

FIG. 6. PART OF COLUMBIA QUADRANGLE, S. C. SCALE: 1:125,000; CONTOUR INTERVAL, 20 FEET

intricately branching valleys, in which the population for the most part occupies the uplands. A striking characteristic of the region is the absence of regular trends in the hill crests and the valleys; the spurs radiate in all directions from the uplands; the valleys are correspondingly systemless. As the features of the surface are due to the slow erosion of valleys in a formerly even upland, it might be called a "valley country" rather than a "hilly country." Compare the location of the three railroads here shown. One follows the edge of Broad river valley bottom; it has a gentle grade, but must bridge all the streams that come down from the adjoining hills. Another takes a north-westward course on the upland divide between uncounted valley heads; it has many changes of grade, but not a single bridge for a score of miles. The third connects the other two, first ascending a branch valley close to a small stream, which it crosses nine times, then slanting along the valley side in a gradual climb to the upland level. Note, in passing, the strategic value of Little mountain, which rises 150 feet over the uplands and commands a view far and wide. The Piedmont belt has many such dominating summits, some of them much larger and higher than this one; but the belt is so incompletely mapped that its detailed features are known only to its residents. Local guides would be a necessity if military operations had to be conducted in an unmapped country.

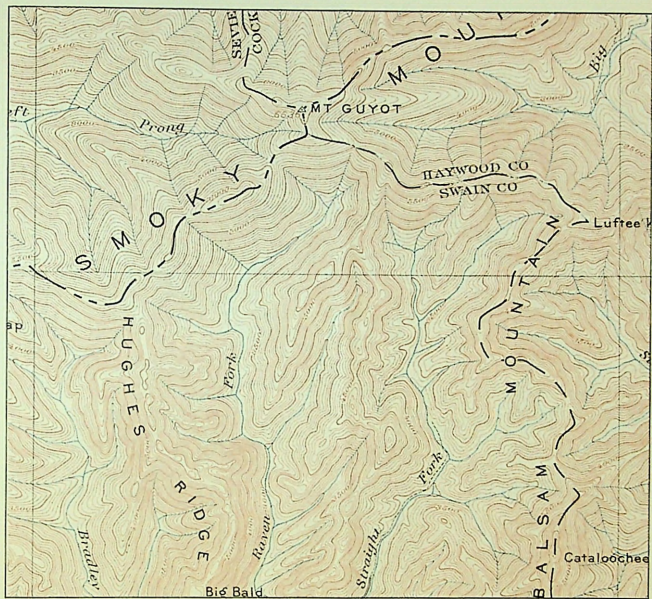


FIG. 7. PART OF MT. GUYOT QUADRANGLE, N. C. AND TENN. SCALE: 1:125,000; CONTOUR INTERVAL, 100 FEET

Farther inland, northwest of the Piedmont belt, the Southern Appalachians gain their greatest height. Mt. Guyot, in the Great Smoky mountains, the crest of which forms the boundary of Tennessee and North Carolina, is one of their dome-like summits, from which long rambling spurs ramify between deep-cut valleys. It is a region of long, steep slopes — note that the contour interval here is 100 feet — too rough for settlement; not a village name appears on the rectangle here reproduced. But the slopes are covered with magnificent forests, except where the trees have been felled for lumber mills; and the streams, fed by an abundant rainfall, will be a source of water-power as long as the sun shines. The power thus supplied must be harnessed, transformed into electricity, and carried out by wire to the neighboring lower lands to drive the wheels of mills and factories. The first thing that engineers ask for, in planning such enterprises, is a good map of the region, like this one, from which they can select special districts for closer survey. The forester uses the map to lay out his paths and his telephone lines for fire protection; the lumberman uses the map to lay out his logging roads; the highway engineer uses the map in studies of road location and classification. The story is everywhere the same: intelligent use of our resources requires that they should be known; and fundamental to all intelligent knowledge of this kind is a good map on which geographical facts of every sort can be represented.

A rugged mountain region is an eloquent witness to the long-continued action of weathering and washing, by which even the most resistant rocks are slowly converted into soil, and the soil is slowly washed down the hillsides to the streams, and along the streams, which gradually deepen their valleys, on the way to the sea. Only by the persistence of these processes through the ages can a highland be carved into ridges and valleys, the surface of which everywhere descends by well-ordered lines of hill-side slope, all uniting in a drainage system so finely organized that every stream has just such a velocity as will enable it to carry away the detritus that is washed into it.