

no joints, no synovial investment, no articular cartilage and no ligaments. Each segment is separated by an ill-defined structure, known and properly designated as "intervertebral substance." This occupies fully one-third of the entire length of the spine. It is neither bone nor cartilage, and yet histologically contains the elements of both. It resembles embryonic or immature osseous structure more than anything else.

Passing down anteriorly and laterally is a broad thick envelope of fibrous structure. It is defined as the "anterior ligament," but it serves other important purposes than a ligament. It passes down over the anterior and lateral aspects of the osseous blocks of bone; also invests the intravertebral substance, as a periosteal sheath. Laterally its fibres pass posteriorly to interlace and fuse with the "posterior ligament." Taken together, these two interwoven ligaments may be regarded as the *epirachidian sheath*, serving at once the double purpose of a periosteal in-

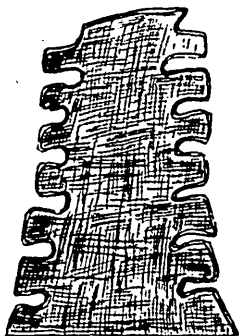


FIG. 8. Removal of anterior ligament.

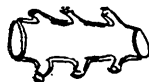


FIG. 9. Section of cord removed.



FIG. 10. Concealed fractures of bodies exposed by detaching sheath.

vestment and a lining for cavities. We may, then, without any violation of anatomical truth, regard the entire series of vertebral bodies, except possibly the atlas, as one continuous structure, "the back-bone." Attached or continuous with the osseous blocks posteriorly are the apophyses, the arches and spines, which enclose the cord and give attachment to muscles and ligaments. Here, and here only, do we find true ligaments. The osseous framework posteriorly, is essentially, but an *appendage* of the back-bone, to envelop the cord. The osseous structures of the spine are so deeply lodged, so limited in their range of movement, so firmly held by tendons and bound together by ligaments that when a fracture occurs there is seldom any palpable displacement, and hence it often defies detection. In the greater number of instances, there is an absence of crepitus, no immediate deformity after injury, nor is function of the cord in abeyance, except in very grave cases, where