

it articulates by means of its large posterior facet with the os calcis. Its head, however, is received into a large socket which is formed for it by the sustentaculum tali, the scaphoid and two ligaments which pass between the os calcis and the scaphoid, namely, one below, the inferior calcaneo scaphoid, and another on the outer side, the external calcaneo scaphoid ligament. There are four ligaments which hold the astralagus in its place, of which the interosseous is the most powerful. The external lateral ligament is a short band which proceeds from the outer surface of the astralagus to the outer surface of the os calcis. The posterior ligament passes from the posterior border of the astralagus to the os calcis. The dorsal ligament passes from the head of the astralagus to the scaphoid. The two lateral ligaments of the ankle joint also help to keep the astralagus in its place.

The inferior calcaneo scaphoid ligament fills up the angular gap between the sustentaculum tali and the scaphoid bone, and is an important element in forming the socket for the head of the astralagus, and is placed at the point of greatest strain in supporting the longitudinal arch. In contact with it upon its inner side is the tendon of the tibialis posticus, so that this point upon which falls so much of the strain in bearing the

body weight, receives both muscular and ligamentous support. The cuboid is bound to the calcaneum by four ligaments, the two plantar ligaments, and one dorsal and one internal ligament. In maintaining the longitudinal arch of the foot, the plantar ligaments are second in importance only to the inferior calcaneo scaphoid. The superficial one passes from the under surface of the os calcis in front of the tubercles, and extends to the inferior surface of the cuboid and has fibres which extend broadly to become attached to the three middle metatarsal bones.

The tibialis anticus has its origin on the front of the leg, and passing down to the inner margin is inserted into the internal cuneiform bone, and the base of the first metatarsal bone. It thus serves (1) to flex the ankle joint; (2) to draw upward the inner border of the foot and thus invert the sole; (3) to adduct the front portion of the foot. The second and third of these movements occur chiefly in the mediotarsal and calcaneo-astragaloid joints. In walking this muscle lifts the anterior part of the foot, enabling the foot to clear the ground when the leg is swinging forward. The tibialis posticus has its origin in the back part of the leg, passes downward behind the inner malleolus contained in a synovial sheath which accompanies it to its insertion upon the scaphoid bone. It also sends several fibres to be inserted into the sustentaculum tali, and all the other tarsal bones except the astralagus. It also sends fibres of insertion to the bases of the 2nd, 3rd, and 4th meta-tarsal bones. This powerful muscle therefore acts, (1) to adduct the front of the foot; (2) to invert the sole; (3) to extend the ankle; (4) to support the longitudinal arch. Its insertion into the scaphoid enables it to draw this bone backward against the astralagus, preventing the downward movement of the arch at the point where the greatest strain falls upon it. The flexor longus hallucis arises in the back part of the leg, and passes downward and inward behind the lower end of the tibia in a groove at the back of the astralagus under the sustentaculum tali—passing forward to be inserted into the base of the last phalanx of the great toe. Thus passing under the sustentaculum tali it serves as an important support to prevent the rolling inward of the foot when the weight of the body is being transmitted through the astralagus to the ground.

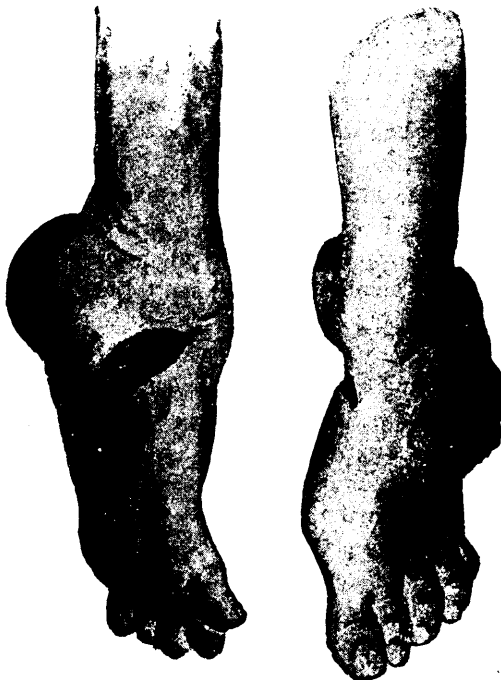


FIG. 1—Showing Incision in Phelps' Operation.