then moved west into the area which the Spaniards had climbed in 1963. On June 30 Bauer and Heller repeated the climb of the 17,385-foot mountain called Pica d'Estats by the Spaniards, for which the Californians give the name Padrecaca. On July 1 Cutuni (19,025 feet) was climbed from the west by Bauer and Johnson, repeating the Spanish route, while the rest made a difficult new route from the east.

The Southern Vilcanota. John Wilson of Christchurch, New Zealand, and I left the village of Santa Rosa on the south side of the La Raya-Vilcanota divide on July 8 by mining truck, bound for the Mina Korani (16,000 feet) to the northeast. On the 12-hour journey we went by way of Nuñoa, turning north off the Macusani road at the Río Corojuna, past the Haciendas Cari Cari and Huaychu and over passes of 16,000 and 16,900 feet. From the mine as a base, we decided to climb only the prominent glacier-hung peaks. These were Yuracuno (San Vicente), Jurocucho, Quelma and the Ritipampa (ice sheet) de Quelccaya. *Ritipampa de Quelccaya:* About 20 kilometers and two-days' walk northwest of the mine is this icecap, first recorded by Douglas[1], who passed near its west side in 1929. Katz[2] viewed it from Nudo Quenamari in the Aricoma region to the east. Grimaldo Murillo of the Club Andinista de Santa Rosa described the region to me, mentioning also the existence of a "stone forest" *("bosque de piedras").* The main body of ice is flat-lying, situated above 17,500 feet and when viewed from the southeast appears to elongate for 15 to 20 kilometers in a northeast-southwest direction. The highest point reaches about 18,600 feet. It is underlain by nearly flat-lying volcanic rocks, mainly welded tuffs, which are probably similar to those of the Cordillera Carabaya to the east. Four horseshoe-shaped cirques form the southeast margin of the icecap. In each there are spectacular icefalls, which spill 2000 to 2500 feet down over the cirque headwalls. There are at least three distinct morainal sets within a few hundred meters of the present ice front in the cirques and a large terminal moraine one or two kilometers down valley. The four cirques supply the Río de Pacu, which flows north into the Amazon system. On July 27 we climbed to the ice plateau from a 15,500-foot camp on the Río de Pacu near the town of Pacu. We chose the central dividing ridge between the second and third amphitheatres of the icecap, reaching permanent ice at

1. Douglas, J. A., "The Geology of the Marcapata Valley in Eastern Peru", *Quarterly Journal of the Geological Society of London,* vol. 89, p. 308 Part 3, August 1933.
2. Katz, H.R., "Remains of Old Ice Sheets Constituting Plateau Glaciation in the Tropics", *Mountain World,* 1955, pp. 184-186.

17,000 feet and were forced onto the steep and more difficult west side of the ridge to avoid giant crevasses. We traversed about three kilometers on the dividing ridge before reaching the main ice plateau. There we encountered polar conditions: deep snow beneath a breakable crust and much *sastrugi.* We reached 18,400 feet late in the afternoon and were forced back at least a kilometer from the true high point. We avoided the long dividing ridge on the descent and chose a swift scree-run down beside the icefalls in the amphitheatre northeast of the ridge. *Jurocucho:* South of the Ritipampa de Quelccaya there are at least two other smaller icecaps. The most heavily glaciated is Jurocucho, about ten kilometers distant. It covers a deeply incised, horseshoe-shaped amphitheatre opening to the north in an undulating blanket of ice. When viewed from the distance, this icecap could be mistaken for a part of the Ritipampa de Quelccaya. To the southwest of Jurocucho lies at least one other icecap. This is a flat-lying volcanic tableland, with a small remnant of ice. It appears that all these icecaps were formerly part of a continuous ice sheet. We climbed the highest point of the Jurocucho Icecap on July 23 from a camp at 16,100 feet on a small lake near the col between Quelma and Jurocucho. There were no technical difficulties. We encountered permanent ice at 17,800 feet. We climbed the east ridge and found the route easy over the minor northeast peak (18,040 feet) to the high peak (18,100 feet). We were amused to see an Indian who had followed in our footsteps to the low peak and stood first on the summit cornice and then on a snowbridge, gazing at us. Finally he sauntered off into his valley. *Quelma:* Quelma is a 17,840-foot tooth-like volcanic peak with spectacular vertical walls on all sides except the south ridge. It is the most prominent peak in the region, especially when seen from the highest pass on the road to Mina Korani. We climbed it on July 24 from the camp used to climb Jurocucho. We approached by crossing the glacier on the west side of the mountain to the south col at 17,430 feet. Then we climbed the snow slope, passing the bergschrund on the east side of the ridge. For the last 300 feet, the climb was on steep *verglas*-covered or deeply snowed, crumbly rock. *Yuracuno (San Vicente):* The striking feature of this mountain is that the entire east side is bare of permanent ice, while there is still a substantial glacier on the west side. Yuracuno lies to the east of the Mina Korani. We climbed it in a long day from the mine on July 10, using the northwest ice slope and traversing over the north summit (17,330 feet) to reach the south summit (17,380 feet). *Bosque de Piedras:* The eastern limit of the glaciation in the Mina Korani-

Yuracuno-Ritipampa de Quelccaya region borders an interesting topographic pattern. The low-lying, gently dipping volcanic plateaus towards Macusani have been eroded to form rock towers, 30 to 40 feet high. These occur at an altitude betweeen 14,000 and 15,000 feet. There are also signs of internal drainage, sink holes and an absence of water. The rock towers are friable. Steps can be cut in them with an ice axe. The whole area must occupy more than 100 square miles. At several points the rounded glaciated highlands end where the *bosque* begins, leaving a dramatic indication of former ice extent.

JOHN RICKER, *New Zealand Alpine Club*

Cordillera Carabaya. Our expedition climbed in the Nudo Allinccapac. The members were Anthony Bland, Hugh Donohoe, Clive Ogilvie, my wife Elspeth and I as leader. From June 15 to 22, we attempted the south side of Cornice. We approached from Macusani and placed a camp at 15,100 feet. From here two attempts were made on Cornice. On the first, all of us but Donohoe reached 18,000 feet on the Cornice Glacier, where further ascent was prevented by a 20-foot wall of unconsolidated snow overlooking the bergschrund. This was followed by an attempt on the south ridge by all but my wife. Although a magnificent line, this route proved dangerous due to poor snow. From June 30 to July 3 my wife and a porter made the first ascent of "Chichoccapac" (16,800 feet), a peak on the east ridge of still unclimbed Incaccapac. Bland, Donohoe and Ogilvie made the first ascent of the three peaks on the north ridge of Chichiccapac, all three of which were about 16,750 feet. Unfortunately during the greater part of the expedition the weather and consequent snow conditions were bad.

ROGER WHEWELL, *British Carabaya Expedition*

Trident and Other Peaks, Cordillera Carabaya. Our party, W. Goodfellow, S. C. Dudley, D. G. Massam, R. G. McKenzie, Dr. G. G. Jackson, A. O. Parton, J. Dowd, A. N. H. Chinn and I as leader, was mostly from the Auckland Section of the New Zealand Alpine Club. We climbed in the Cordillera Carabaya, a small compact mountain group, which is virtually a continuation of the Cordillera Vilcanota. As we had been held up by customs in Lima, a bus with two drivers was hired to avoid further delay. It took 2½ days of hard travelling to reach Macusani (13,868 feet) by 6:30 A.M. on June 5. Great help was rendered by our genial host, Señor Alberto Zavala, and so we were able to get organized