glycerine is rapid and decisive, and lasts but a short time—in this case not beyond an hour. This result may be explained by the lessening of the blood pressure within the artery consequent on dilatation of the peripheral vessels. This fact has been proved by perfusion through excised organs, and was ably illustrated by Professor Leech in the Croonian Lectures in 1893. Inasmuch as the radial artery is but a conduit between the heart and the peripheral vessels, the blood pressure within it necessarily falls as these dilate, and the calibre of it is thus correspondingly reduced. From the observations made it would, however, seem that the vasodilatory action extends to the splanchnic area, so that in the erect posture a large amount of blood gathers in the capacious veins within the abdomen, and largely contributes to the reduction of the systemic arteries. This position is supported by two facts: the enormous rise of the radial calibre when the subject assumes the recumbent posture, and the production of a similar rise in the sitting posture by the application of pressure to the abdomen.

The Effect of 1-100 gr. Nitro-glycerine on the Radial Diameter. Subject, a Woman, aged 27, suffering from Raynaud's Disease.

—	Sitting.	Recumbent.
Before the dose	7.0 mm.	0.8 mm.
Fifteen minutes after	1.0 "	1.3 "
Forty minutes after	0.5 "	1.8 "
Abdominal pressure	1.5 "	—
Fifty-five minutes after... ..	0.5 "	1.4 "
Sixty minutes after	1.0 "	0.8 "

In the Bradshaw Lecture, delivered before this College in November last, Dr. Bradbury ably supported the claim of the solid organic nitrates (erythrol tetranitrate and mannitol hexanitrate¹⁴) as vasodilators of more enduring action than those in present use, and therefore more likely to prove useful than they in the necessarily somewhat continued treatment of several morbid conditions associated with increased peripheral resistance. Dr. Bradbury showed as the result of perfusion experiments on excised organs and of sphygmographic observation, that the vasodilator action of these substances was, though less energetic and slower to manifest itself, very much more prolonged than that of the nitrites and nitro-glycerine.

The Effects of Erythrol Tetranitrate (1 gr.) on the Radial Diameter. Subject as in previous Table.

—	Sitting.	Recumbent.
Before the dose	1.2 mm.	0.7 mm.
Fifteen minutes after	1.7 "	1.2 "
Sixty minutes after	1.2 "	1.3 "
Two hundred and ten minutes after	0.7 "	1.2 "
Abdominal pressure	1.2 "	—

With the view of comparing the action of the solid organic nitrates on the arteries by the side of that of nitro-glycerine, some observations were made with erythrol tetranitrate on the same subject,¹⁵ which provided the data recorded above, and the results obtained, though obtained by totally different methods, entirely support Dr. Bradbury's conclusions. It has been shown that the vasodilator effect of nitro-glycerine is already pronounced within fifteen minutes, but it requires the lapse of thirty minutes before it becomes apparent after swallowing 1 grain of erythrol tetranitrate (see preceding table). Moreover, the vasodilator action of erythrol nitrate is only

established at the expiration of one hour, when, indeed, that of nitro-glycerine has completely passed away; and, furthermore, after the lapse of three hours and a half, it is still well maintained, with some probability of continuing some hours longer, though no later observation was made. The relative vasodilator activity of nitro-glycerine and erythrol tetranitrate is expressed in the degree of reversals of the postural measurements.

The reduction of the blood pressure, especially of the minimum pressure, produced by the vasodilator affords to the finger an illusory impression of enlargement of the artery.

Dr. Leech, in his second Croonian Lecture (1893), in referring to this point, says: "How are we to account for the markedly greater distinctness of the pulse which is so often noted after nitrites, and for the increased height of the up-stroke—the so-called percussion wave—of the tracing which is almost invariably seen after small doses of nitrites?" He refers this change in the pulse to two causes, namely: (1) dilatation of the arterioles, which induce a more complete collapse of the artery, and an increased difference between systole and diastole of it both to the finger and in the tracing; and (2) relaxation of the artery itself. "The difference between the calibre of the artery in systole and diastole being augmented it is felt to be more distinct and more full." This explanation accords with the results of my observations; only I am inclined to regard arteriolar dilatation as sufficient to account for all the facts of the case.

The vasodilators afford the most satisfactory experimental evidence of the manner in which the postural formula is reversed in various transitory, physiological, and persistent pathological conditions, all characterised by a reduction of vasomotor tone which impairs compensation for gravity.

A CASE OF LEONTIASIS OSSEA, MEGALO- CEPHALIE, OR HYPEROSTOSIS CRANII.

By W. HALE WHITE, M.D.,
Physician to Guy's Hospital.

FROM time to time several curious deformities of the head have been recorded under the names at the title of this communication. Virchow¹ used the term leontiasis ossea, but he does not describe a case like the one I am about to relate. In many of his patients the face or the orbits were affected, the development of bone was often local, and commonly mental symptoms or headache were present. Baumgarten,² in an essay I have not been able to see, is quoted as stating that very likely those in which the face is affected were examples of acromegaly. Starr³ describes a case under the title of megaloccephalie. In his patient the head, face, and neck slowly increased in size, the hard and soft tissues were equally affected, and the whole of the bony calvarium was uniformly hypertrophied. The patient, who was always stooping and walked slowly, suffered from great mental irritability, general nervousness, and numbness of the hands. Putnam⁴ has reported four cases under the title of hyperostosis cranii. His first, a woman, suffered for many years from seropurulent discharge from the ears, and from headache, loss of teeth, deafness, discoloration of skin, double facial paralysis, cataract, and feeble gait. For at least ten years immediately before death, which took place from chronic suppurative inflammation of the pericranium, the head grew broad and the eyes prominent. There was much thickening of the walls of the skull, obliteration of sutures, and narrowing of cavities. The second patient had two large exostoses in the neighbourhood of the vertex, and diffuse hyperostosis of the skull. He suffered from headache, convulsions, optic neuritis, and deafness. In the third case, that of a man, the surface of the head was uneven from small exostoses, and the thickening seemed to be universal. The principal symptoms were pain, nausea, vomiting, and impairment of hear-

¹⁴ See BRITISH MEDICAL JOURNAL, 1895, vol. ii, p. 1213.

¹⁵ I am indebted to Dr. Fletcher Little for the opportunity of making these observations on a case of Raynaud's disease under his care at the Temperance Hospital.

¹ Die Krankhaften Geschwülste, Bd. ii.

² Leontiasis Ossea. Paris, 1892.

³ American Journal of Medical Sciences, December, 1894, p. 676.

⁴ Journal of Nervous and Mental Disease, August, 1895, p. 500.

ing. The fourth patient, a woman, aged 35, had a very large head, but the face below the forehead was not affected, and the eyes were not prominent; the surface of the head was covered with bony prominences of different shapes. Horsley⁵ has recently given an account of five cases, in four of which the bony growth was sufficiently localised to render operation possible.

It seems clear that many different conditions have been described by the above authors, for sometimes the soft tissues are affected as well as the bones; sometimes caries is present, sometimes there are multiple exostoses, or even only a single exostosis. My case differs entirely from these and most resembles Horsley's first case. I hardly know what name to give it, but to facilitate reference I have put the names given by other authors. No doubt when more of these curious cases have been recorded, we shall be able to arrange them in their proper groups.

E. P., aged 32, a house carpenter, was sent to Guy's Hospital by Dr. Stephen Lloyd, and was admitted under my care on June 1st, 1895. His father died from a frost bite, his mother from heart disease; one brother died abroad from fever, and he has two sisters alive and well. There

ship's carpenter. He returned to Swansea seven years ago, and he has been living there ever since.

General Appearance.—Patient is a man of stunted growth, standing about 4 feet 10 inches high. There is a very prominent ridge of bone running round the head horizontally. It starts from a point an inch behind and on a level with the outer canthus of the eye, and running horizontally backwards, it crosses the occipital bone close to the superior curved line, and comes forward again to a point an inch behind the outer canthus of the other eye. It displaces the auricle downwards, and when the patient is looked at from the front it appears that the ridge is rather more prominent on the right than the left. It is very difficult to define the upper margin of the ridge, it blends with the general bony surface of the skull, and except in the position of the zygoma the lower edge is equally difficult to define, but here, on both sides, it appears as though the zygoma formed its lower edge and the temporal fascia was replaced by a continuation of the bony ridge. The most prominent part of the ridge is rounded, and the whole appearance is very well shown in the accompanying illustrations. The maximum circumference of the head is $24\frac{1}{2}$ inches, the dis-

is no history of rheumatism or nervous disease in his family. When 3 years old the patient fell from a window into the street, and the present deformity of the skull has, he says, slowly developed since then. Later on in childhood he fell down in the street and broke his left femur; about ten years ago he was thrown over by a wave and broke his other femur. There is no evidence of rheumatism, gonorrhoea, or syphilis. Three years ago he first noticed some slight stiffness about the right shoulder-joint; it did not trouble him, and he continued his work as a carpenter till six months ago. The stiffness became worse, and he began to suffer from pain in the joint, and at the same time the arm and forearm began to waste. He was born at Swansea, and has spent a good many years abroad as a

tance from as near the foramen magnum as possible to the highest point on the vertex is $5\frac{3}{8}$ inches. The transverse measurement from just above the attachment of one ear to the attachment of the other is $6\frac{1}{8}$ inches, the frontal width from one anterior extremity of the ridge to the other anterior extremity is $6\frac{3}{4}$ inches; the width of the base of the ridge is very difficult to estimate, but it is about 3 to $3\frac{1}{2}$ inches.

The bridge of the nose is slightly flattened, the face is tanned. The patient, although extremely and equally deaf in both ears to both bone and ordinary conduction, is very intelligent. The membranes cannot satisfactorily be seen. The pupils are equal, and act normally; the optic discs are healthy, and there is slight nystagmus. The thyroid appears normal; the bones of the face are unaffected. There is no need for any special description of the arm, as it appears to be affected with ordinary rheumatoid arthritis and

⁵ *Practitioner*, vol. i, new series.

associated muscular atrophy. The pain in the arm is much dependent on the weather, and this is the only thing of which the patient complains. He has no headache, no sickness, and no sensory symptoms of any sort. All the functions of his body are performed naturally. Some thickening can be felt about the middle of each femur; this, he says, has been there since he broke them. He has shown me a photograph of himself taken when five years old, and the deformity of the head is very evident.

CLINICAL LECTURES

ON THE

DIAGNOSIS OF CARCINOMA OF THE BREAST IN ITS EARLY STAGES.

[WITH CHROMO-LITHOGRAPHS.]

(Delivered at St. George's Hospital.)

By A. MARMADUKE SHEILD, M.B. CANTAB., F.R.C.S.,
Assistant Surgeon to St. George's Hospital; late Assistant Surgeon to
Charing Cross Hospital.

LECTURE II.

INFLAMMATORY AFFECTIONS.

CHRONIC interstitial inflammation of the breast—or "chronic mastitis," as it is called—closely simulates cancer, and the main difficulty that arises is the consideration that this very condition is stated to be an important precursor of cancerous change or associated with it. Very little really is accurately known about the causation of chronic mastitis or the true connection of it with cancer. Areas of chronic inflammation marked by increase of fibrous tissue, and clinically by hardness and the formation of lumps and knotted portions of tissue, are commonly a sequel of some inflammation about the breast associated with the lactation period or old abscess. The origin is then clear enough and pathologically explainable, and these portions of hard and altered gland tissue may remain for many years or for life, unaltered and harmless. Chronic thickening following blows and effusions of blood is also familiar to surgeons. But in practice you will sometimes find cases of this peculiar condition of induration of the breast coming on in women of 40 or 50, which to my mind are very mysterious. I have suspected that some of these cases, especially when associated with much pain of a neuralgic type in stout individuals, are gouty, and this point has not escaped the notice of Mr. R. Williams,¹ who speaks of the case of a stout gouty clergyman, aged about 50, both of whose breasts had been hypertrophied since youth, with painful nodular induration of the right breast, which he attributed to subacute gouty mastitis. I have clinical evidence that some are due to a syphilitic taint. In many cases I have been quite unable to attribute any cause for the affection, which I feel sure is one not clearly understood by the profession and concerning which much remains to be learned.

I would only now say that in many cases of chronic mastitis the signs of cancer are clearly simulated, and the more closely because the contraction of the fibrous tissue obstructs the ducts and naturally produces one or more small cysts, which, being very tightly distended, may exactly imitate a small hard nodule of cancer. The following diagnostic points have been very useful to me, and I can only hope they will be of equal utility to you:

1. The "tumour" of chronic mastitis is very apparent when the affected portion of the breast is taken between the fingers and thumb. But when the patient is supine on a couch and one examines with the flat of the fingers, you will note at once that no real tumour is present. I can say truthfully that if ever you certainly feel a definite nodule or tumour under the fingers placed flat on the part, this is something more than mere inflammation, and nine times out of ten in the cases we are discussing such a tumour will be a hard nodule of cancer or a thick-walled small cyst.

2. Chronic mastitis is seldom localised strictly, but areas

¹ Diseases of the Breast, p. 109.