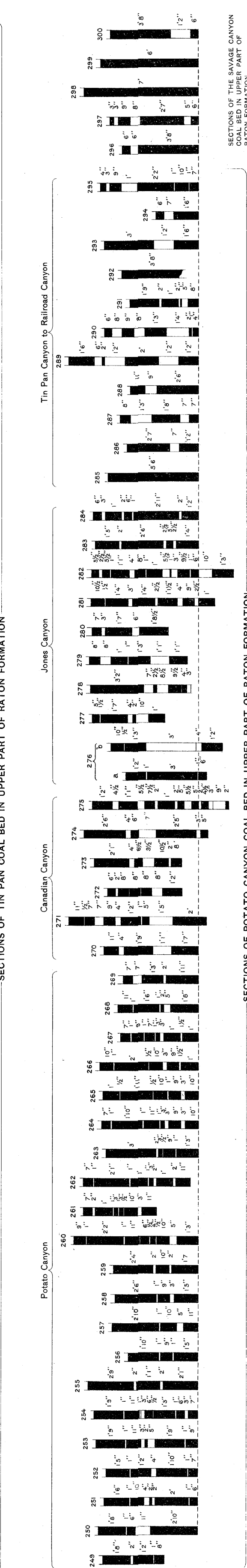
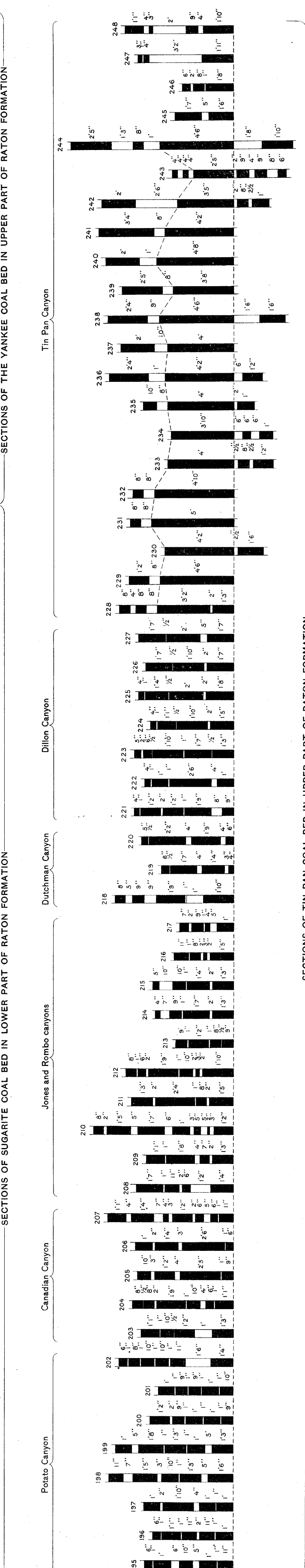
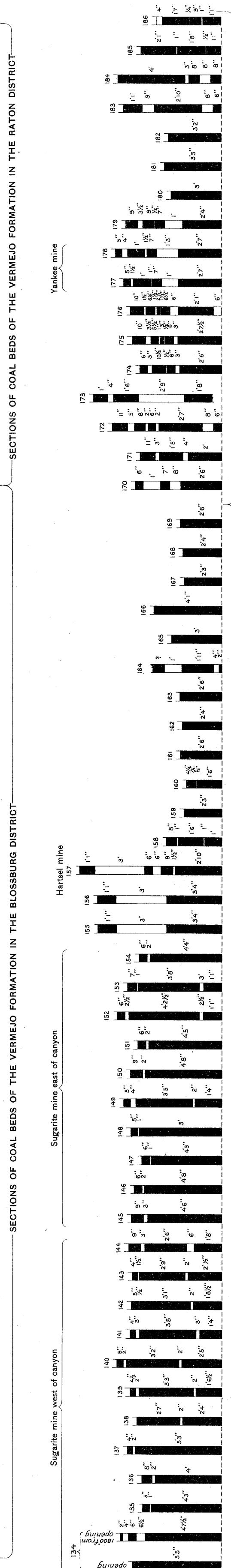
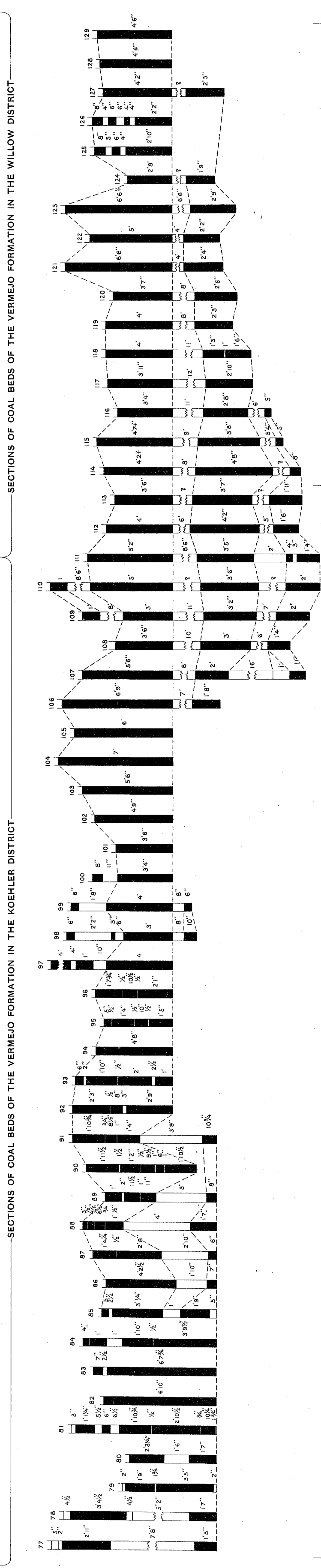
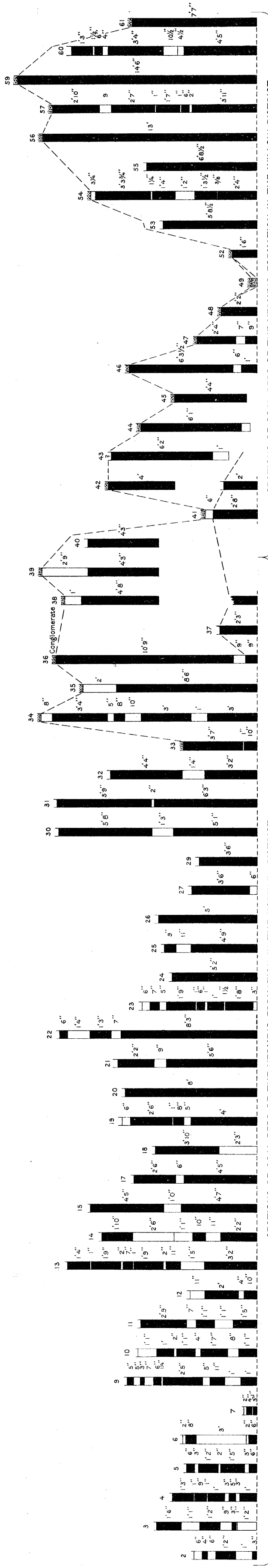


COAL SECTIONS

NEW MEXICO-COLORADO
RATON-BRILLIANT-KOEHLEK QUADRANGLES



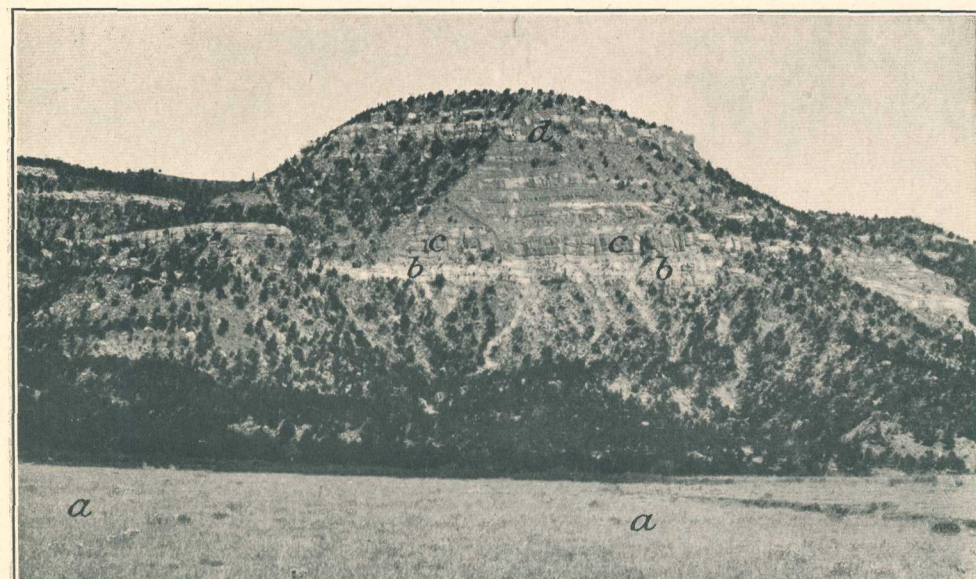


PLATE I.—AN EASTWARD-FACING PROMONTORY NEAR VAN HOUTEN, RISING 1,000 FEET ABOVE THE LOWLAND PLAIN.
Foreground (*a*) and lower slope composed of soft Pierre shale. Trinidad sandstone (*b*) and basal conglomerate of Raton formation (*c*) together form base of cliff (Vermejo formation absent). Hard sandstones (*d*) of middle part of Raton formation near top of cliff.



PLATE II.—JOHNSON MESA, AS SEEN FROM RATON.
Shows lowlands of the plain, high flat-topped table-lands of the mesa region, and smooth brush-covered slopes of the mesas. The plain and the lower part of the mesa slope are formed on Pierre shale, and the precipitous mesa rim is the edge of the basalt sheet that caps the mesa. Under this rim the sandstones of the Raton formation crop out conspicuously at only one place, the formation being covered with brush and slide rock in most places.

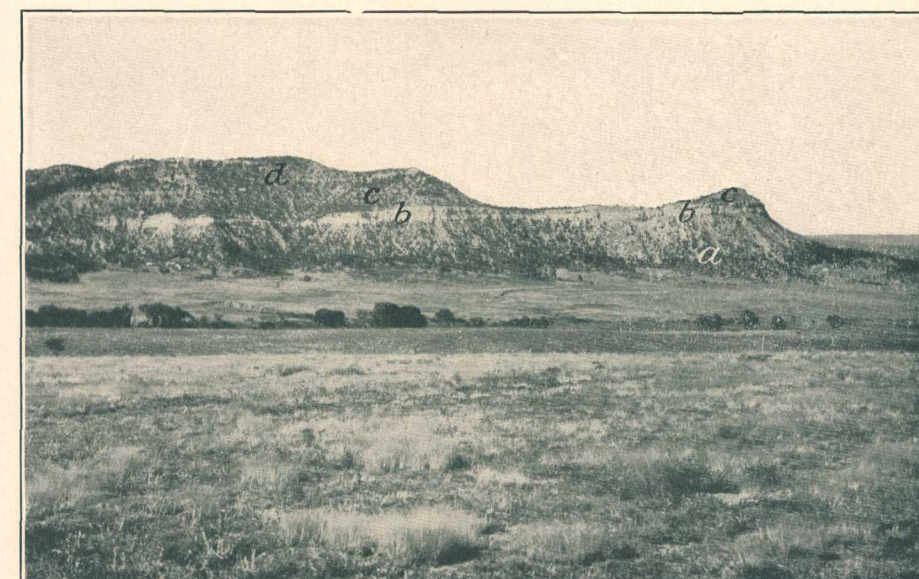


PLATE III.—NORTH WALL OF CANADIAN CANYON, SOUTH OF GARDINER.
A characteristic canyon wall ending in a promontory that overlooks the plain. The cottonwoods in the middle ground grow only near the stream. Pinon and juniper grow on the dry hillsides. *a*, Pierre shale; *b*, Trinidad sandstone; *c*, Vermejo formation; *d*, lower part of Raton formation.

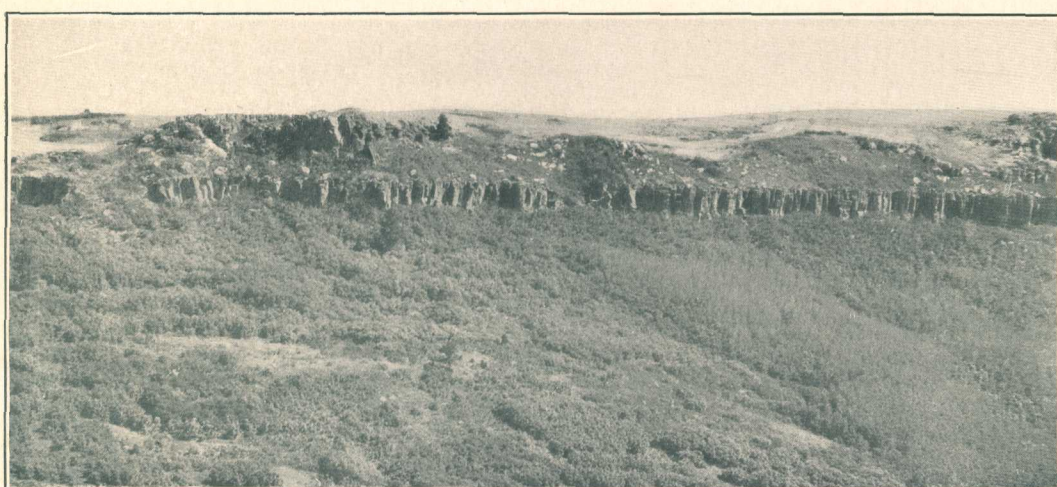


PLATE IV.—PART OF SOUTH RIM OF BARILLA MESA NORTH OF YANKEE.
Shows the uneven surface characteristic of the highest mesas; two sheets of lava, the lower one regularly columnar, the upper one less so; and the dense growth of scrub oak and aspen that covers the slopes of the mesa.



PLATE V.—EAST RIM OF BARTLETT MESA, LOOKING NORTHWARD TOWARD AN OLDER AND HIGHER MESA.
Shows the basalt cap of Bartlett Mesa (*a*); the remnant (*b*) of an older mesa, which lies at and beyond the northern border of the Raton quadrangle; and an outlier (*c*) of the higher distant mesa. In the foreground is the slope of Sugarite Canyon, covered with scrub oak and scattered pines and spruces.

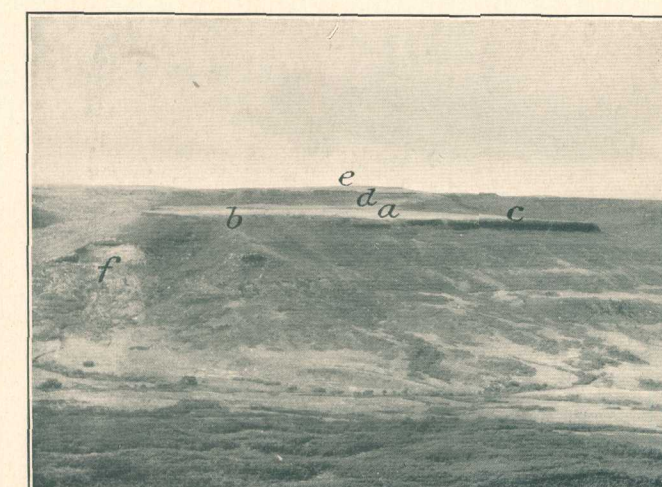


PLATE VI.—HORSESHOE AND BARILLA MESAS AS SEEN FROM JOHNSON MESA.
a, Smooth surface of Horseshoe Mesa; *b*, *c*, edge of the sheet of basalt (thin at *b*, thick at *c*) which caps the mesa; *d*, narrow neck connecting Horseshoe Mesa with the higher Barilla Mesa; *e*, volcanic cone on Barilla Mesa from which the lava capping Horseshoe Mesa was probably extruded; *f*, recent landslide on steep slope of mesa.



PLATE VII.—TOWNDROW PEAK ON JOHNSON MESA, FROM THE SOUTH
The peak consists of younger andesitic lava which overlies the basalt sheet that forms the flat surface of the mesa in the foreground.



PLATE VIII.—PART OF SOUTH RIM OF JOHNSON MESA.
Shows the columnar structure of the basalt exposed in the cross section of a lava stream that flowed down an old valley, one side of which appears at the left. The trees in the foreground are 20 to 30 feet high.



PLATE IX.—NORTH WALL OF SCHOMBURG CANYON.
Trinidad sandstone (*a*) overlain by shale and Willow coal bed (*b*), 8 feet thick, of the Vermejo formation, on which rests unconformably the basal conglomerate (*c*) of the Raton formation.

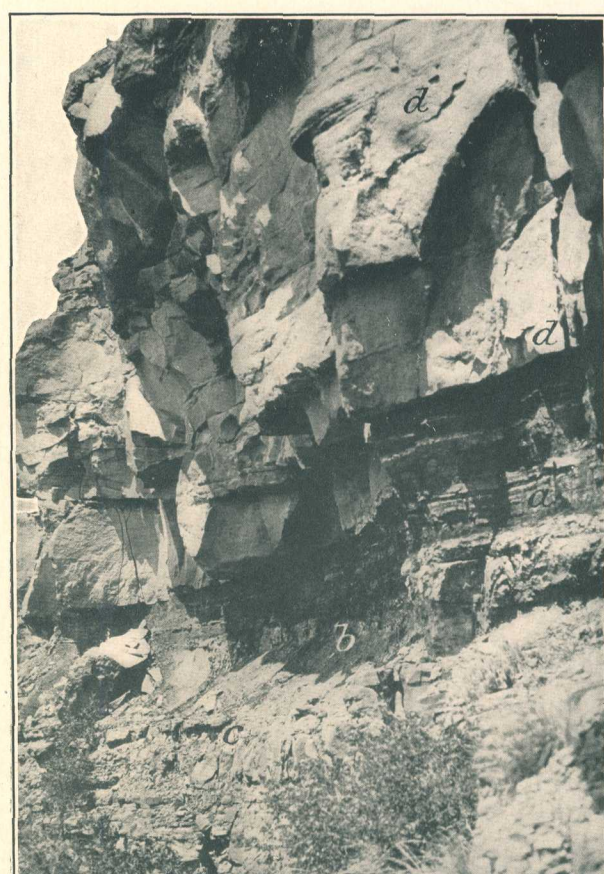


PLATE X.—RELATION OF THE WILLOW COAL BED TO OTHER BEDS WHERE THE VERMEJO FORMATION IS THIN.
The coal bed (*a*), here about 5 feet thick, is separated by a few feet of shale (*b*) from the underlying Trinidad sandstone (*c*). The basal conglomerate (*d*) of the Raton formation rests with uneven base directly on the coal.

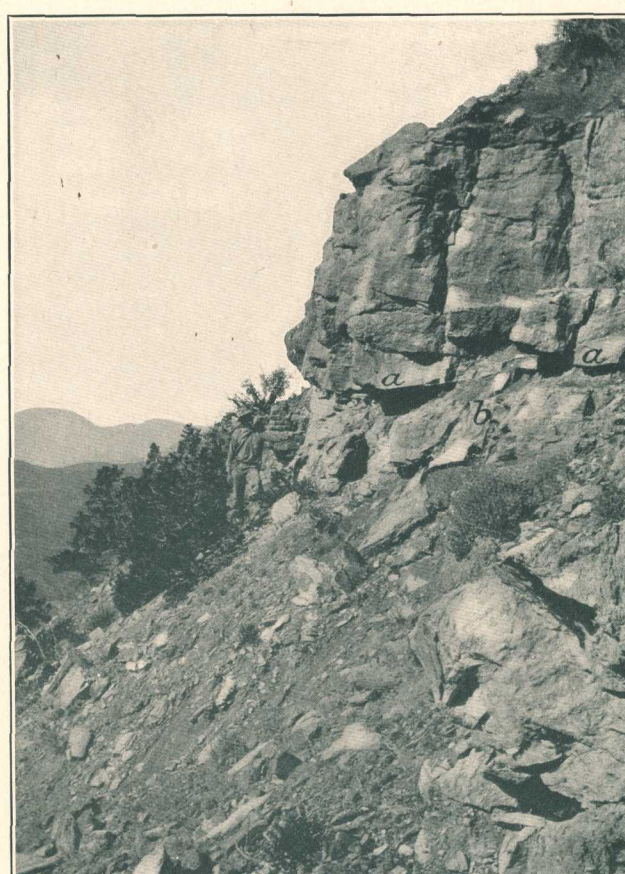


PLATE XI.—CLIFF SOUTH OF VAN HOUTEN, SHOWING RELATION OF RATON FORMATION TO TRINIDAD SANDSTONE WHERE VERMEJO FORMATION IS ABSENT.
The basal conglomerate (*a*) of the Raton formation rests on the Trinidad sandstone (*b*).



PLATE XII.—POLISHED SURFACE OF PINK AND BLUE RHYOLITE.