



Fig. 2. A portion of the geologic time scale as permanently installed on a classroom wall. The last three Eras shown in this figure are preceded by a 39.5 foot black line representing the Precambrian.

and Louis E. DeLanney. 1961. *General Biology*. New York: Holt, Rinehart and Winston, p. 576.

3. Moore, Raymond C. 1958. *Introduction to His-*

torical Geology. New York: McGraw-Hill Book Co., Inc., Chapter 1.

Back Injuries

The American Medical Association's Committee on Medical Aspects of Sports again reminds coaches and trainers and parents of football players to be wary of the athlete who has continual or recurring back pains, even if the pains are not disabling.

Serious disabling injuries of the back are unusual in sports among persons who have a sound spine to begin with. Contusions of the muscles, strains of the ligaments and even fractures of various aspects of the lumbar vertebrae ordinarily heal under medical supervision with no persistent disability in from two to six weeks. If disability persists beyond six weeks, the physician will search for some underlying defect in the spine or its juncture with the sacrum.

Congenital defects of the spine are rare and might not be detected. Unless they produce obvious external signs they are not ordinarily recognized during childhood. During adolescence, however, heavier stresses are placed on the spine by the greater size and weight and more strenuous activities of the individual. When the boy or girl becomes active in athletics, pain in the back or spasm of the back muscles may appear for the first time.

Unless there has been a history of injury these difficulties are often discounted as "back strain" or "growing pains." Continuation of athletic activities, especially contact

sports such as football, may then result in an injury which becomes chronically disabling because of the underlying defect.

The AMA declared that the only way to prevent serious chronically disabling back conditions in young athletes is by detecting and rigidly excluding those who have significant birth defects of the spine from sports which pose a high risk of injury to the back. The significance of a defect can only be determined by medical evaluation. This can be done, first, by requiring a preparticipation health examination including a careful history of all candidates for these sports. Any history of frequent back symptoms demands a further examination, including x-rays. Significant limitation of forward or side bending or pain produced on straight leg-raising provides evidence of possible disorders.

Excluding such individuals from sports with a high risk factor may seem harsh when the player is able. But counting on such a player for continuing service can have disastrous results, both to the team which risks losing his services at a crucial period in the season, and to the individual who risks disabling injury.

Double Trouble

Tichocephaly (two-headedness) in snakes occurs about once in every 90,000 individuals.