent period after operation, and even in cases of complete recovery patients should be gradually hardened. Seeing that the condition is due, in part at least, to emotional disturbance, especially fear, an effort should be made to assist individuals to make the necessary readjustment.

Now with regard to curative treatment, it is admitted at once that there is no specific treatment. The patient should be reassured that he has no organic heart disease and graduated physical exercises are advocated. Occupational therapy is mentioned and said to be of value. The attempts at psycho-therapy were not successful at the military hospital, but CAPTAIN RIVERS thought that, although he could not get far with privates, he was more successful with officers. Removal of foci of infection was helpful and sedatives were used temporarily. Although there was no primary vitamin deficiency, all the vitamins were used at various times.

Some years ago CRILE tried adrenal denervation and gaglionectomy for this condition. He came to the conclusion that 93 per cent of the cases treated showed improvement or cure. These were very remarkable results. OPPENHEIMER very tritely remarks that the medical officer may be torn between his obligation to the soldier as an individual and his duty to the State.

The conclusion is that neuro-circulatory asthenia is a neurosis, and usually a war neurosis. Its detection is particularly important, because it is said that half of the beds in military hospitals are occupied by such cases. In this connection a personal experience in the E.M.S. in this war is not particularly valuable, as the cases are all sent to special centres, but, without any figures to support it, one would have thought that about 5 per cent of front-line soldiers

show the effort syndrome complex. It is now the rule in the E.M.S. that all cases with this diagnosis should be examined by a psychiatrist, and so far no report, as far as we know, has been published giving the results of these special examinations.

So far as our experience goes in this country, it should be stressed that it is quite useless making a man fit temporarily and returning him to service, only to find later that he is unable to fulfil his obligations and has to be discharged. Nevertheless, the problem is too big not to be tackled, and it does seem that one of the services rendered by the Ministry of Health and the Emergency Medical Service is the determination to deal with it and, so far as it is possible, to return such men as are capable to their duty.

ERRATUM

In "Practicalities: Number 1," page 117, line 10, in the July issue of the POST-GRADUATE MEDICAL JOURNAL an unfortunate typist's error was inadvertently passed for press. The passage should read:

"*Scopolamine* is the other drug used, in doses of 1/150th to 1/75th of a grain."

Post-Graduate News

Courses of instruction in medical and surgical subjects are arranged from time to time as the opportunity occurs, and may be attended by any medical practitioner, though a slightly higher fee is payable by those who are not Members of the Fellowship of Medicine. Detailed syllabuses of each course are prepared as soon as possible, and if post-graduates will notify the Fellowship of Medicine (1, Wimpole Street, London, W.1) of the subjects in which they are interested, their names will be entered on the appropriate mailing lists to receive copies, without charge, when published.

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ANAESTHETICS

OXFORD: Department of Anaesthetics, Radcliffe Infirmary

Professor R. R. MACINTOSH, D.M., F.R.C.S., D.A.; First Assistant: FREDA B. BANNISTER, M.A., M.D., D.A.

Tuition is available for any period from one week upwards. No special lectures or demonstrations will be arranged, but as much teaching will be given as the ordinary hospital routine

will permit. Only a limited number of post-graduates may attend at any one time. Fee, Members of the Fellowship of Medicine, £3 3s. od. for one week, and £2 2s. od. for each consecutive week after the first; to non-Members, £3 13s. 6d. for one week, and £2 2s. od. for each consecutive week after the first. Occasional Intensive Revision Courses each of two weeks' duration (fee, £10 10s. od.) will be given during the year, and while these Courses are in progress the above-mentioned tuition will be suspended. Applications must be made to the Fellowship of Medicine, *not* to the Radcliffe Infirmary, Oxford. No application sent direct to Oxford will be dealt with there, but will be forwarded to the Fellowship of Medicine.

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DR. WILLIAM MUSHIN, D.A.

Tuition given on Monday mornings, and all day Tuesdays, Wednesdays and Fridays. Limited to 2 post-graduates at a time. Fee, to Members of the Fellowship of Medicine, £1 11s. 6d. for one week, £3 3s. od. for two weeks, £5 5s. od. for four weeks. (To non-Members the fee is 10s. 6d. more in each case.) Application for vacancies, stating period required and date of beginning tuition, should be made to the Fellowship of Medicine and *not* to the Hospitals.

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The subscription rate to the POST-GRADUATE MEDICAL JOURNAL for practitioners resident overseas is 12s. per annum, post free, and this rate is also payable during the war by any practitioner serving with H.M. Forces, whether at home or abroad. Subscribers at this rate are not entitled to pay the lower fees, quoted to Members and Associates, for attendance at Courses of instruction.

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AUGUST, 1942.