traction of the palmar fascia is very peculiar in this latter respect. There seems to be in most cases, if not in all, a constitutional cause for Dupuytren's contraction; and gout or rheumatism, or a similar condition, is supposed to give rise to the contraction and thickening. This subject has been so often discussed, that the readers of this JOURNAL must be thoroughly familiar with the various reasons for and against the theory of a gouty or rheumatic origin. There seems to be no doubt as to the constitutional character of the affection in many cases, and especially in those in which, in addition to the Dupuytren's contraction, there also exists contraction and induration of the plantar fascia. But other cases seem to differ from these, and to depend upon local causes.

In the feet, one often meets with tense bands of fascia, the arch of the foot being more or less high than natural. This condition of the plantar fascia seems to me peculiar, and to demand for its explanation an inquiry into the anatomy and functions of this structure, and its relationship with the formation and maintenance of the arch of the foot.

It has been stated by an able anatomist that the arch of the foot is maintained not only by the many ligaments which connect the bones individually to one another, but also, and materially, by the plantar fascia. The ligaments probably act in this way in so far as they limit extreme tension, although extreme tension of the sole of the foot is not often required; but I doubt whether the plantar fascia has much influence in maintaining alterations which take place in the arch of the foot. Alterations which take place in the arch of the foot in the various movements indicate the elasticity and contractile power of muscles rather than of ligaments.

Mr. Hancock (*On the Operative Surgery of the Foot and Ankle-joint*, 1883) remarks that, when the weight of the body leans upon the plantar arch, the ligaments can have "no influence over the preservation of the arch." He also offers very good reasons why we should discard the theory that the plantar fascia possesses in itself sufficient contractile power and elasticity to allow it to yield sufficiently "to deaden or counteract shock, and subsequently to resume the requisite amount of solidity and rigidity to enable it to maintain the integrity of the arch." The influence of this fascia is passive; it "does not pass straight across from point to point," but forms a curve. I may further refer to the fact that the inner part of this fascia, where the arch is highest, is decidedly thinner than the outer part, where there is no arch; whereas we should expect the opposite to be the case if the office of the fascia were to maintain the form of the arch. There can be little if any doubt, that the muscles of the sole of the foot, and especially the three superficial muscles, the flexor brevis, the abductor pollicis, and the abductor minimi digiti, assisted by the tibial muscles, are the active agents in modifying and preserving the arch of the foot; and I am inclined to think that in some, at least, of the cases in which we find tense bands of plantar fascia, this condition is the result rather of abnormal contractions of the muscular fibres, which are attached to this fascia, than of contractions of the fascia itself.

The following case is, I think, in favour of such a view, because, if the contraction had existed in the fascia itself, the treatment which I prescribed would hardly have cured the case so soon—even if it could have succeeded at all.

CASE IV.—Miss W., aged 17, sent to me by Mr. W. J. Butler, of Holland Road, Kensington, in October 1881, complained of difficulty and pain in walking, which she attributed to a sprain which had occurred three years before, because the symptoms had developed from that time. The pain and weakness were felt, especially under the metatarsal bone of the great toe, passing up the posterior region of the leg, along the course of the tibialis posterior muscle. The fore-part of the foot could not be flexed beyond a right angle with the leg, and this condition seemed to depend upon contraction in the arch of the foot. The plantar fascia was tense, and the toes were contracted slightly in a flexed position. The boots worn were very short, and did not allow full expansion of the foot. I ordered properly made boots, and prescribed emollient liniments, and in a few weeks the contractions, the pain and the difficulty of walking had entirely disappeared. I had thought that operative measures would have been necessary in this case, but I decided to try first the effect of more simple treatment.

In the majority of cases, however, no treatment except simultaneous section of the tense bands of fascia and subsequent stretching will do any good. The result of such treatment is very satisfactory; the operation is simple, and generally almost bloodless.

[To be continued.]

PROGRESSIVE PERNICIOUS ANÆMIA: A CASE, WITH REMARKS.*

By ARTHUR RANSOME, M.D., and P. H. MILES, M.D., Manchester.

WE have brought before you this evening a record of a typical example of progressive pernicious anæmia, in which the treatment by transfusion, though not original, was followed by certain physiological and pathological conditions which, we think, will prove of interest to the Society.

The drawings of the retina, taken at the bedside, are faithful representations of that form of retinal apoplexy usually associated with this disease.

M. M., aged 39, a shoemaker, and teetotaler for nineteen years, enjoyed excellent health until two years before his death; he then began to feel weak and ill, and became unfit for his duties as a volunteer. A trip to the seaside temporarily restored him; but, ten months before his death, his old symptoms of debility returned, associated with others of a distressing nature, to which he eventually succumbed.

His condition when we first saw him, ten days before his death, was as follows. He had then been confined to bed for eighteen days. His aspect was that of a man bloodless to a degree rarely seen, the prevailing tint being a pale lemon colour. There were no spots on the skin suggestive of purpura, nor were the gums spongy. The inner surface of the eyelids was white, whilst the ocular conjunctiva was pale saffron.

He complained of radiating angina-like pains over the chest, their starting-point being always referred to the stomach. The appetite was bad, but he took milk freely. His mind was clear, and speech good. He read No. 4 Jüger with both eyes. His hearing was slow and progressively defective. Systolic basic murmurs were heard, always well marked, but varying in intensity. The pulse was rapid, irritable, and weak. The body-temperature was not ascertained, but was probably subfebrile. The urine was of specific gravity 1012 to 1018, faintly albuminous; it contained no casts. The spleen and remaining viscera were apparently healthy. The blood was very watery-looking. Tested with Dr. Gowers' hæmocytometer, it showed, on the average, only eight corpuscles per micrometer square, instead of fifty (in other words, 750,000, instead of 5,000,000, per cubic millimetre. The red corpuscles varied greatly in size, from about one-third the normal to somewhat larger than usual. Many of them were singularly distorted, pear-shaped, and crenated. Some of the smaller-sized corpuscles were noticed to be spherical in form; and it is possible they may have been the microcytes, supposed, though erroneously, by Quincke and Eichhorst, to be pathognomonic of idiopathic anæmia. The colourless corpuscles were not appreciably in excess. The hæmoglobin, estimated by Dr. Gowers' hæmoglobinometer, showed only 16 per cent. of colour. Ophthalmoscopically, the retina showed numerous flame-shaped hæmorrhages radiating from the disc. There were also a few white spots, probably leucocytic masses, at its outer margin. Both discs were hazy, moderate swelling being apparent in them. The vision in both eyes was the same, and it appears marvellous how little effect this formidable affection had upon the sight. In the retinae was noticed not only great tortuosity, but a flattening of the veins, due to atony rather than to passive distension. The retinae remained in this condition, with but slight modification, until death.

Treatment.—The treatment hitherto had been iron and nutritious diet; but the patient's condition having steadily become worse, and, the examination of the blood giving us accurate data, transfusion was thought to be justifiable. Dr. Walter kindly placed his services at our disposal, and, five days before the patient's death, injected three and a half ounces of defibrinated human blood into the median basilic vein. The immediate effect of this transfusion was alarming collapse, with tumultuous action of the heart, and occasional sinking of the pulse until it was imperceptible. This condition was combated by free stimulation and dry heat. The mental faculties were much obscured; by the evening (nine hours after transfusion) the pulse was full, bounding, and perfectly steady, like that of a man in health, but his mental powers seemed more obscured. Twenty-four hours after the transfusion, a hæmorrhage of two or three ounces escaped from the bowel. His mind at once cleared; he asked for food, and expressed himself as being more comfortable than he had been for weeks.

* Read before the Manchester Medical Society.

A very careful examination of the heart now failed to detect the slightest trace of an anæmic murmur. This favourable condition continued until the fourth day, when he had a hæmorrhage from the kidney (the second one). His corpuscles were again estimated, and found to be increased from 16 per cent. to 44 per cent. He died the same night.

Necropsy, twelve hours after death.—We are indebted to Dr. Young for his kindness in making a careful and exhaustive *post mortem* examination. His report was as follows. The body was well-developed, but considerably emaciated; everywhere the integument was jaundiced; the conjunctivæ were also faintly bile-stained. An anæmic appearance was universal. Internal examination showed generally an anæmic condition of the organs, most of which presented a paler but yellower colour than normal, whilst they were also of softer consistency. The muscles were pale and flabby; this was most marked in the walls of the heart, which, beyond dilatation of its cavities, appeared in other respects fairly normal. Its various cavities (but especially the right) contained dark fluid blood, which showed no tendency to coagulation, whilst it possessed a faint acid reaction. Each lung showed slight hypostatic congestion, and was somewhat oedematous, the fluid being yellowish in colour. The smaller bronchial tubes were surrounded by a slightly increased amount of peribronchitic tissue. The pericardiac and pleural sacs contained a little clear yellowish fluid, but otherwise were normal. The mucous membrane of the small intestines was thickened and granular. The liver was enlarged and fatty; the kidneys slightly granular. All the other organs were healthy. Sections of the sternum and ribs showed the cancellous tissue filled with deep red coloured marrow, which in appearance closely resembled splenic pulp. Microscopic examination showed the characters of embryonic medulla, nucleated red blood-corpuscles, large granular cells, leucocytes of various forms, and giant-cells. Microscopic examination of the different organs revealed only the fatty degenerative changes indicated by the naked-eye appearances. In the case of the kidneys, there was also some increase of interstitial connective tissue.

REMARKS.—We should like to call your attention to the following points in this case, which we think are specially deserving of notice. First, the extreme retinal extravasation was suggestive of advanced pernicious anæmia. Faint hæmorrhages do occur, but very rarely, in chronic anæmia. Of fifty cases examined by Dr. Saundby and Mr. Eales of Birmingham, only one showed a small hæmorrhage; five showed some neuro-retinitis changes; the remainder were free from any retinal lesions. Dr. Gowers, who has examined cases of chronic anæmia with the same object, observes that the pallor of the fundus may be very marked in chlorosis; but, where the corpuscular richness has been reduced even so low as 26 per cent., hæmorrhages are extremely rare. This observation is of special interest when contrasted with the cases of pernicious anæmia mentioned later, where, with less destruction of corpuscles, hæmorrhages did appear.

With tolerable certainty, retinal hæmorrhages occur in purpura hæmorrhagica, at least when very advanced. In leukaemia, the tendency to hæmorrhage of the retina is extremely strong; but the effusions of blood are in this disease equatorial, and associated with small leukæmic tumours, which appear as spots in the choroid.

The tendency to hæmorrhage may, indeed, be considered as even stronger in leukaemia than in pernicious anæmia. Dr. Gowers reports cases where they have occurred with the blood containing 50 per cent. of red corpuscles. But, in the advanced stages of pernicious anæmia, such hæmorrhages as are shown in the drawing probably always occur. At least, they have always been found when sought for. The observations of Horner and Quincke on forty-six cases of the kind may well assure us that these hæmorrhages are constant in their appearance.

In a paper by Dr. Stephen Mackenzie (vol. i, *Ophth. Trans.*) will also be found a record of two cases, which show clearly that, at that period of this disease, hæmorrhages occur. The following is a brief abstract. His first patient, a youth, aged 18, had been under daily observation for three weeks before the hæmorrhages appeared, his corpuscular richness on admission being 51 per cent.; and the interest centres in the fact that it was not until the percentage dropped to 32 that the hæmorrhages appeared. They increased with each decrease of the percentage till, at 13 per cent., the patient died. Daily charts of the hæmorrhagic infiltration accompany his paper.

In the same paper is another equally suggestive case, in a man aged 59. The corpuscular richness was estimated two days after the first hæmorrhage; it was then 27 per cent. The two days

would probably have made the difference between it and the previous case, so that, taking these two of widely differing ages as fairly representative, we may assume that retinal hæmorrhages commence when the corpuscles have dropped to 32 per cent., or thereabouts.

The next point to be noted is, the inability of the patient to tolerate healthy blood. This was shown by his alarming condition after the transfusion, and the apparent relief given by the hæmorrhage from the bowel. But we may fairly place against these circumstances the complete removal of the anæmic murmurs, and the increase of corpuscular richness of the blood after the operation.

It may be a question whether the case was not too far advanced to admit of cure by any method of treatment. Quinquaud remarks that those cases are invariably fatal in which the amount of hæmoglobin is diminished below one-fifth the normal; and in this case it was only one-sixth.

According to Dr. Coupland (Gulstonian Lectures on Anæmia, 1881), the operation of transfusion was performed in twenty out of the 110 cases to which he refers. And the six recoveries, one of which was not permanent, all occurred in Quincke's practice. Dr. Coupland thinks that "his success in these cases, may be attributed to his having resorted to transfusion at a less advanced stage of the disease than is usually the case." His first cases were invariably fatal, and in his commentary upon these, he pointed out "The inutility of deferring transfusion until the heart is already advanced in degeneration, and restoration is well-nigh hopeless."

We are quite unable to explain the remarkable increase of the corpuscles from 16 to 44 per cent. after transfusion. We, therefore, have recorded the fact without attempting to explain it. Something of the same kind has also been noted before. Thus, Dr. Broadbent (in Tanner's *Practice of Medicine*, seventh edition, p. 18) mentions a case of anæmia in which transfusion was employed four times in a fortnight, eight ounces of healthy blood being injected each time. "At first the man seemed to rally, but at a later period he was observed to exhibit symptoms of pulmonary and cerebral congestion. He died a few hours after the fourth operation. No morbid alterations of any importance were found on making the *post mortem* examination, only the organs were pale, flabby, anæmic. It was remarked that the blood, which at first was quite watery and poor, had grown much thicker under the process of transfusion." The writer remarks: "The question naturally arises whether the injection of healthy blood can sufficiently excite the blood-forming organs to such a normal action, as to keep up the supply of nutritive material."

The case is also interesting in one or two of its negative aspects. Thus its origin could not be attributed to poor diet, to malaria, to hardship, to hæmorrhage, or to nervous shock. There was no marked diminution in the size of the aorta, such as sometimes occurs in chlorosis; nor any notable sign of an increase of iron in the liver or other organs, unless the general yellow colour of these viscera could be ascribed to this cause.

With regard to the question of the distinction of so-called pernicious anæmia from chlorosis on the one hand, and from ordinary chronic anæmia on the other, we are unable to offer any decisive opinion. The only points of distinction from these complaints in the case before us seem to have been its progressive character, and the occurrence and nature of the retinal hæmorrhages. We, therefore, simply record the case, in the hope that at some future time it may assist in determining the question.

PALATABLE DRUGS FOR CHILDREN.

By FREDERICK CHURCHILL, M.D., F.R.C.S.,
Surgeon to, and Member of the Drug Committee, Victoria Hospital for Children.

WE owe it, probably, much to the persistency with which practitioners of the sterner sort have impressed their rhubarb and black draughts upon rebellious children, in defiance of the protestations of nurses and mothers, that "the tasteless globule" has found such favour with the weaker sex. I could tell of several cases where the children have been entrusted to the care of a homoeopath, while the parents luxuriate under the usual heroic treatment of the orthodox practitioner. We must not forget to swim with the tide. Children of this enlightened age are far more pampered and spoilt than those of the previous generation. Mothers seem unable to control their feelings; or, it may be, that, with a smattering of physio-lore, they find that there is no longer any necessity to cling to the once inevitable and nauseous potion. We must say a word, too, for the children. None of us like compulsion. It must not be forgotten that there is