41. BONE-MARROW

INTRODUCTORY

THE varying condition of the bone-marrow is most conveniently observed in the sternum, where there is an abundance of formative tissue, and sufficiently scanty compact bone to prevent the task of opening the interior from being irksome. The series of specimens here exhibited expose to view the long axis of the bone, with the exception of 41.61[2], which shows the appearance on cross section. While the sternum forms so convenient a material for study, valuable specimens are also afforded by the tibia (41.711[2]), femur (41.515[1]), vertebræ, &c. This is important in view of the fact that circumstances may arise under which the examination of the sternum is not permissible at autopsy. Where a permit for abdominal incision only is received, the lumbar vertebræ may be examined by sawing out a small wedge. Where no permit is received at all, it is feasible to employ a trocar for drawing enough marrow from the head of the tibia to enable a histological examination to be made. In this case the fact that the marrow tissue is much more abundant and much redder in the lumbar vertebræ must be taken into consideration before pronouncing on the character of the change.

The *naked-eye points to observe* in the series are: (1) the relative proportion between marrow tissue and compact bone, (2) the colour of the marrow, (3) the texture of the cut surface, (4) the abundance of bone trabeculæ, (5) the occurrence of fat.

The differences shown with successive ages will be noticed to depend on the formative activity of the marrow tissue rather than on the age itself; thus 41[1] (from an infant) is no different from 41.711[10] (aged 43) as far as the naked eye will show; 41.711[1] (aged 16) is very similar to 41.711[2] (aged 58).

The *essential changes* exemplified by the series are those of (1) increased formative activity (41.711[1,7]); (2) diminished formative activity (41.61[1]); (3) actual degenerative change dependent on acute intoxication (41.620[1–2]) and malnutrition (41.61[3]); (4) atrophic changes (41.61[2]).

The term 'increased formative activity' signifies an increased production of either red cells or white cells or both. If the main phenomenon is red-cell formation, the marrow is called erythroblastic, if