order. The references to the different peaks are necessarily very condensed, but give the altitude, the position, the date of the first ascent and the names of the climbers. Suggestions as to routes of ascent are usually given, and in the case of important mountains more detailed accounts are supplied.

It is, of course, a book for reference rather than for continuous reading, but several of the introductions to the different sections give an excellent outline of the geographic relations, and also of historic discoveries and journeys through famous mountain passes, points of much interest to those who do not browse in old Alpine journals.

A glance through its pages shows many names of routes and peaks that recall vivid memories of toils and troubles, but also sometimes of joys and triumphs, in the breast of a man whose contests with mountain trails and mountain peaks ended almost a quarter of a century ago; but it is a delight to see how splendidly the men, and women, too, of a later generation are taking up the most heroic and unselfish of sports among the peaks and glaciers of the Rockies.

The *Climber's Guide to the Rocky Mountains of Canada*, compact in form so as to slip easily into the pocket, and yet very complete and up to date, should prove indispensable to the members of our Alpine Clubs and to all travelers who visit the Canadian Rockies.

A. P. Coleman.

The Kangchenjunga Adventure, by F. S. Smythe, Victor Gollancz, Ltd., London, England, 1930. 464 pp. and 48 plates. 16/s.

This brilliant book by the author of *Climbs and Ski-Runs* is the story of what looked like a forlorn enterprise from the outset. It is packed with historical matter, exciting incidents, important observations, suggestive comments and splendid descriptions of the scenery. The descriptions are supported by admirable pictures which combine climbing interest with artistic skill in composition. It would require a review of many pages to do even meagre justice to the richness of its contents.

Mr. Smythe was the most experienced Englishman in the international party from Germany, Austria, Switzerland and Great Britain, organized by Professor Dyhrenfurth (accompanied by his wife), who, at the age of 13 climbed the Rosengartenspitze in the Dolomites and has made over 700 ascents in the Alps and Hohe

Tatra. The expedition was the fourth attempt on Kangchenjunga (either the second or third highest known Himalayan peak), if one reckons the solitary, mad and fatal attempt of the young American, E. F. Farmer, as a serious attack. The year before, 1929, the Munich party under Dr. Paul Bauer, who has given a very lucid account of its achievement in the *Alpine Journal,* Vol. XLII, Nov., 1930, made a tremendously courageous attack on the mountain from the northeast side, reaching an altitude of 24,272 ft.: an attempt which has been described by the editor of the *Journal* as "a feat without parallel, perhaps, in all the annals of mountaineering."

Professor Dyhrenfurth's party was the first to approach the peak from the Nepal side. Since ponies and mules could be taken only a short distance of the way to the base camp, this entailed the employment of 400 porters, "some very good, some very bad," as against 100 employed on each of the three Everest expeditions. An enormous amount of food and other supplies had to be carried in. The author is critical of the clothing supplied to the expedition as being too heavy, especially the boots, and congratulated himself on having been equipped independently (pp. 60-63).

It was decided that the first attempt should be made from the Kangchenjunga glacier on the northwest side of the mountain. "To appreciate the beauty and dignity of Kangchenjunga, the apparently smooth, sickle-like sweep of its ridges, the pale red of its granite precipices, gleaming like a sun-caressed Devonian cliff through a blue Atlantic haze, it should be viewed with the naked eye." "But seen through a microscope; broken and jagged, torn and hewn by pale red precipices are resolved into fearful slices of unrelenting granite: the apparently smooth ridges resemble the blade of a knife seen through a microscope; broken and jagged, torn and hewn by wind and weather into edges, gaps and towers of fantastic and terrible beauty: what appears to the naked eye as straggling thin white threads are terrific ice-armoured couloirs, down which crash stones and ice avalanches from disintegrating cliffs of rock and ice" (p. 102).

We must pass over the chapters, "Through Tropical Sikkim," "The Kang La," in which a vivid description is given of the difficulties of crossing the pass 16,373 ft., and the splendid endurance of the porters, and "In Unknown Nepal," to come to the base camp, pitched at 16,500 ft. on the Kangchenjunga glacier, five miles from the west base of the peak. Opposite the camp, rising in one clean

sweep of 8,000 ft., was the "savage and brutal" Wedge Peak. The face of Kangchenjunga, on which Mr. Smythe thinks there is probably more snow precipitated yearly than on any other great Himalayan peak, and which among mountains stands for verticality, rose almost 10,000 ft. The plan was to reach its north ridge at the lowest point, the col between it and the Twins, and "then make our last camp somewhere on the upper of the three glacier-clad terraces, about 1,500 ft. beneath the summit under the final rock pyramid" (p. 201).[1]

After establishing two higher camps in the first week of May, No. 2, at about 20,000 ft., a better view of the northwest face was obtained, and it was seen to the dismay of Mr. Smythe, at least, that the only possibility of "climbing" the peak was over a clean-cut ice barrier, some 600 to 800 ft. in height, which ran for some three miles across the face, and under the north ridge. Above it towered huge masses of unstable pinnacles ready to fall, while débris lying around showed that they frequently toppled down. A staircase had to be cut in the steep and glue-like ice of its lower and most dangerous portions. Five days of exhausting labor, in which the author participated, during which the advance party was exposed to the greatest risks, brought them up only 500 ft. (Picture p. 242). Even with fixed ropes it seemed doubtful that laden porters could be got up to the terrace above, where it was proposed to establish Camp 3. Moreover, a fall of snow might easily isolate this camp from the others below.

Schneider "of boundless energy" and a most expert alpinist, and Hoerlin worked for another day on the ice-wall and decided that the terrace could be reached and the porters be brought up on the day following. Mr. Smythe spent a troubled and restless night and was in no condition to make a start; so he and the cook remained at Camp 2. Half an hour after the last of the party had left, he was startled by a terrific roar, and realizing that the noise came from the ice-wall dashed outside the tent. "An enormous portion of the ice-wall had collapsed. Hugh masses of ice, as high as cathedrals, were still toppling to destruction: billowy clouds of snow-spray were rushing upwards and outwards in the van of a huge avalanche. On the slope below was the party, mere black dots, strung out in a line . . . they were engulfed and blotted out

[1] For picture of proposed route see p. 202.

like insects beneath a tidal wave" (p. 253). Fortunately the avalanche stopped within 200 yards of the camp.

The author went up to the climbing party, of whom two were missing. But Schneider soon reappeared from the snow: the avalanche had missed him by a few feet. The only sacrifice was the fine porter, "Satan" Chettan. It was indeed an amazing escape.

A second attempt was made on the northwest ridge after Camp 1 was moved across the glacier near the Western Tributary glacier and to the foot of a rocky spur, where it was safer. From here, most of the party reached a point 20,800 ft. (separating the Ramthang Peak, 23,000 ft., from the northwest ridge of Kangchenjunga), after Wieland had climbed it alone. More difficult rock-climbing, in which Schneider and Wieland participated (pp. 278-282), showed the impossibility of proceeding further along this ridge or of establishing camps, even if the rocks could be surmounted. The idea of climbing Kangchenjunga was abandoned. The author regarded the prospect of getting any distance up the northwest ridge as utterly hopeless.

The expedition made, however, several notable first ascents: that of the Ramthang Peak, 23,000 ft. (see p. 290), which had suggested to previous explorers the name "Madonna Peak," owing to its sweeping slopes of snow and ice, and that of the Jonsong Peak, 24,344 ft. (twice), which although not a high altitude climbing record, is the highest summit yet reached (pp. 339-369).

In a suggestive and instructive chapter on "Lessons of the Expedition," in which high tribute is paid to Colonel Tobin, and two other British transport officers, without whom the expedition would have been a complete failure, and to Frau Dyhrenfurth, for her "management of the stores and supervision of communications, which were invaluable and could not have been excelled," Mr. Smythe discusses problems of photography in high altitudes, the clothing and feeding of climbers, ways of maintaining their health and the value of oxygen. The last should always be taken on a Himalayan expedition, he thinks, on account of its medicinal value; its inhalation being often more valuable than the taking of alcohol.

The expedition was not defeated by weather. It was defeated by sheer difficulties and dangers. Mr. Smythe agrees with Dr. Bauer's analysis that Kangchenjunga is a more formidable and dangerous proposition than Everest. All its sides have been explored and photographed: further reconnaissance, he holds, is unnecessary.

Time, he maintains, will always be an important factor. "Given sufficient time and weather of the right type, there is a remote probability that Kangchenjunga can be climbed by present-day methods. But does a sufficiently long enough spell of good weather *ever* occur on the mountain? Can men acclimatize themselves sufficiently to climb even moderately difficult rocks, and the upper rocks may be more than moderately difficult, between 27,000 and 28,000 ft.?" That is the question!

J. W. A. H.

Up and Down California in 1860-1864, the Journal of William H. Brewer. Edited by Francis P. Farquhar. Yale University Press, New Haven, 1930. Pp., 601; illustrations, 63; price, $6.00.

During the past century American mountaineers have keenly followed the early exploration of the Sierra Nevada range of California through the pages of Clarence King's *Mountaineering in the Sierra Nevada* and the *Yosemite Book* and other publications of the California Geological Survey of 1860-64. With the appearance of the journal of William H. Brewer we have, at last, the comprehensive and intimate narrative covering those four years of exploration. Far from duplicating earlier printed material, it provides a new perspective from which to enjoy the story of early California exploration and mountaineering. Its great wealth of detail and its easy flowing style make this new volume most entertaining to anyone who is the least interested in California of post gold-rush days.

With the formation of the California Geological Survey in 1860, William H. Brewer was chosen by the chief, Professor Josiah Dwight Whitney, as second in command. His professional attainments were not those of a geologist, but his broad training in many sciences and his wide practical experience made him invaluable as one of the leaders of the field expeditions. Brewer was not only capable but also industrious and meticulous in the matter of keeping written records. Besides recording the scientific and other official data of the expedition, he found time to carefully prepare a personal journal which was sent in serially numbered letters to his family in the East. It is fortunate indeed that these letters were preserved so that now at the end of more than half a century they can be combined to give us the intimate story of the explorations of the California Geological Survey.