In the first case, it is a plastic rheumatic arthritis, in the second a dry arthritis. I admit that a rigorous diagnosis, so long as the anchylosis is not established, is a little difficult, as is also the case in the large articulations, but I repeat that that has not a great importance practically. Always try to cure your patient. If after a year or two of treatment you have not succeeded and anchylosis has formed, your diagnosis is made. If anchylosis has not formed, and your patient is old (it is almost always old persons who have rheumatic arthritis), be sure that you have to deal with incurable dry arthritis, with more or less deformity, produced either by bony deposits or by muscular retractions, deformity of which M. Charcot's book offers you very fine plates.

As to Heberden's nodosities, I think they have honoured this physician too much in giving his name to a disease which he has the merit of having distinguished from gout, but which he described without sufficiently knowing the French works of Cruveilhier, Deville, and Broca on dry arthritis. For the little lumps which he found in the dorsal face of the second phalanx, near its articulation with the third, are nothing else than the osteophytes of dry arthritis; they coincide, as M. Charcot has well seen, with some of the other lesions of this disease, especially with eburnation and other osteophytes. It is then simply a dry arthritis in a small articulation

The small articulations of the lower limbs are also affected with the chronic forms of this rheumatic arthritis of old people. You will also sometimes find there acute gouty arthritis, especially at the metatarso-phalangeal articulation of the great toe, and gouty chronic arthritis. I share fully the opinion of Garrod, and that which Charcot has so well formulated, upon the essential difference which exists between gouty arthritis and rheumatic arthritis. I admit very willingly with them that the initial lesion of gouty arthritis is the invasion of the diarthrodial cartilages and the other constituent parts of the articulation by uric acid and the urate of soda. But this initial lesion once established, the anatomical characters of ordinary arthritis are added, simple synovial congestion, with or without effusion, in the acute and subacute varieties; thickening and false membranes in the slower varieties, tendency to complete anchylosis when the patient is old, prolongation under the form of congestive and still curable chronic plastic arthritis, and finally the dry form, with coincidence of the tophic deposits peculiar to gout and the special lesions of dry arthritis. In a word, notwithstanding their special etiology and their peculiar anatomical beginning, gouty articular affections are arthrites, the lesions and ultimate course of which are analogous to those of other articular inflammations, and especially to those caused by rheumatism. That is the reason why they were authorized to consider gout and rheumatism as the same disease, at the time when they did not know the real cause and mode of formation of the gouty arthritis.

PART VI.

PHLEGMONS, ABSCESS, FISTULA.

LECTURE XL.

ABSCESSES OF THE HAND CONSECUTIVE TO SYNOVITIS OF THE FLEXOR TENDONS.

I. Autopsy of a subject whose death was caused by a contused wound of the little finger followed by inflammation of the synovial bursa of the flexors—Putrid infection—Presence of pus in the synovial sheath of the flexor tendons of the little finger—Spread of the inflammation behind the bundle of tendons in the palm of the hand—Its extension to the synovial sheath of the thumb—Integrity of the synovial sheaths of the other fingers. II. Tendinous synovitis of the flexors, partly suppurative—Inflammation starting from the little finger—Abscesses of the thenar and hypothenar eminences, without concomitant palmar abscess—Explanation by a combination of plastic synovitis with suppurative synovitis—Deep diffuse phlegmon of the forearm; its termination by resolution.

GENTLEMEN: I. I place before you an anatomical specimen coming from a man 55 years old who occupied bed No. 38, ward Sainte-Vierge, for about twelve days (from the 23d of December, 1868, to the 5th of January, 1869).

You remember that this man had had the end of the little finger of his left hand crushed by a stone, which had caused a contused wound, occupying the palmar face of this finger between the middle of the ungual and the middle of the second phalanges, and accompanied by fracture of the first of these bones and denudation of the extremity of the flexor tendons.

A suppurative inflammation had been developed and had gained the deep parts of the hand and forearm. Three weeks had already passed since the accident when the man was brought to the hospital. The most prominent symptom then was a most serious general malaise, characterized by frequency of the pulse, prostration, dryness of the tongue, yellowish subicteric tint of the skin, profound alteration of the countenance, and finally a tranquil and almost continual delirium. According to the information which we have obtained, the patient was not given to drink.

As local symptoms we found a very marked swelling and redness of the forearm and hand. The thumb and the little finger were much more swollen than the other fingers. All these parts presented

doughiness and deep œdema. We did not find superficial fluctuation, but by pressing steadily with one hand upon the palmar surface of the wrist, and slowly pushing back the soft parts of the forearm an inch or two above with the other, I felt that the fingers of the first were pressed up. You noticed the position which I gave the limb in order to avoid all chances of error when I made this examination; I raised the hand and rested its dorsal face together with the whole length of the forearm upon a pillow. I thus gave the limb a support which prevented it from being pushed back by my exploratory manœuvres, and after having demonstrated several times the existence of deep fluctuation by sending this wave alternately up and down the arm, I was sure that we had to deal with one of those deep and diffuse abscesses of the forearm which are due to the propagation towards this region of inflammation starting from one of the fingers, and much more frequently from the thumb and little finger than the others.

Notwithstanding the intensity of the general symptoms and the gravity of the prognosis, I at once made a deep incision in the forearm. I divided layer by layer along its centre, for a distance of about three inches, the skin, the subcutaneous cellular tissue, and the deep fascia. I then tore with my finger, so as to avoid hemorrhage, the cellular tissue of the first inter-muscular space which I found, and thus reached a deep collection of pus limited behind by the pronator quadratus and the interosseous space. A considerable quantity of good phlegmonous pus escaped. A few days later a second abscess was opened on the inner side of the little finger.

The escape of pus from the forearm remained difficult, notwithstanding the bunches of lint and the drainage tubes which I employed successively. The febrile condition continued, and the 29th of December the first chill took place; others followed, the patient grew weaker and weaker, and died.

I expected to find metastatic abscesses, as they sometimes form after these deep abscesses, the pus of which escapes with difficulty on account of the obstacle offered by the muscles which overlie them. But there were none, and I had to suppose that the patient had succumbed to one of those putrid infections, bastard septicæmia, which are due at the same time to severe traumatic fever and pyæmia.

But it is not upon this point that I wish to speak to-day. What I want you to notice particularly is the seat and the extent of the suppuration.

Look first at the little finger, the starting point of the affection. We have opened the sheath of its palmar tendons; you find pus in it covering on the one side the parietal layer of the synovial membrane, and on the other the tendons which are also softened and disassociated. Follow the collection towards the hand, and you see that it passes behind the bundle of the flexor tendons, and continues without interruption or line of demarcation as far as the middle of the forearm. Let us now look for the lower limits of the collection in the palm of the hand. It stops above the metacarpo-phalangeal articulations, and does not extend into the tendinous sheaths of the index, middle, and ring fingers, but on the outer side the pus continues

in the sheath of the thumb, even to its very end. This anatomical disposition of the purulent collection recalls to those of you who have sufficiently studied anatomy that of the synovial bursa of the flexors in the palm of the hand. You know that in some subjects this bursa is double: there is an inner one which corresponds to the palm of the hand and the little finger, and an outer one which is destined solely for the long flexor of the thumb. But in most people the cavity is single and is composed: 1st, of a central portion which stops at the lower part of the palm of the hand, and consequently does not extend to the extremity of the three middle fingers, in which the flexor tendons have separate sheaths; 2d, of two lateral prolongations which accompany the flexor tendons of the little finger and thumb to their extremities.

You see, then, that here the suppurative inflammation starting from the little finger must have been propagated along the inner surface of its sheath to the common portion of the great synovial bursa, and thence to the prolongation of the thumb. At its upper extremity the great synovial bursa is largely open and communicates with the deep cellular tissue of the forearm, to which the inflammation has been transmitted either by a propagation of the phlegmasia itself or by an effusion of pus coming from the synovial bursa after ulceration or rupture in consequence of distension.

Consequently there existed at the same time in this patient suppurative synovitis and deep abscess of the forearm. The latter was consecutive to the former, and it is probable, although it has never been possible to demonstrate it either by the symptoms or by the autopsy, that the deep layers of the forearm have suppurated after opening of the synovial membrane, which had itself already suppurated, just as in suppurative synovitis of the knee we often see deep abscesses of the thigh begin by the effusion of synovial pus into the deep cellular tissue of the limbs.

I do not mean to say that things always occur exactly in this way, and that all suppurations, starting from any point of the synovial membrane of the flexors, will end in deep suppurating phlegmon of the forearm. First, contused wounds of the thumb are not followed by this propagation as frequently as are those of the little finger. That is probably due to this, that, in the subjects affected, the outer portion of the bursa is independent and closed, as I told you was sometimes the case. Secondly, it is not impossible that the propagated inflammation may remain plastic and adhesive, although it was suppurative at the starting-point.

II. *Synovitis of the flexors, partly suppurative; Recovery with deformity of the fingers.*—In No. 20 is a woman 28 years old, whose occupation as burnisher obliges her to work a great deal with her hands, who shows on the palmar face of her fingers a great number of calluses and cracks. A fortnight ago there appeared at the end of the little finger of her right hand an inflammation, which soon spread to the hypothenar eminence and thence to the palm of the hand, the thenar eminence, and the thumb. This inflammation terminated rapidly in partial suppuration; the first collection opened spontane-

ously at the upper portion of the thenar region: yesterday there was another in the hypothenar eminence, which was opened with the bistoury. A probe introduced into either of these two openings passes far up in a cavity, which is doubtless nothing else than the great synovial bursa of the flexors. From the course followed by the inflammation this must be a phlegmasia which occupies the common synovial membrane of this region.

I think, however, I can show you a notable difference between this synovitis and the preceding one. In the other the whole synovial bursa had suppurated; in this one I showed you that although the palm of the hand was swollen, pressure exerted upon it did not cause pus to flow from the orifice of the thenar nor from that of the hypothenar eminence. Moreover the quantity which escapes spontaneously is much less than it would be if the collection occupied the whole bursa. Of two things one: either the abscesses have formed by proximity outside of the great synovial membrane, the cavity of which has been the seat of an adhesive inflammation; or else the abscesses have formed within circumscribed portions of the bursa, the rest of which is filled with false-membranous products, the synovitis having remained plastic in the centre while it has become suppurative in the lateral portions.

I cannot determine by clinical signs with which of these two varieties we have to deal. The important point for me is, that there is at this moment a mixture of non-suppurative with a partially suppurative synovitis or abscesses by proximity.

If things remain in this condition life will not be compromised. But you know that this inflammation is easily propagated to the deep cellular tissue of the palmar side of the forearm: if it suppurates it causes at this point a deep abscess which is very serious, because it may be complicated by erysipelas, purulent infection, or putrid infection. Our patient's forearm is much swollen and doughy, but it is not red, and is not the seat of that pain and tension which indicate a deep diffuse phlegmon; moreover, the general phenomena which characterize the latter are entirely lacking. There is then here a synovitis, but one which has not suppurated, in and beyond the palmar portion of the synovial membrane. What still remains serious in the case is this, that this disease will probably end by adhesions which will interfere with the motions of the fingers: that is, the small accessory sheaths of each of the tendons are probably the seat of a plastic inflammation, which will result in the formation of adhesions and the abolition or diminution of the movements, the fingers remaining more or less flexed, and flexion itself being very limited by this sort of anchylosis of the tendons.

I had occasion to show you recently, at the consultation, a patient who had been treated by a seton for one of those affections of the great synovial bursa of the flexor, to which the name of crepitant dropsy has been given. Suppurating synovitis had been the consequence of this treatment. The patient had recovered with the adhesions of which I have just spoken, and came to us with all his

fingers half flexed and incapable of being extended, in short, in the condition described as the claw hand.

Now, if suppurating synovitis of the flexors habitually produces this result, do not forget that a simply adhesive or plastic synovitis may also do it. You have had quite recently an example of this in a man in whom the synovitis starting from a contused wound of the thumb, had suppurated in it and in the thenar eminence, but not in the palm of the hand and the little finger. Nevertheless, the movements of flexion and extension were very limited, and, as the affection had commenced two months before, I expressed the fear that the adhesions were too solid to yield to the frictions and sulphur baths which I prescribed.

To return to our patient, I describe her situation in reminding you that she has to-day a tendinous synovitis in the thenar and hypothenar eminences which has suppurated, and the beginning of a diffuse phlegmon propagated to the deep layers of the forearm.

Therapeutical indications.—They result quite naturally from the possible consequences of the synovitis which I have described.

We should first try to keep the phlegmasia within its present limits, that is, prevent it from invading in a suppurative form the whole of the synovial bursa, if, as I have reason to think, the suppuration still occupies only a part of it, and if the inflammation, originally plastic, has produced adhesions in the centre of the cavity which have prevented the pus from filling it. We must then make every effort to get resolution of the phlegmon which is beginning in the forearm, and, finally, if we obtain these first results we shall have to combat the deformity and the functional lesions caused by the adhesions.

This then is what we shall do. The openings will be dressed with cerate; then we shall envelop the hand and forearm in cotton and apply a moderately tight band. In a word, we shall treat the diffuse phlegmon by compression. The patient will keep the bed, the limb will be kept immovable upon a chaff bag, the hand a little higher than the elbow.

The compressive bandage will be renewed every day on account of the suppuration, and to see if deep fluctuation appears in the forearm.

Afterwards, if things go on happily, we shall prescribe sulphur baths, and have prolonged frictions made with lard or beef marrow, morning and evening, together with movements carefully communicated to all the fingers, so as to favour resolution of the plastic materials which form the adhesions. We shall employ, in short, treatment analogous to that of incomplete articular anchylosis.

(The suppuration remained limited to the points which it occupied at the beginning. Resolution took place in the forearm; but flexion and extension of the fingers were still very incomplete when the patient left the hospital after two months' sojourn in it.)