knots of mountains. We distinguish nine of those knots, and consequently an equal number of branching-points and ramifications. The latter are generally bifurcations. The Andes are twice only divided into three chains; in the knot of Huanuco, near the source of the Amazon, and the Huallaga (lat. 10° to 11°), and in the knot of the Paramo de las Papas (lat. 2°), near the source of the Magdalena and the Cauca. Basins, almost shut in at their extremities, parallel with the axis of the Cordillera, and bounded by two knots and two lateral chains, are characteristic features of the structure of the Andes. Among these knots of mountains, some, for instance those of Cuzco, Loxa, and Los Pastos, comprise 3300, 1500, and 1130 square leagues, while others no less important in the eye of the geologist are confined to ridges or transversal dykes. To the latter belong the Altos de Chisinche (lat. 0° 40′ south), and the Los Robles (lat. 2° 20′ north), on the south of Quito and Popayan. The knot of Cuzco, so celebrated in the annals of Peruvian civilization, presents an average height of from 1200 to 1400 toises, and a surface nearly three times greater than the whole of Switzerland. The ridge of Chisinche, which separates the basins of Tacunga and Quito, is 1580 toises high, but scarcely a mile broad. The knots or groups which unite several partial chains, have not the highest summits, either in the Andes, or, for the most part, in the great mountain ranges of the old continent; it is not even certain that there is always in those knots a widening of the chain. The greatness of the mass, and the height so long attributed to points whence several considerable branches issue, was founded either on theoretic ideas or on false measures. The Cordilleras were compared to rivers that swell as they receive a number of tributary streams.

Among the basins which the Andes present, and which form probably as many lakes or small inland seas, those of Titicaca, Rio Jauja, and the Upper Marañon, comprise respectively 3500, 1300, and 2400 square leagues of surface.*

* I here subjoin some measures interesting to geologists. Area of the Andes, from Tierra del Fuego to the Paramo de las Rosas (lat. 9¼° north), where the mountainous land of Tocuyo and Barquesimeto begins, part of the Cordillera of the shore of Venezuela, 58,900 square leagues, (20 to a degree) the four spurs of Cordova, Salta, Cochabamba, and Beni alone,