

what complicated structure, the nature of its constituent rocks, and the internal stresses developed within the mountain mass at the time of its original upheaval, all conspire to make the stability of its eastern slope extremely doubtful.

(a) *Topography of the Eastern Slope of Turtle Mountain.*

The notable steepness of the mountain side throughout the part of it which overlooks the town-site is obvious to any observer on the ground. The same quality is apparent to any topographic expert who studies the admirable contour map made under the direction of Mr. Boyd for the Dominion Geological Survey (see Map of Turtle Mountain and Vicinity). A quantitative idea of the average and maximum steepness can also be obtained from an inspection of the profiles (Figures 2-10), taken at regular intervals along the general slope. Finally, the steep quality of the eastern flank is illustrated in the accompanying photographs (Plates II and III), as well as in the cardboard model (Plate IV), herewith submitted.

The following table shows the average angles of slope (measured from the horizontal plane) for 400 foot vertical intervals on each of the profiles (here respectively numbered 1 to 9) shown in Figures 2-10:—

Contour Interval.	1	2	3	4	5	6	7	8	9
7000-6600	.....	.....	..	.....	56°	67° (200 ft.)	66° (220 ft.)	62° (360 ft.)	55° (500 ft.)
6600-6200	.....	.....	.....	61°	47°	51°	59°	45°	46°
6200-5800	.....	.....	52°	58°	44°	39°	38°	34°	36°
5800-5400	51°	58°	40°	45°	50°	34°	31°	33°	30°
5400-5000	46°	56°	45°	42°	35°	32°	30°	31°	30°
5000-4600	52°	40°	34°	30°	27°	24°	26°	24°	20°
4600-4200	34°	31°	22°	19°	18°	22°	23°	22°	13°

The measured angle of rest for the coarse rock-debris in the longest talus slope of Turtle mountain (eastward from a point near the South peak), is just thirty degrees. If a plane of complete scission should be developed in the mountain, and if the inclination of that plane to the horizontal should exceed thirty-two degrees, the block overlying the plane of scission must instantly slide down along that plane. Actual experiment shows that thirty-two degrees is somewhat more than the maximum or limiting angle of inclina-