

The Ascent of Orizaba

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ON the brow of the Mexican Plateau, overlooking Vera Cruz and the Gulf from a distance of three score miles and ten, stands the isolated volcanic cone, Orizaba, the loftiest peak in North America, outside the Alaskan region. Towering to a height of 18,300 feet, and sending down the radiance of its brilliant white apex—often from far above the clouds—its native name Citlaltepētł, Mountain of the Star, was not unfittingly chosen by the imaginative Aztecs. While now and then its summit snows have been trodden since the first ascent in 1848,¹ the fascination of rarity has not been replaced by familiarity, as with its rival, Popocatepetl.

It was this fascination that drew away from the International Geological Congress, then in session at the City of Mexico some years ago, four truants from the sober lessons of science:—Drs. J. E. Wolff of Harvard, H. F. Reid of Johns Hopkins, A. P. Coleman of Toronto, and the writer. The Ferrocarril Mexicano took us to Chalchicomula, a quiet provincial town at the foot of the great volcanic cone. Harvard now utilized his Spanish and diplomacy, which negotiated some mozos and mules, a rurale and saddle horses, eggs, jam, bread, blankets and other necessities.

On a bright morning in September our little cavalcade drew out from the plaza of Chalchicomula and wound easily among the lower foothills, passing a few picturesque hamlets. The beauty of Orizaba's snow-clad cone glistening in the loveliness of the early Mexican morning, was so captivating that we again and again dismounted to catch photographically some new expression of the grand mountain. The superb peak rose nearly 10,000 feet above us, majestic and commanding, but gentle in aspect. At length we entered a grand, open forest of stately pines which strongly reminded me of those charming forest reserves which cluster about the San Francisco peaks in Arizona and extend from that old volcanic pile to the Grand

¹ Orizaba, 18,314 ft., is the third highest peak in North America. It was first ascended in 1848 by William F. Reynolds, a lieutenant of engineers of General Scott's army, accompanied by one Maynards and several soldiers. They left an American flag on the summit with the date carved on the staff. This was found by a Frenchman, A. Daignon, in 1851.—Ed. *A. A. J.*

Canyon. We rose gradually amid the pines, until, at an elevation of about 12,000 feet, we entered a gulch cut in the talus slope, which led up to the Col de Negra, between Orizaba and the Sierra de Negra, a lower companion peak. On the Col a chilly east wind, sweeping up a mass of vapor, obscured the eastern view, but bands of delicate blue sky between strata of dainty feather clouds near the horizon offset, in part, the loss of a view of the lowlands and the Gulf. We were now 13,000 feet above the Gulf of Mexico and yet, being within the tropics, this was just at the timber line.

Leading down from the upper cone of Orizaba to the Col is an old tongue of lava, bordered with high, steep sides, in whose east wall a singular little cave has been formed, perhaps by the outflow of lava after the exterior of the flow had cooled. This was selected as our refuge for the night.

An hour before sundown we commenced to put everything in order for the early morning start, as night comes on quickly in the tropics. Supper was eaten at dusk, and for a time we sat in front of the camp fire absorbing its warmth before trusting ourselves to the rock chamber. The rurale was now a picturesque sight; seated motionless on a box, with arms folded, a great red zerape wrapped about him up to his eyes, and a tremendous sombrero pulled down over his brow, he suggested thoughts of buccaneers and buried treasure, rather than an effective guardian of the law.

At an early hour we retired to sleep between sheets of lava which had not been changed since last occupied, as one of the party suggestively remarked. The roughness of the uneven rock was tempered by some plaited mats, brought up for the purpose. Upon these we placed our blankets, rolled up in them, and were ready for sleep, which did not come. We were all very restless; probably because of the unaccustomed altitude, which produced an accelerated pulse. Harvard was the fortunate possessor of a camproll with canvas, and occupied one end of the cave; into the space between his canvas bag and the opposite wall, Toronto, Johns Hopkins and Chicago were closely packed. If Toronto found the topography of the underlying rock surface too rugged for long endurance, it was necessary for Johns Hopkins and Chicago to turn with him. Harmonious action in intercollegiate relations was never better observed.

At 3:40 we were called by the mozo chief. A film of lofty cirrus clouds had overspread the sky during the night, through which only the brighter stars were now visible, while the waning moon cast

but a feeble, uncertain light upon the landscape. The great white peak was dim and ghostly. We had breakfast and waited for the dawn. At 4:40 we were off, just as the first, faint traces of coming day could be detected in the eastern sky. For a time we advanced in silence up a broad basin between two long lava streams until, working toward the right, steeper slopes were encountered. It was now broad daylight, for the day broke quickly. The sunrise which we had expected to be brilliant was cold and colorless. The illumined quarter of the sky was partly hidden by one of the serrate peaks which stand forth prominently on Orizaba's southern flank. The reflected rays of the sun were first seen on the Sierra de Negra; Orizaba itself, if as yet lighted up, was touched only on its eastern side, out of the range of our vision; but a few moments later a simple phenomenon told us that Orizaba also was in full sunlight, for, looking westward, the huge shadow of the great peak was seen to be projected against the thin, feathery, cirrus clouds in the form of a dark triangle whose apex rested directly above Popocatepetl, the beautiful but less majestic rival of Orizaba, 100 miles away. The sister volcano, Ixtaccihuatl, also stood dull, for a time, in the right-hand corner of the triangular shadow.

Pushing onward, we soon reached isolated patches of snow. It was now a quarter past six, and we had attained an altitude of 15,050 feet. From our previous inspection with field glasses, we had decided that the more easterly of two roughly parallel ridges on the southern side of the cone, would be likely to prove the best route to the summit. To gain this arête, a rough lava cliff must be surmounted, and this we proceeded to attack. The climb proved an antidote for the morning's chill; a feeling of exuberance quickly followed the warmth of the exercise. A few steps which had to be chopped in the hard snow only added zest to the work.

A halt at the arête, gave an opportunity to enjoy the charm of the early morning in the midst of snow and ice. The stifling dust of the hot plains below, with their depressing, dulling effects, seemed but the dim memory of another world. At the point where we all came together on the crest of the ridge, the aneroid registered 16,000 feet. Johns Hopkins remembered that 7.15 was about breakfast time at home, and loyal to our leaders in serious matters like this, we fell to, and a second breakfast was soon dispatched.

Resuming the climb, we mounted the ridge rapidly over rocks and snow. While the arête was narrow in places, allowing little

deviation from the crest, we were satisfied with it as a route, for it pointed straight toward the summit, though it became merged into the cinder cone before reaching the top. While yet clambering upon it, we seemed already to have gained an immense height, and Harvard was called upon to read the aneroid. "Seventeen thousand seven hundred feet, and only four minutes past nine." We were now as high as Popocatepetl and were perhaps already looking aslant the crown of Orizaba's rival, still unclouded a hundred miles to the west. That must needs be celebrated by another breakfast. We all huddled down amid the rocks, on the lee side, as much as possible, to escape the piercing east wind, and ate another round of bread and jam.

The topography of central Mexico was by this time seen to great advantage. To the west lay the belt of flat plateau, along which we had come from the City of Mexico. Popocatepetl and Ixtaccihuatl seemed less stupendous than when viewed from the plain. They now appeared very nearly of the same height. South and southwest the characteristic topographic features of the whole Mexican plateau, from the Capital to the Isthmus of Tehuantepec, greeted the eye in a single vista. A succession of long, narrow, generally parallel ridges, running northwest and southeast, and rising out of the common floor of the plateau, which did not appear to vary greatly in altitude, told in which direction the structural axis of the continent lay. The Pacific Ocean was not visible, but its shores can lie at no very great distance beyond the last ridge. To the southeast, and near at hand, we looked down upon the abrupt descent to the plain of the Gulf of Mexico, a splendid sight, for Orizaba stands alone at the very edge of the plateau, on the brink of the declivity. The plateau border has been dissected by the erosion of the ages, and fashioned into remarkable gorges which have become the chief pathways from the upper Mexican world to the lower. The spectator on Orizaba, perched thus above the battle front of this contest between the plateau and the inexorable erosive processes, may well ponder thoughtfully on the magnitude and persistence of the silent struggle, and its inevitable outcome. Even Orizaba itself must, in time, be worn down and swept past the low coastal plain into the Gulf of Mexico.

Before starting again we put on our colored goggles. It was high time, for the tropical sun had now drifted around behind and mounted over us, until its glare on the snow was intense. Upon

reaching the point where the ridge merged into the summit cone, we traversed the snow obliquely to the western side of the volcano.

Our leader, ever desirous of easing the labor of the ascent, led in a zig-zag course back and forth across the snowy slope, gaining a little in height with each wide detour. Upward progress was now slow. For a time the last rocks—an abrupt cliff just beyond which we knew the summit lay—seemed to hang steadily at the same height above us. Still, we were conscious of drawing but little on our store of energy and, with an abundance of time before us, we felt certain of reaching the top in a condition fit for the thorough enjoyment of the climax of the trip. The snow still hard, required steps to be chopped here and there. At length, when nearly abreast of the rocks for which we were aiming, the true summit suddenly came into view for the first time since we began the climb. On the southwest slope, about a hundred feet below the summit, was a small area of loose andesitic debris, free from snow at the time of our ascent. This we soon attained, the barometer indicating its altitude to be 18,400 feet. True to the dictum of a sage friend, "Eat often and little when under strain," we here sat down to a fourth breakfast, or a first lunch, if you please.

The real summit was now so near that it appeared possible to carry the last assault at a single spurt, but one found himself stopped short, again and again on that brief snow slope, by a sudden, temporary fatigue which bordered on exhaustion. Usually a halt of thirty seconds sufficed for a complete restoration from a state verging on collapse to unimpaired strength. To recover from the same degree of breathlessness at sea level would require several minutes. This experience seems to show that, while one may mount to an altitude of over 18,000 feet in perfect comfort, by advancing leisurely in gentle zig-zag inclines, it is quite impossible to maintain a fast pace directly up the slope, even though the climber be in good athletic training. The supply of oxygen in the attenuated atmosphere at this height is insufficient to sustain the effort. At half past eleven the summit of Orizaba was won.

During the latter part of the ascent, the usual midday clouds had been forming rapidly in thick, foggy masses in the lee of the peak—the side of our approach—and had blotted out much of the vista over the plains. The prospect had become limited. We could only gaze into the weird, screening mists which condensed a little to the leeward of the peak, but not until they had passed it. They were

not without their own fascination, but were viewed with apprehension, lest they should extend themselves to the windward and destroy the panorama from the summit.

We were not, however, to be disappointed. When we reached the summit, a wide, open sweep of vision to the north, east and south, over cloud and landscape, met every expectation. But most striking was the scene at our feet. From below, the summit of the mountain had appeared a simple peak; it was, in truth, but a point on the rim of a splendid crater, whose brink we had reached with unexpected suddenness. The rim was narrow, and its inner walls, save for a short, snow-covered slope, dropped sheer, a thousand feet or more to the bottom of the pit which was partially filled with snow.

The sheer precipices of the buff-tinted tuffs of the crater walls, upon the rugosities of which snow had lodged here and there, were fringed above by graceful, snowy domes and cornices. A riotous assemblage of clouds coming up from the Gulf arrayed themselves beyond the opposite crater wall and gave to the resplendent cauldron a superb setting. Instead of a continuous envelope, the vapors marshalled themselves into cauliflorian embossments and gigantic swelling domes, a few of them in the distance boiling up to elevations greater than that of Orizaba.

To the geologist it does not seem a very long time since the fires of the great volcano were extinguished, as the form of the cauldron is still intact, and is perhaps unsurpassed in its perfect outlines and rugged beauty.

We estimated the yawn of the crater mouth at 1500 feet, while the bottom of the crater was put at 1000 feet below us, though it is not improbably more. It appeared quite inaccessible without the extensive use of ropes.

It was probably while on the rim, during the hottest part of the day, that Orizaba exacted the only penalty imposed upon us for invading its sacred heights. With less than half the earth's atmosphere above us, and a still smaller portion of the heat-and-light-absorbing constituents, aqueous vapor and carbon dioxide, to intercept the solar waves, we were assailed by an intense actinic light which the snow reflected with scarcely reduced intensity. No ill effects were noted at the time, but painful, blistered faces, the penalty of the smooth-shaven members of the party, and a pair of inflamed eyes, the price exacted of another, served as a continual reminder of the trip for several days after. In my own case, lips and face forbade

laughing, except with caution, for a full week—no small trial while traveling with sprightly companions.

After another lunch, we shouldered our packs and commenced the descent, for which we chose the smooth snowy slope that lay to the east of the ridge up which we had toiled. The refractory snow had by this time softened sufficiently under the powerful insolation to render glissading safe and easy, but it had not melted so as to wet the feet. We strode rapidly on to camp, where preparations for departure were speedily made. A shower greeted us soon after leaving its shelter, but the weather quickly mended, permitting us to ride leisurely down through the picturesque woods. Darkness had fallen before we came within sight of the lights of Chalchicomula.