by periods of debility and hypotension, it is equally common in patients with sustained high pressure. A considerable number of patients survive the initial attack, but recurrences are to be expected. Ultimately, the terminal rupture of a vessel in some one or other of the foci softened by the earlier thromboses takes place. Apart from absolute rest, which is the first essential in all cases of apoplexy, a mildly stimulating line of treatment should be adopted. This may include diffusible stimulants as brandy, whisky, or sal volatile; subcutaneous injections of strychnine (1/30 grain six-hourly) or of caffeine sodium salicylate (2 grains six-hourly); and liquid food (broth, milk, fruit juices, glucose, etc.) in small amounts at two-hourly intervals. Mild sedatives such as the bromides, chloral hydrate, or luminal may be prescribed to control restlessness, and an efficient action of the bowels should be maintained by enemata, purgation being contraindicated. If the clinical signs suggest a rising intracranial pressure it will be wise to perform lumbar puncture, the fluid being allowed to drain until a normal rate of flow is obtained. Under certain special circumstances—prolonged unconsciousness, cyanosis, congestion of the head and neck, stertorous breathing, and a persistently rising blood pressure—a moderate venesection (10 to 12 ounces) is indicated, with a view to relieving the embarrassed circulation.

Cardiac failure may be congestive or anginal in type. The former should be treated on orthodox lines (see article in the *Journal* of April 20th, p. 837) by rest and such therapy as the embarrassed circulation may require.

For the anginal type of high-tension failure iodide of potassium (perhaps combined with ammonium bromide) is in many cases an effective remedy for a time, and it should be prescribed in large and gradually increasing doses. The painful seizures will usually be governed to some extent by the use of vascular relaxants (the nitrates—amyl nitrite, sodium nitrite, nitroglycerin, and erythrol tetranitrate) and by diffusible stimulants such as sal volatile or brandy. But for the severe and prolonged attacks, which are as a rule indicative of coronary occlusion, the only effective remedy is morphine, which should be administered in relatively large doses. If, as frequently happens, the blood pressure tends to rise during the progress of anginal failure, a moderate venesection may be helpful, and this, in conjunction with morphine, atropine, and possibly strophanthin, may also prove to be a valuable remedy for the attacks of pulmonary oedema which at times complicate the final stages of the malady.

In a considerable number of cases the renal function is obviously impaired during the progress of the disease, and the possibility of a terminal uraemia should invariably be recognized. Its routine treatment should include a low-protein diet: purgation by compound jalap powder, the compound colocynth pill, or by large doses of magnesium sulphate; venesection, followed by intravenous injections of normal saline or 4 per cent. sodium bicarbonate, which should also be given by the mouth in doses of 1 drachm at two-hourly intervals; and by luminal, or a bromide and chloral draught, to control restlessness, nervous irritability, etc. For the severe headaches, drowsiness, paralyses, and coma, lumbar puncture should be performed, and chloroform inhalations may need to be prescribed if there is any tendency to convulsions.

The committee appointed to consider the position that will arise on the expiry, in August, 1936, of the key industry duties has commenced its sittings. Any representations which consumers of articles or substances chargeable with key industry duty may desire to make should be addressed to the secretary to the committee, Board of Trade, Great George Street, S.W.1, not later than May 23rd.

CRITERIA OF INTOLERABLE PAIN

BY

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It has been suggested that the following estimates of pain, culled from his personal experience by a medical man, may be of interest to neurologists. In adult life I have had the common painful experiences in plenty; dental pulpitis, dental extractions without anaesthetic, broken bones, and so forth: these are not intolerable pains. My reference in this note is to genuine severe pain in the legs due to sclerosis of the popliteal arteries, increasing in intensity during fifteen years. During the two years prior to amputation of the limbs above the knee I was able to classify the bouts of pain, which had become very acute, into three degrees, the after-effects of each being fairly accurately predictable. All three seemed to be intolerable in the sense that it appeared likely that continuance for more than twenty minutes or so must terminate in unconsciousness. The concomitant phenomena alone are of special interest to the observer.

In the first degree I found it possible to keep complete control of the voluntary muscles with the exception of the frontales muscles. These went into strong involuntary contraction, so that the orbiculares oculi had to be put into action to prevent undue exposure of the sclerotics—for example, at the dinner table. The attack was followed by excessive perspiration at the temples, but nothing further in the nature of collapse.

Degree No. 2, which I imagined at the time to be comparable to the experiences of the torture rack, was accompanied by a peculiar phenomenon, wholly unassociated with emotion, for the experience, coming about twice a day for several months, became habitual. In these attacks the voice went into an uncontrollable falsetto. Occasionally the attack was followed by copious secretion of tears but without either the emotional or muscular phenomena of weeping. Personally, being accustomed to these attacks, I was able to carry on with duties after a delay of half an hour, but the sense of collapse was pretty marked, and I would suggest that patients as a rule should be made to lie down for a full hour after attacks of this degree.

Degree No. 3 could not, I believe, be compatible with consciousness for many minutes. The associated phenomenon is complete aphonia. The patient is not in a position to make careful analysis, but the aphonia is certainly not due to spasm of the vocal muscles as in No. 2, for respiration is unimpaired. My impression is that the cords would be seen in the cadaveric position. After degree No. 3 cardiac collapse is pretty severe, and I suggest that the patient should be carried to bed and kept there for six or even twelve hours, and not be worried to take food until he asks for it. "Bed" presumably will consist of an armchair, for the horizontal posture at once increases pain. Personally I found strong hot tea the best restorative, and to be lulled to sleep by someone reading aloud.

I think it is worth while taking note of the three cardinal phenomena (frontalis contraction; falsetto voice; complete aphonia) which can easily be observed by a companion, for the doctor probably never sees his patient until long after the attack is over. I have no experience of the grievous pains of abdominal disease, renal, biliary colic, and so forth, and I am prepared to learn that the phenomena differ from those I have described.

Incidentally it may be of interest to say that after eighteen months of relief I find it quite impossible to recreate in memory the pains themselves, although the memory of the circumstances and of the associated phenomena is vivid enough. I believe I am correct in quoting Sir Henry Head as saying that the brain contains no mechanism for recording pain.

A friend reading the above note suggests that it may cause alarm and despondency in those afflicted with similar trouble. I would reply that if it causes them to

contemplate early operation, before years of pain and the toxic influence of starved limbs undermine their health and render amputation precarious, so much the better. The clinical picture before operation is that of a man gradually wearing out in strength and spirit, through pain day and night, punctuated with bursts of acute agony which are the source of misery and anxiety to relatives and friends; immediately after amputation the patient rejoices in the sense of the daily access of increasing strength and good spirits.

Within eight weeks or so he discovers a number of duties, both public and private, which he can perform with unimpaired efficiency, and his general health will proceed uphill continuously if he takes, say, four miles vigorous exercise daily in an arm-propelled chair—an exercise very nearly as satisfying as is rowing. He will even take a sporting interest of a modest kind in learning to walk on artificial legs. More important than all, he can feel that he is no longer an object for commiseration and a mere "passenger" in social life.

If any member of the profession with borderline cases on his hands cares to talk the problem over and to learn sundry little devices for making the legless man's life comfortable and happy, I shall be only too glad to see him.

HEALTH OF THE PEOPLE IN A DEPRESSED AREA

A GOVERNMENT INQUIRY

Last December, in a letter to the *Times*, Dr. G. F. Walker of Sunderland urged that national consideration be given to the deterioration of health in the depressed areas. He alleged a substantial and progressive deterioration between the Tyne and the Tees, and suggested that Sir George Newman's last two annual reports had been too optimistic in declaring that, notwithstanding economic conditions, there was little evidence of malnutrition in the areas most affected.

Within a week of the publication of the letter an inquiry, occupying seventeen days, was instituted from Whitehall. The investigators were: Dr. James Pearse, medical officer, Ministry of Health; Dr. J. Alison Glover, senior medical officer, Board of Education; and Mr. K. W. Grant, general inspector, Ministry of Health. Their report to the Minister of Health and the President of the Board of Education is published as a White Paper.¹

In Sunderland a high level of unemployment has obtained since 1930, and at the end of 1934 nearly half the men in the borough were out of work. In adjacent districts of Durham County the figures are rather better. The investigators interviewed Dr. Walker, various representative practitioners, the medical officers of health, school medical officers, and health visitors, and visited maternity and child welfare clinics, schools, junior instruction centres, and an employment exchange.

STATISTICAL EVIDENCE

Statistically there does not appear to be much support for Dr. Walker's contentions, though it may well be that such deterioration may elude any form of census. The total death rate in the area shows no increase during the decennium 1924-33; the infant mortality rate has declined; and, although the rates for the commoner infectious diseases show fluctuations, there is no definite indication of an upward tendency. Pulmonary tuberculosis in Sunderland is falling, though the rate of decline has slowed in recent years, and in Durham County, although the incidence remains higher than in the aggregate administrative counties of England, this state of affairs existed long before the depression began. Rickets was formerly prevalent, but an examination of 700 pre-school children revealed slight manifestations only in 4.5 per cent. Dr. Walker showed the investigators six cases

of what he called gross rickets, and four of them the investigators agreed were severe.

ASSESSMENT OF NUTRITIONAL STATE

An estimate of the nutrition of these 700 young children—about half from Durham County and half from Sunderland—showed subnormal nutrition in about 21 per cent. of both classes, and bad nutrition in 7 per cent. of those from the borough and 1.4 per cent. of those from the county. The investigators explained that by "subnormal" they meant a physical condition falling below a reasonable standard, but not severely depressed. In many cases the ill condition was due to concurrent diseases not uncommon in childhood, and not necessarily due to insufficient food. Among 1,300 Sunderland school children subnormal nutrition was found in 18.7 per cent., and definite malnutrition in 2.2 per cent., but again a proportion owed their inclusion in these categories to temporary conditions, such as recent infectious disease. In the county 935 school children were assessed, with results very similar to those in Sunderland itself. Among adolescents at juvenile instruction centres about 26 per cent. in the town and 22 per cent. in parts of the county were found undernourished. The figures were much the same for the women seen at the ante-natal centres in Sunderland, about 20 per cent. being classed as subnormal and 7 per cent. as poor. There was not the same opportunity for detailed examination of men, and here in the information afforded to the investigators emphasis was laid rather on the mental than on the physical effects of prolonged unemployment. Twenty-eight local practitioners were interviewed, of whom four spoke of a deterioration latterly in the general level of health. Some members of staffs of voluntary hospitals thought that deterioration was to be seen amongst out-patients, especially married women.

NO SUBSTANTIAL AND PROGRESSIVE DETERIORATION

The investigators deal categorically with the statements in Dr. Walker's letter. There has been a high attack rate for scarlet fever in Sunderland, but there is no evidence of an increased attack rate for diphtheria in town or county. Some prevalence of anaemia is noted, but no rapid increase of incidence. There may have been during the last two years some increase in chronic rheumatism and chorea, but while these conditions can be associated with poverty they can also be associated epidemiologically with a high prevalence of scarlet fever, to which Sunderland has been subject. An increase in neurotic maladies, especially amongst men, receives corroboration. Dr. Walker asserted that "thousands and thousands of poor people in this area labour under disabilities such as pyorrhoea, deafness, gastritis, sciatica, bronchitis, and sinusitis." The investigators have had no opportunity of analysing the frequency of these conditions, but they do record a general expression of opinion among those they interviewed as to the frequency of pyorrhoea, and a less general agreement with regard to gastritis. Dr. Walker asserted a startling increase in incidence of metabolic diseases. No evidence of an increase of diabetes in Sunderland has been elicited and the investigators think that Dr. Walker may have been statistically misled by his own special experience as a widely known consultant. As to pernicious anaemia no evidence of even an impression of increase was obtained from practitioners. One result of Dr. Walker's letter was that some local officials thought it a veiled attack upon their administration. Dr. Walker says that nothing could be further from the truth, and the investigators accept his assurances, and compliment both authorities of town and county on the efficiency of their health services. They conclude:

"From this detailed consideration of Dr. Walker's letter it is clear that we are unable to accept his major findings or to agree that there has been 'a substantial and progressive deterioration in public health' in this area. . . . We are not overwhelmed by an insistent mass of illness, but are impressed by the stress of long-continued social and economic difficulties and the fortitude of the people. We think that Dr. Walker has been misled by his professional contact with the sick into drawing conclusions which he applies generally to a wide population. . . ."

¹ Report of an Inquiry into the Effects of Existing Economic Circumstances on the Health of the Community in the County Borough of Sunderland and certain districts of County Durham. Cmd. 4886. H.M. Stationery Office. (9d. net.)