THE SOUTHERN ALPS FROM END TO END: OR, FURTHER REMARKS ON AIR SURVEY OF THE MOUNTAINS OF NEW ZEALAND

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In my article in *A.J.* 59. 442, I stated that persistently poor flying conditions last year had prevented more than very restricted observations, and little photography, of the Southern Alps and its detailed structures, being carried out. This year, during two brilliant days in April, a ' Devon ' aircraft of the R.N.Z.A.F. again undertook to fly me up and down the whole extent of the range, and Mr. B. M. Gunn, a student-geologist and mountaineer, was able to accompany me. Commencing in the south at the shapely peak of Mt. Aspiring (9,957 ft.), on the first day (April 20, 1955) we flew northwards along the eastern side of the main range, with the aerial camera in continuous operation, and ourselves tantalised by this lesser-known portion of the chain. Unfortunately, on reaching the Mt. Cook massif, clouds began to bank up over the range, obscuring so much of importance that we had perforce to postpone the rest of the programme and return to Dunedin.

Next day (April 21), flying directly to Mt. Cook and favoured with good weather, we continued the eastern traverse northward to the vicinity of Arthur's Pass, and beyond to the neighbourhood of Harper's Saddle. Thence, turning southward, we flew down the western flank of the main range in well-nigh perfect conditions, only scattered clouds clinging to a few of the lower summits. The panorama passing before us was overwhelming, and all too fleeting ; but the camera has recorded it all, or nearly all, for photogrammetric purposes, as well as for our tectonic studies of the range, viz. indications of structural features and their relationships, their bedding, folding and faulting, that must later, in many cases, be examined on the ground : a fascinating job indeed for the geologist-mountaineer.

Continuing southward along the line of the great Alpine Fault, past Mts. Tasman, Cook, Sefton and a host of unidentifiable peaks, we sped on over Mt. Hooker and the Haast Pass, and then made straight for the Olivine range and the Red hills, westward of Aspiring. The colour contrast of rich russet in the ultrabasic intrusive rocks of the Red hills, as compared with the uniform grey of the schists and greywackes of the main range, delighted the eye of us all and lured on our pilot and navigator, who had never done this kind of flying previously, and were thrilled. But time and petrol were our limiting factors, and turning south and then south-east we passed closely by the twin-summits of Mt. Earnslaw (9,250 ft.) and its fine glaciers, and headed for the brilliant blue waters of Lake Wakatipu. A final glimpse of Queenstown

nestling in its picturesque bay by the lake, left us dazed by all we had seen, as we again traversed the arid and relatively monotonous tract of Central Otago, to alight at Taieri airport, for Dunedin ; after precisely 4 hours and 35 minutes of spectacular flying over the Southern Alps from end to end, namely from Mt. Earnslaw to the vicinity of Harper's Saddle, some 230 miles linearly of mountain chain.

It should be added that I have submitted the air-photographs obtained during these flights to a number of experienced New Zealand mountaineers for identification of topographical features in less-known parts of the range. As a result, it would seem that several glaciers and minor peaks in the higher recesses of the mountains have revealed themselves for the first time ; and even portions of the main divide may have to be corrected on future maps. Consequently, it is gratifying to know that what was originally planned to be essentially a geological project may prove to be of value topographically as well as from a mountaineering point of view.