

life in a zone that is nearly 3000 feet lower than that to which it attains in the equinoctial region of the Cordilleras.

plateau, this limit is at 16,625 feet from $30\frac{1}{2}^{\circ}$ to 32° of latitude, while at the equator, in the Andes of Quito, it is 15,790 feet. Such is the result I have deduced from the combination of numerous data furnished by Webb, Gerard, Herbert, and Moorcroft. (See my two memoirs on the mountains of India, in 1816 and 1820, in the *Ann. de Chimie et de Physique*, t. iii., p. 303; t. xiv., p. 6, 22, 50.) The greater elevation to which the limit of perpetual snow recedes on the Tartarian declivity is owing to the radiation of heat from the neighboring elevated plains, to the purity of the atmosphere, and to the infrequent formation of snow in an air which is both very cold and very dry. (Humboldt, *Asie Centrale*, t. iii., p. 281-326.) My opinion on the difference of height of the snow-line on the two sides of the Himalaya has the high authority of Colebrooke in its favor. He wrote to me in June, 1824, as follows: "I also find, from the data in my possession, that the elevation of the line of perpetual snow is 13,000 feet. On the southern declivity, and at latitude 31° , Webb's measurements give me 13,500 feet, consequently 500 feet more than the height deduced from Captain Hodgson's observations. Gerard's measurements fully confirm your opinion that the line of snow is higher on the northern than on the southern side.' It was not until the present year (1840) that we obtained the complete and collected journal of the brothers Gerard, published under the supervision of Mr. Lloyd. (*Narrative of a Journey from Cawnpoor to the Boorendo Pass, in the Himalaya, by Captain Alexander Gerard and John Gerard, edited by George Lloyd*, vol. i., p. 291, 311, 320, 327, and 341.) Many interesting details regarding some localities may be found in the narrative of *A Visit to the Shatool, for the Purpose of determining the Line of Perpetual Snow on the southern face of the Himalaya, in August, 1822*. Unfortunately, however, these travelers always confound the elevation at which sporadic snow falls with the maximum of the height that the snow-line attains on the Thibetian plateau. Captain Gerard distinguishes between the summits that rise in the middle of the plateau, where he states the elevation of the snow-line to be between 18,000 and 19,000 feet, and the northern slopes of the chain of the Himalaya, which border on the defile of the Sutledge, and can radiate but little heat, owing to the deep ravines with which they are intersected. The elevation of the village of Tangno is given at only 9300 feet, while that of the plateau surrounding the sacred lake of Muzasa is 17,000 feet. Captain Gerard finds the snow-line 500 feet lower on the northern slopes, where the chain of the Himalaya is broken through, than toward the southern declivities facing Hindostan, and he there estimates the line of perpetual snow at 15,000 feet. The most striking differences are presented between the vegetation on the Thibetian plateau and that characteristic of the southern slopes of the Himalaya. On the latter the cultivation of grain is arrested at 9974 feet, and even there the corn has often to be cut when the blades are still green. The extreme limit of forests of tall oaks and deodars is 11,960 feet; that of dwarf birches, 12,983 feet. On the plains, Captain Gerard found pastures up to the height of 17,000 feet; the cereals will grow at 14,100 feet, or even at 18,540 feet; birches with tall stems at 14,100 feet, and copse or brush wood applicable for fuel is found at an elevation of upward of 17,000 feet, that is to say, 1280 feet above the lower limits of the snow-line at the equator, in the province of Quito. It is