The Royal Geographical Society has awarded the Gill Memorial to Capt. F. Spencer Chapman, author of *Helvellyn to Himalaya,* for his exploration of high peaks in Sikkim and Tibet, in particular for his exploit in climbing Chomolhari on his way back from Lhasa, where he had been a member of the Gould mission.

Andes

Peru. To correct an error of omission (*A. A. J.* iv, 176) we wish to state that Coropuna was ascended on October 15th, 1911, by our fellow-member Hiram Bingham, who recorded the details in "Harper's Mag." cxxiv (March, 1912) and in his book, *Inca Land* (Houghton Mifflin Co., 1922). The altitude is stated to be 21,703 ft. The purpose of the ascent was to erect a signal which could be used in connection with a triangulation along the 73rd meridian, Bandelier's book, *Titicaca and Koati,* having stated that it exceeded Aconcagua in elevation and was, therefore, in all probability the culminating point of the continent.

Bingham's companions were H. L. Tucker, a member of Parker's 1910 Mt. McKinley expedition, Corporal Gamorra of Arequipa, and Prof. Alejandro Coello, director of the Colegio Nacional at Chuquibamba. "The view from the top was desolate in the extreme. We were in the midst of a great volcanic desert dotted with isolated peaks covered with snow and occasional glaciers . . . . not an atom of green to be seen anywhere. . . . While we were glad we were the first to reach the top, we were all agreed we would never do it again." The party made base camp at 17,300 ft. and advanced camps at 18,450 ft. and 20,000 ft., reaching the summit from the latter height in 6.5 hours.

Bingham gives other elevations as follows: Mt. Veronica, 19,342 ft.; Mt. Salcantay, 20,565 ft.; Mt. Soray, 19,435 ft.; Mt. Panta, 18,590 ft.; Mt. Soiroccocha, 18,197 ft.—all in the vicinity of Panticalla Pass.

MacRobert's Reply. Lady MacRobert, daughter of Dr. and Mrs. Workman of Himalayan fame, has donated a Stirling bomber to the British government in memory of her three sons, who lost their lives in air force action.

The Highest Mountain in the World

A current article in the *National Geographic Magazine* about the Andes of Ecuador, makes the interesting observation that Cotopaxi is higher than Mount Everest. The reasoning is that the earth, not being a perfect sphere, but flattened somewhat toward the poles and bulging toward the equator, projects the summit of Cotopaxi farther into space than it does the summit of Everest.

In a perfectly "planned" world—the world which a super-celestial "brain-trust" would doubtless like to blue-print for us—the *Geographical North Pole, the North Magnetic Pole,* and the *North Pole of Cold* would all three, of course, be put right where they belong, namely, at the top of the world. And the highest mountain in the world would *be* the highest mountain in the world, and no nonsensical argument about it either. Instead of that we have the *North Pole of Cold* off in some improbable location in the midst of Siberia—nowhere near the *Geographical North Pole.* In a still different location we have the *North Magnetic Pole* wandering around in alarmingly unregulated fashion off the outer fringes of darkest Canada. And now, even more extraordinary, it seems the highest mountain is not the highest mountain after all.

In this whimsical world it now appears there are two ways of identifying the highest mountain. One way, of course, is to measure the altitude of a mountain above the level of the sea prevailing in *its* particular latitude and compare this with the altitude of some other mountain above the level of the sea prevailing in *that* mountain's particular latitude. On this basis Mt. Everest, some 29,000 ft. above the level of the sea in its latitude (28°), wins hands down as the highest yet measured.

The other way of identifying the highest mountain peak is to find that point on the earth's surface which actually projects farthest into space from the earth's center. Using this method we first recognize the fact that the earth is actually an oblate spheroid whose departure from a perfect sphere amounts to about 1 part in 297. Its polar semi-diameter is approximately 13⅓ miles less than its equatorial semi-diameter. That is, the pole is that much *lower* and nearer the center of the earth.

Assuming now that the earth is reasonably symmetrical and consistent in its oblate spheroidicity, it is clear that sea-level in the latitude of Everest will be about 22,000 ft. "lower," nearer the center of the earth, than will sea-level at the latitude of Cotopaxi on the equator $\left(13\frac{1}{3} \times \frac{28}{90} \times 5280\right)$. Thus the summit of Cotopaxi (19,500 ft. above *its* sea-level) actually projects some 12,500 ft. farther out into space from the center of the earth than does the summit of Everest.

Are there any peaks higher than Cotopaxi, using this absolute method of measuring height? Ruwenzori, Kenya, Kilimanjaro in Africa, Huascaran in Peru, and Chimborazo—Cotopaxi's near neighbor in Ecuador—seem at first glance to be possibilities. The first two have a several thousand-foot lower sea-level altitude than Cotopaxi to begin with. Kilimanjaro, with a sea-level altitude about that of Cotopaxi, is some 4 degrees of latitude below it and thus actually several thousand feet "lower." Huascaran, with a

2600-ft. higher sea-level altitude than Cotopaxi, lies 9 degrees below the equator and thus its summit is actually some 3000 ft. "lower" than Cotopaxi.

But Chimborazo, only 1° of latitude below Cotopaxi and thus 800 ft. "lower" for that reason $(13\frac{1}{3} \times \frac{1}{90} \times 5280)$, is a bigger mountain by 1000 ft., and thus, apparently is, by 200 ft., the highest point on the earth's surface, measuring from the center as the point of absolute reference.

In the realm of mountaineering, as in economics and politics, it may well prove that the acceptance or non-acceptance of conflicting theories depends in the end on whose ox is gored. The writer, having just discovered while sitting quietly at home, that he has already climbed "the highest mountain in the world," is now reported by his friends as being *quite* enthusiastic about the center of the earth as a reference point!

T. M.