the dorsum as a readily recognised eminence. The malleoli, so to speak, grasp it.

In the *external* (lateral), the foot is found in pronation. Along the inner edge of the sole, immediately beneath the internal malleolus, a considerable portion of the astragalus may be felt. The bone is between the malleoli.

In the *posterior*, the foot is held in equinus, the heel is prominent, and the anterior portion of the foot shortened. Upon the dorsum the protruding head of the astragalus is felt, although it retains its normal relationship to the malleoli.

In the *anterior*, the foot is in the calcaneus position, the heel has disappeared, the anterior portion of the foot is increased in length, and the astragalus palpable posteriorly.

In all four cases the relative position of the tuberosity of the navicular bone to the tip of the internal malleolus is changed according to the direction in which the displacement takes place.

CHAPTER XXXVI

REMARKS ON DIVERSE DISEASES OF THE FOOT

MANY years ago there was a well-known "foot doctor" in Vienna to whom all patients suffering with diseases of the foot wended their way. Some, however, he was unable to relieve, so that occasionally a patient drifted into the clinic or into a private office. Frequently *flatfoot* was not recognised by this celebrated "specialist," hence a few remarks upon the subject of flatfoot.

According to an old saying, an ideally shaped foot should have an arch in which a bird can hide. But there are individuals, and also races, in whom the foot is quite flat, so that the sole leaves a complete imprint on a soft surface. By these footprints fugitive negro slaves were tracked, for their feet are devoid of any arch. Such feet, in contradistinction to *acquired* flatfoot, should be called *pedes plani*. The acquired form of flatfoot is known as *pes valgus*.

This state of valgus may also be called pronation, for the pes valgus is a pathologically pronated foot. The deformity causes much discomfort and disability, which is limited to the time when the patient stands or walks. The more advanced the disease, the more marked is the pain during both walking and standing. When the patient sits or lies down the pain usually

ceases. If the famous "foot doctor" had only known this! The pain is situated beneath the internal malleolus, or on the dorsum in front of the ankle-joint, and in advanced cases also beneath the external malleolus. This pain is so characteristic of simple flatfoot, that if it continues after the patient sits or lies down, the deformity can no longer be classed as simple flatfoot. The condition is then complicated by rheumatism, arthritis deformans, or gout.

Pronation, and not sinking down of the arch, is the true cause of flatfoot. Practically, almost every valgus is also a pes planus, but, exceptionally, cases occur in which the characteristic pain—both in regard to situation and occurrence upon standing—is present without flattening of the arch. The arch is preserved, but pronation is marked. In these cases, however, the history is one of foot strain from overburdening. Later, when flattening appears, the deformity is typical.

All the foregoing applies to the static flatfoot. The rachitic flatfoot of children very rarely causes pain. Occasionally flatfoot results from rheumatism of the tarsus. In these cases an exudate may be demonstrated. Sometimes static flatfoot makes its appearance in later life (especially in women) if the individual shows a rapid increase in weight. If all these factors are kept in mind, it will save us from wandering blindly in the diagnostic labyrinth of gout, rheumatism, and neurasthenia. The shape of the foot, the characteristic localization of the pain, and its appearance upon standing are pathognomonic.

It would seem impossible to confuse clubfoot and flatfoot. And yet, in a work upon diseases of the foot published in 1895, by two respected English orthopædists, an illustration representing compensatory varus appears with the explanation that the *valgus* is due to relaxation of the ligaments. This is no printer's error, but it is—*fin de siècle*. A varus is wrongly called valgus—and why? The individual portrayed is suffering with genu valgum, consequently the foot is considered pes valgus.

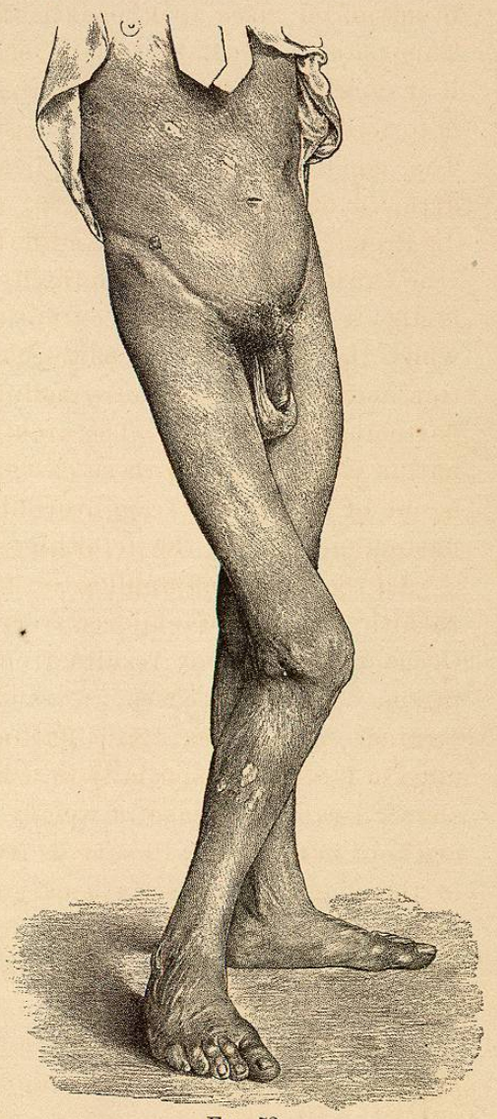

Fig. 53.

Let us analyze the case. In what manner must a person suffering with genua valga—i. e., a person with diverging legs—walk in order to bring his feet in normal relation to the tibiæ? He would have to walk on the inner edge of his foot. In order to become plantigrad he must supinate the foot, and supination equals varus. Conversely, a bow-legged person—i. e., a person with

converging tibiæ—would have to walk upon the outer edges of his feet, unless some correction took place. This consists in pronation of the foot, so that the whole plantar surface can be placed upon the ground. A genu valgum hence produces a compensatory pes varus (recognised by the supination, marked arching of the dorsum of the foot, and adduction of the metatarsus); a genu varum produces a compensatory pes valgus (pronation, flattening, and absence of adduction of the metatarsus). Fig. 53 illustrates such a compensatory varus with right-sided genu valgum. The left knee is normal, but the left foot is, merely by chance, in a valgus position, which is recognised by the fact that the entire inner edge is placed upon the floor.

Of the various paralytic deformities of the foot I will emphasize one, because it is so rarely understood. It is the form described by Nicoladoni as paralytic calcaneus (pes calcaneus paralyticus). If well marked, it closely resembles the foot of a Chinese lady—short, with high arch. The arch of the foot is exaggerated to such a degree that the sole resembles a roof with transverse ridge-pole, so markedly is the anterior portion of the foot bent upon the posterior. The heel no longer points backward, but downward. The gastrocnemius and soleus are paralyzed, the peronæi functionate.

Formerly a condition, which I was then unable to explain, puzzled me greatly. Cases are met with in which one or both heels are painful, and walking much impaired. To either side of the insertion of the Achillis tendon a slight swelling, painful on pressure, may be observed. I named the condition *Achillodynia*. Professor Schüller expressed the opinion that the condition was due to inflammation of the bursa which lies between the tendo and the tuberosity of the os calcis. I agreed with him as soon as I had seen a case in which the effusion occurred in the course of a single night. Dr. Rössler, a student of mine, demonstrated anatomically that Achillodynia was a true Achillo-bursitis. The cause may be trauma, rheumatism, gout, or tuberculosis. But, before all other causes, do not forget gonorrhœa.