of the gland, which such a circulatory failure implies, would alone suggest the probability of some central (cardiac) causation, either organic or functional, and this conjecture is strongly confirmed if, as is often the case, we find the venules of the face, the nose in particular, also affected. When this is so, the elderly patient also suffers, as a rule, from those interesting, though to the ordinary general practitioner somewhat intricate, symptoms suggesting an "irritable heart," only to be fully diagnosed by an expert in such matters, aided, it may be, by some wonderful electric devices with numerous dial faces and leather straps. The most relevant discovery in this regard is, I take it, the close histological relationship that has been noted between the structural elements constituting the so-called mesenteric plexus (Auerbach's tissue) and "the nodal tissue in which the heart beat arose and the bundle by which the impulse was distributed in the heart."⁶ Experience shows that Rieger was right in giving prominence (about two centuries ago) to the fact that old men often suffered from palpitation. Tachycardia, dropped beats, irregular action of the heart, are frequently secondary to the intestinal stasis of gerontal constipation. Another anomalous symptom, by no means unusual, is probably due to the direct influence of the rectal tumour. It consists in a feeling of distension in the upper rectum, just as though a scybalon had lodged there and might at any moment descend into the trousers.

TREATMENT.

After all, the true worth of a medical treatise is best gauged by the efficiency of the prescribed treatment in bringing about, if not the cure, at all events the relief of the disorder. It is here, then, that an author has an opportunity to display his mother wit to the best advantage. "But, as Yak the Metaphysician hath written:

The wits are a dog that 'tis easy to call
but to cudgel him proveth another affair:
for shouts and abuse
are no manner of use
and unless he agrees, it is safe to declair
that the cudgelling process won't happen at all."¹⁰

The present writer feels the difficulty in this regard, and therefore offers the following suggestions with due diffidence.

The treatment of gerontal constipation can be best considered under three heads: Medicinal, dietetic, and manipulative. So far as drugs in general are concerned, it is evident that their action can at best be only palliative. Within these limitations and as a preventive of a colic block doses of the aromatic syrup of cascara are very useful. The drug, as is well known, "acts principally on the large intestine and empties the rectum. It is suitable for delicate and elderly persons."¹¹ It would seem probable, from the action of this drug, that some constituent of cascara sagrada acts specially on the mesenteric neuro-muscular plexus in the colon and so stimulates the rhythmic movements. The medicine ought to be given in a full dose directly any falling off in quantity or quality of the daily evacuation is observable. The treatment of the senile heart is, in my experience, best effected by small doses of the tincture of strophanthus in a little water, to which a few grains of sodium bicarbonate have been added. This mixture may be taken three times daily, about half an hour after a meal. It was recommended some years ago by a correspondent of this JOURNAL as a useful palliative of this condition.

As regards diet, I have already drawn attention to the value of fruit; here I need merely add that the ordinary rules regarding the modified requirements of the aged man for meats and the satisfactory mastication of food should be in all cases carefully observed. Dental hygiene is also very important, knowing as we now do, thanks largely to the American dentists, how the flora and fauna of pyorrhoea flourish in the uncleanly mouth. The less stimulant the old man absorbs the better his ultimate chance of longevity.

We now come to what is in many respects the most important part of this paper—that is to say, the part where the "cudgelling process" of the writer's brains is mostly required. When by daily increasing strain the old man begins to perceive that a visit to his doctor is imperative, much mischief may already have been inflicted upon the mucosa and blood vessels about the anus. In the treat-

ment of gerontal constipation cleanliness is undoubtedly the most important manipulative procedure. Congested piles, rents in anal mucosa, commencing prolapse, all rapidly yield as a rule to a régime of cleanliness. But in order that the hygienic procedure may produce the maximum effect, it must be started early. When there is much straining at stool, the gerontal right index-finger, well guarded, it may be, with two or three thicknesses of tissue paper, should be pressed upon the perineum just behind the symphysis, and so relieve the abnormal pressure of an enlarged prostate upon the rectum.

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- ⁴ Vaughan Harley, quoted by W. L. Ruxton, *Diseases of Intestines*, p. 522 (*Ibid.*).
- ⁵ Thomson and Miles, *Manual of Surgery*, p. 626.
- ⁶ A. Keith, Cavendish Lecture, see *BRITISH MEDICAL JOURNAL*, 1915, ii, p. 14.
- ⁷ See Agamemnon's honeyed speech to Idomeneus, II, 4, 259.
- ⁸ R. J. Porcock, *Vermes, The Concise Knowledge Natural History*, p. 674.
- ⁹ *Hippocratis* COI Aphorismi digessit et indices necessarios addidit Jo. Chr. Rieger, Riesenburgo-Prussus*, 1778, vol. i, p. 438.
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SARCOMA OF FRONTAL LOBE GIVING RISE TO OCULAR SIGNS ONLY.

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THE case here reported must belong to a rare group of cases, and the record is therefore of interest.

The patient was a bricklayer, aged 34, who was admitted under my care at the General Hospital, Birmingham, on October 27th, 1915, having been under observation as an out-patient for two weeks previously. He had suffered from rheumatic fever at the age of 19, and had had an attack of gonorrhoea at the age of 25. Otherwise his health had been good down to within a few months. There was nothing in his family history of any note.

History.

About four months ago he noticed that almost every night he was kept awake by a pain in his right eye, giving rise to the sensation "that his eye was being pulled out." During the day very little was noticed, but towards evening he experienced shooting pains. About a month later he noticed the right eye becoming prominent. He then sought advice at a local hospital. Since then his condition had grown worse, until he was unable to open the right eye properly. He described his head as being "muddled at times." He stated that he had never seen double.

Physical Signs.

There was a moderate degree of right exophthalmos, and the eye was also displaced downwards and a little outwards. There was considerable though not complete ptosis, the frontalis muscle being used when an attempt was made to open the eye. The roof of the orbit appeared to be filled in, and lower than normal. It was firm to touch and not painful.

Corneal sensation was good, and the pupil reactions normal in all respects. Sensation was not quite normal over the area supplied by the supraorbital nerve.

The right fundus showed marked optic neuritis with a fair degree of swelling; there were some retinal haemorrhages in the region of the disc, and the retinal veins were engorged. The left fundus showed early optic neuritis; the upper and lower edges of the disc were blurred and a little swollen, and there was a retinal haemorrhage near the upper part of the disc. The optic neuritis was of the increased pressure type.

* Hippocrates flourished in Greece in the fifth century before Christ. Among other discoveries, he announced to the world that the bald were not usually afflicted with varicose veins (*Aph.* vi, 34). He also presented the Royal College of Physicians of London with a motto, which many read and few understand. Indeed, the most plausible translation was one made by a disappointed Fellow. It was as follows: "The patient's life was short; but then the surgical technique was great!"

My colleague, Mr. Woodman, made a thorough examination of the nose and accessory sinuses. Transillumination showed nothing pathological, and there was no evidence of any intranasal disease. The pharyngeal ends of the Eustachian tubes were enlarged and oedematous. A radiograph showed nothing definite, but the orbital roof on the right side was not as well defined as on the left.

There was a faint haze of albumin in the urine. The Wassermann test was negative. The pulse-rate was normal, but fell once after admission to 64. The temperature on admission was 99.4°, and afterwards fluctuated between 97° and normal. He was admitted with the diagnosis of orbital growth, probably sarcoma growing from the region of the sphenoid.

There was never any sickness nor complaint of any headache. He died on November 5th with typical respiratory failure. For about forty-eight hours before death he was rather peculiar mentally, and got up during the night and wandered about the ward. He never displayed any general symptoms to suggest intracranial trouble.

Post-mortem Examination.

I was present at the *post-mortem* examination, which was made by the pathologist, Dr. L. Walker. No abnormality was found apart from the central nervous system and orbit. The meningeal coverings over the orbital surface of the right frontal lobe of the brain were almost a quarter of an inch thick. The membranes were vascular and adherent both to the brain and roof of the orbit. The bone here, as well as in the neighbourhood of the nasal sinuses, was eroded, soft, and friable, being largely replaced by fibrous-looking tissue. The orbital roof was considerably displaced downwards. Tissue of fibrous character was present in the orbital cavity, involving the contents. There was nothing present definitely resembling sarcoma. The nasal cavities were quite healthy. Tissues from the orbit were removed for microscopical examination, and the brain removed and hardened in formalin. The orbital surface of the frontal lobe was very firm, and a piece was removed for microscopical examination. When the hardened brain was examined, the right frontal lobe was found to contain a tumour about the size of a Tangeine orange; the swelling projected mesially and caused a considerable depression in the left frontal lobe. The edge of the growth was ill-defined, and there was no capsule. Microscopically, it was a typical round-celled sarcoma, and the tissues removed from the right orbit showed a sarcomatous infiltration of the same nature. In my opinion the growth started in the brain and extended to the orbit.

In the *American Journal of Obstetrics* for October, Foskett reports the case of a single woman, aged 22, employed in an hotel, who was advised to take a bichloride douche. She dissolved three tablets of 7.3 grains each in a cup of water, and used a whirling spray syringe for the douche. At once a severe local burning sensation was experienced, and the patient went to a physician, who promptly ordered albumin water to be taken by the mouth; douches and ointments were prescribed for the external parts. Three days later Foskett was called in, and found the vagina and vulva covered with a white slough; the mucous membrane of the mouth, uvula, and pharynx was likewise white and sloughy, and there was salivation. For the first few days there was almost complete suppression of urine; what was passed contained albumin, and granular and hyaline casts, but no mercury could be detected, nor could any trace of that metal be found in blood taken from a vein. Hot packs were applied every six hours, and high colon irrigations were employed four times daily; saline aperients given by the mouth caused free catharsis. The patient, in spite of all care, became worse; bleeding from the mouth and epistaxis occurred on the fifth and sixth days, and separation of sloughs and haemorrhage from the vagina on the seventh, with dysphagia and hiccup. Blood clots were vomited on the ninth day and the throat was sore, and the fauces oedematous from separation of sloughs. The mental condition was bad, the patient being irrational and restless. The urine was excreted in normal quantities but could not be retained. There was more haemorrhage from the mouth and vagina, and on the eleventh day melaena was observed, and recent clots were also passed from the bowel. Haematemesis followed, and the patient died early on the twelfth day. In many other recorded instances of poisoning when bichloride had been used for douches in the puerperium and in operations on the pelvic organs, salivation was absent but profuse diarrhoea occurred.

Notes on Military Orthopaedics.

II. ON SUTURE OF NERVES, AND ALTERNATIVE METHODS OF TREATMENT BY TRANSPLANTATION OF TENDON.

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(Continued from p. 643.)

In the first part of this paper I considered some general principles which should guide the surgeon in the treatment of limbs disabled by injuries involving nerves. I pointed out the importance of giving the muscles ample time and opportunity to recover by keeping them in a relaxed position for a sufficiently long period, and I began the discussion of tendon transplantation as an alternative method of treatment where nerve suture was not possible. I now propose to consider the transplantation operations my experience leads me to recommend in various injuries.

UPPER LIMB.

Irreparable Injury of Musculo-spiral Nerve.

1. In cases of musculo-spiral injury the deformity is a dropped wrist, with loss of the power of extending the fingers. The uncontrolled action of the flexor group causes the fingers to curl into the palm, and the hand to become useless.

In such a case:

- (a) The flexor carpi radialis and the flexor carpi ulnaris can be transplanted into the paralysed extensor of thumb and fingers; and
- (b) in addition the pronator radii teres may be affixed to the two radial extensors.

Transplantation of Pronator Radii Teres and the Radial and Ulnar Flexors in Musculo-spiral Paralysis.

I would recommend for this condition of musculo-spiral paralysis the double operation (a) and (b), and I will briefly indicate the method of its performance.

With the forearm midway between pronation and supination an incision is made along the radial border of the forearm in its middle third. Under cover of the tendon of the supinator longus the pronator radii teres will be found where it becomes inserted into the outer border of the radius. From this it is detached, and is then inserted into the tendons of the extensor carpi radialis longus and brevis, which lie closely applied to it on the dorsal surface.

A horseshoe incision, with the convexity resting on the back of the carpus, with the two straight sides extending along the radial and ulnar borders, is now made. Through the lateral aspects of this incision the tendons of the carpi ulnaris and radialis are identified, and are detached from their insertion as near the carpus as possible.

The tendons are brought round the ulna and radius respectively in very slanting fashion, and are then attached to the extensors of the fingers and thumb, the carpi ulnaris being attached to the tendons of the three inner fingers and the flexor carpi radialis to those of the thumb and index finger. The method of fixation should be neat and workmanlike.

Injury to Median and Ulnar Nerves.

In the case of great damage to the median and ulnar nerves, operations on tendons alternative to those on the nerves will be very rarely required as compared with those on the external popliteal and the musculo-spiral, for the reason that by means of flexion of the elbow a gap of two or three inches in the median may be closed up; by flexing the elbow and displacing the ulnar to the front a similar space in this nerve can be obliterated. End-to-end suture, therefore, is much more easily secured in these two nerves than in the case of the musculo spiral and external popliteal.

In cases of complete and irreparable paralysis of the muscles supplied by the median nerve the only active muscles on the flexor aspect of the forearm are the flexor carpi ulnaris and the inner half of the flexor profundus digitorum.