occlusion can occur there must almost always be coronary disease. Moreover, a remarkably complete functional recovery is possible after a coronary occlusion. One of my patients played vigorous games after a coronary occlusion at the age of 39. He had a second attack at the age of 48, and, against advice, was playing tennis regularly two years later, without any angina. Now at the age of 58 he is at work, plays golf, and mows his lawn without cardiac symptoms.

It is quite common for coronary disease to be entirely latent till sudden death occurs. Prof. Hume of Newcastle tells me that since 1911 he has performed or attended post-mortem examinations on 160 miners who had died suddenly and unexpectedly in the pit or in close proximity to it. The cause of death in each instance was coronary atheroma, and the majority of the men had been working regularly, without complaint, up to the moment of their fatal collapse. Only 40 had premonitory symptoms. In one case there was a clear history of an attack of coronary thrombosis two years previously, after which he had resumed his normal work in the mine and continued it till his sudden death. In approximately 50% of the 160 cases there were old fibrotic scars in the heart muscle.

The explanation of coronary disease without symptoms is presumably that a wonderfully efficient collateral circulation may be formed if arterial obstruction develops sufficiently slowly. As Lowe and Wartman point out, "complete obstruction may, gradually produced, effect no disturbance whatever in the blood supply to the tissue. On the other hand, should the parent vessel supplying the anastomotic circulation become suddenly blocked, the area deprived of blood supply will be much greater than that following blockage of a similar vessel in a normal circulation." Hence, presumably, the sudden fatal attacks in Hume's coal-miners with previously symptomless fibrotic hearts. In this way, too, we find an explanation for the fact that, on the whole, angina in those over 70 runs a more benign course than it does in those under 60.

Relation between Hypertension and Coronary Disease

Investigating this relationship, I classified my cases as having a normal blood pressure where the readings were below 160/100, moderate hypertension those above these figures but below 200/120, gross hypertension where these last figures were exceeded. Throughout the entire series, in 44.6% the pressure was normal, in 33.7% moderately increased, and in 21.7% grossly increased. Excluding those cases in which an existing or recent coronary occlusion was thought to be responsible for a low blood pressure, the figures were: normal tension 30.6%, moderate hypertension 42.3%, gross hypertension 27.1%. So that nearly 70% of my anginal patients without coincident or recent coronary occlusion were hypertensives. These findings surprised me, for I had not realized that the proportion of hypertensives was so high. In a recent paper Fisher and Zukerman say that in the literature hypertension antedating coronary occlusion has varied between 33 and 73%. Of their own 108 cases of coronary occlusion, hypertension antedated the occlusion in 65% of the women and 39% of the men. They point out that though negroes are more prone to hypertension than whites, they show a significantly lower incidence of coronary disease. Nevertheless, one cannot help suspecting that there may be some aetiological factor in common between hypertension and coronary disease. But, unhappily, in spite of all the intensive investigation of hypertension during the last decade, fruitful though it has been, we are still abysmally ignorant of its aetiology: in the words of Harvey, "All we know is infinitely less than all that still remains unknown."

The London County Council allows the staff of its public health and social welfare departments to have free medical treatment at its general hospitals, but not at its mental hospitals. The reason for this restriction is the long-term nature of institutional care associated with mental illness. It is considered, however, that this does not apply to many types of nervous disorder which are in particular dealt with at the Maudsley Hospital, and therefore free treatment is now to be provided there, subject to review in individual cases, as at the general hospitals, when recovery is not effected in twelve months.

DEFICIENCY NEUROPATHIES OBSERVED IN MADRID DURING THE CIVIL WAR (1936–9)*

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Among the 3,116 patients suffering from deficiency diseases studied at the Institute of Nutritional Hygiene in Madrid during the Spanish Civil War we selected 98 cases with serious nervous disorders, as we were greatly impressed with their not showing the slightest signs of any skin symptoms connected with pellagra.

"Painful-feet" Syndrome

The most frequent symptoms in these cases were typical acro-paraesthesias occurring mostly in the toes, but also appearing in many cases in the finger tips (patients complained of "pins and needles"; "as though I had ants under my nails"). Generally, together with these acro-paraesthesias there appeared some much more alarming phenomena—patients complaining of "terrible prickings" and "horrible stabbing pains" in the hands and feet or in other parts of the limbs (calves, thighs, and forearms). Sometimes after the appearance of these new symptoms or coincidentally there arose what, owing to their close resemblance to the causalgia described by Weir Mitchell, Morehouse, and Keen in wounds of the peripheral nerves, we have called *causalgic symptoms*. Some of the more intelligent or self-observing patients began to notice that their feet had become peculiarly sensitive to heat and unable to bear it. As soon as their feet were placed near a stove they began to notice "pains, and a very troublesome feeling of discomfort." They found that when night came, and especially when in bed, their feet, which during the day had mostly been "insensible and cold as ice," began to feel "very hot like fire." They got to feel as though their feet were on hot coals, and to experience an atrocious sensation of burning which obliged them to push their feet out of the bed and let the cool air of the room get to them, to walk barefoot on the floor, or to wrap their feet in cloths wrung out of cold water. At the height of their illness the patients presented a special sensitiveness of the skin of the affected parts, so that in addition they could not bear the slightest touch on them. But patients also complained of an acute sensation of cold in the extremities often alternating with these causalgic sensations ("my feet and legs are very cold," "my feet are like ice"). Often this sensation of cold became painful, and they spoke of "cold pains inside the feet." Some described the succession of these phenomena very graphically ("I feel as you do when you put your hands into the snow; first I feel very cold about the feet, and then they get warmer and warmer, until I can't bear the heat of them any more, and they burn me").

Other Symptoms

These signs of "painful feet" were predominant, but any or all of the following, discussed in greater detail by Peraita and Grande (1941), were observed in this series: adynamy, depression, lacrimation, insomnia, forgetfulness, reduced acuity of special senses, pernial erythema, hair and nail loss, girdle sensations, amenorrhoea, impotence, polyuria, changes in mucosae and in the motor functions of the gastro-intestinal tract, micturition, and sweat regulation. It was interesting to contrast the rarity of peripheral motor defects and cardiac and skin lesions with the frequency of both cutaneous and proprioceptive sensory changes. Little classical pellagra was observed but no true beriberi, and while neither purified vitamin B nor nicotinic acid was effectively curative of the nervous lesions success was obtained with 90 g. dry yeast daily by mouth.

REFERENCE

Peraita, M., and Grande, F. (1941). *Avitaminosis y Sistema Nervioso*, Servet, Madrid.

* Abridged for publication.