

## The Snow Country of New South Wales



It is felt that there may be many New South Wales skiers who would like to know something of the economics and geography of the country over which we ski, one of the most interesting areas in Australia. The following notes are excerpts (for which we are very grateful) from an article, by F. A. Craft, B.Sc., Linnean Macleay Fellow in Geography, of the University of Sydney, in Vol. II, No. 4 (1934), of the "Australian Geographer." Mr. Craft gives, at the conclusion of his article, a reference to the well-known "Reconnaissance of the Mountainous Part of the River Murray Catchment" (Commonwealth Forestry Bureau, Bulletin No. 13, 1932), by Mr. B. U. Byles, whose maps of the western fall of the Main Range formed one of the bases of the 1934 Lands Department map which we now use for ski-ing.

As Mr. Craft gives no other references, we have added at the end of our excerpts from his article a further list of sources from which information may be derived. A Royal Commission sat lately to determine certain questions in connection with proposals to subdivide New South Wales into a number of new States. One of the proposals considered involved running a State boundary line down the centre of the Main Range and, in consequence of this, a good deal of evidence was called and exhibits tendered dealing with the snow country. A list of these references is appended to these notes. The Editor would be grateful for any further additions in the form of references to other books, articles or maps on the subject.

After explaining the chief features of the snow country, Mr. Craft goes on:—

"The natural disabilities of the high plateau and the transition zone militated against exploitation, except of the northern fringe, where the working of alluvial gold deposits at Kiandra (1859 onwards) was followed by the construction of a road, and by the alienation of some choice parts of the upper Murrumbidgee and Eucumbene valleys. However, the greater part of the area was almost untouched in 1889, when the tenure known as "Snow Lease" was instituted; this was an expression of the policy of the State Government, namely, to prevent alienation of the slopes and the high plateau land, which is to be held as reserve country where stock may be sent from drought-stricken parts of the State, or to be preserved for recreation and scenic purposes. The conditions of the various leaseholds show this attitude.

The working out of the system has, however, departed considerably from

the original plan. "Drought relief" by the actual transfer of needy stock is becoming impracticable with the fuller utilisation of pastures in the regions where drought is a minor factor, and such areas as the snow country, which are occupied seasonally or intermittently, have a low carrying capacity. Thus it is doubtful whether the whole snow belt carries as many as 500,000 beasts in the driest season; so it is fated to have only a local significance from this viewpoint. In practice, most of the leases are held by graziers who reside in the lower country to the east and west of the high plateau, and they are worked in conjunction with properties in the upper valleys of the Murray River, or the Monaro tableland. Security of tenure is assured by mutual arrangement among the people concerned, and by the fact that the desire and ability to carry on successfully are confined to a few men with an intimate knowledge of the mountain country, who are either small property owners or hired shepherds. The greater part of the leasehold is thus held by a few individuals or pastoral companies, while the balance is treated as open range by the "smaller" graziers.

Under these conditions there is a regular seasonal routine. When the snow has thawed (between September and December), stock are driven up the steep trails from the west, or along the roads and trails from the east. Food for men and salt for animals are carried to the roadheads by motor truck, and thence to the high plateau by bullock waggons, over rough mountain roads, or by pack-horses, over the trails. Log huts have been constructed at intervals on the plateau surface and are occupied intermittently during the grazing season, which lasts until the end of March on Kosciusko, or the middle of May in places where heavy snowfall begins later. As the time for evacuation approaches, trails which were partially cleared for the upward spring movement have to be cleared of logs and branches that have fallen as the result of winter snow or summer fire, and the retreat is begun when the air gives promise of snow. Some of the animals are withdrawn to winter in cleared lowland country, or to be sold as fat stock, but others remain on the forested slopes of the transition zone.

#### PASTORAL LEASEHOLD TENURES IN THE SNOW COUNTRY.

Tenure.	Period.	Area.	Rent per acre.	Position.	Conditions.
Snow Lease	14 years or less	10,240 acres maximum	2.5d— 6.0d	Land covered by snow in winter —generally over 4,000 feet alt.	No interference with timber— acquired by tender
Permissive Occupancy	1 year	1,000 to 60,000 acres	0.1d— 2.3d	Snow-gum country in snow-belt, and steep slopes of transition zone	No interference with timber
Occupation License	1 year	14,000 to 20,000 acres	0.06d— 0.12d	Lower slopes of mountainous country	No interference with timber
Annual Lease	1 year	—	1.0d to 3.0d	Small areas of lower slopes adjoining freehold	No interference with timber

(From Dept. of Lands and B. U. Byles)

The type of animal grazed on the Alpine pastures is controlled by means of access. The roads to Kiandra and Kosciusko have adjacent country which is relatively smooth and well-grassed, and which is enclosed by fences; vital river crossings are bridged, and the country is largely stocked with sheep brought from the neighbouring Monaro districts. Fences are of great im-



From the late Mr. Kerry's collection of early Kiandra photographs.

portance, as it is necessary to prevent the sheep from straying into the steep forested slopes, and to give a measure of protection from wild dogs; the greater part of the fenced country is near the roadheads, and other enclosed areas, such as that on the upper reaches of Tooma River, are used for grazing cattle and horses. Cattle are found throughout the area, because they can pass the many open river crossings which are found on some of the trails.

In addition to the limitations imposed by seasonal conditions, there are others due to the nature of the country and its vegetation. Apart from the Monaro Highway, access from the west is limited to one bullock road and six trails; the road is steep and rocky, but may be traversed by waggons holding up to three tons of supplies; trails climb slopes of 30 deg. and 35 deg., and are liable to blockage in the passage of the transition zone by trees and branches which fall as the result of snow and fire. The ultimate aim of the graziers is to sweep the forest trails clear of all large vegetation, but indiscriminate firing has damaged the whole cover of the slopes. Access to the east is much better because the ascent is more gradual from elevations of 2,500 or 3,000 feet; the northern section is well served by roads based on Adaminaby and Jindabyne, but the southern depends entirely on a few trails.

A more serious drawback is found in the character of the native vegetation. In the snow belt above the transition zone, the characteristic tree is "snow gum" (*E. coriacea*), which grow in open stand to a height of 30 feet. It is replaced by woody shrubs in exposed positions and in swampy lands, while the principal grass occurring on the hillslopes is "snow grass" (*Poa Caespitosa*);

in order to clear away the carry-over of unpalatable stems and leaves, the pasture lands are fired during the grazing season, usually towards its beginning or end; stock browse lightly on the new shoots of the grass and shrubs, and get into prime condition. The seasonal burning has great drawbacks; according to B. U. Byles, it is the cause of progressive degeneration in the vegetation and may lead to complete uncovering of soil in exposed positions, the replacement of some palatable species of plants by others, like snow grass, which need treatment such as periodical burning, and the gradual killing of the snow gum which protects much of the steeper ground from erosion. The snow gum resists killing by putting forth a vigorous coppice growth after fire, and successive fires are followed by the killing of this growth and its replacements; as a consequence hills and ridges are covered with a tangle of upright and fallen stems, with a thick intergrowth of Alpine heather and young coppice. By these means the trails are blocked and free access to the various grazing places is greatly hindered. Relief from this condition is sought by more fires, but logs are difficult to burn when they have lain in the snow, and not infrequently recourse has to be made to axe and saw. Repeated burning over many years eventually kills the thickets and disposes of the debris, but this has occurred only in limited areas, chiefly on the Main Divide half-way between Kiandra and Kosciusko; where it has occurred, the slopes are exposed to fierce wind action, and the shelter necessary for stock has been destroyed. The seasonal grazing occupation is of a definitely primitive nature, both as to the methods employed and the isolation of individual men during the period of occupation.

The greatest significance of the snow country lies in its possession of an efficient and reliable catchment area, which feeds the Snowy, Tumut, Murray and Murrumbidgee Rivers. These streams have a simple régime in their highland sections, with a minimum in February and a maximum in September-October; the rainfall curve is rather similar, but the high monthly totals between May and October do not show a great mutual difference. In these months, part of the moisture is retained in the catchment as snow to be liberated in the spring thaw, which is responsible for 20 per cent. of the annual flow of the Snowy River. For most years, the volume of water supplied by the snow country is probably not less than 3,000,000 acre-feet; almost a third of this is available for storage in the Hume Reservoir, on the Murray (capacity, 1,250,000 acre-feet), while another portion carried by the Murrumbidgee is impounded at Burrinjuck. As the efficiency of the snow country is not impaired to the same extent by drought years as that of other parts of the catchments, the highland water is relied on to give a considerable part of the drought supplies to irrigation undertakings. For this reason the water value of the area is very considerable, and it may be enhanced if hydro-electric generation is undertaken on the Snowy River. All told, the potential annual value of this water is probably much greater than a quarter million sterling; according to Byles, the present grazing revenue is about £2,000!

From the standpoint of irrigation use, the water of the snow country represents a changing distribution of population in the growth of irrigation settlements far removed from the high plateau, and the people mainly concerned with doings in the snow country and the preservation of the water asset are those actually residing much further inland. In effect, the snow country must be looked upon as though a portion of this population were actually domiciled on it.

The area may be compared, in miniature, with other regions in which British people are particularly interested. British territory in Africa has been extended to include almost the whole drainage of the White Nile, and Britain has taken a great interest in the status of Abyssinia and the fate of the waters of the Blue Nile. In the same region, Egypt demands a share in the government of the Anglo-Egyptian Sudan, as she is vitally interested in the control of

the Nile. In the north of India, British influence and authority have been extended to almost the whole source country of the Indus and Ganges Rivers, and irrigation projects have been developed mainly for the people living on the plains. Many other examples could be cited of the regard paid to water rights, but it is already clear that the position of the snow country in New South Wales simply presents another phase of the conflict between hill shepherds and dwellers on the plains. In this case, some disabilities of the Alpine pastures are due to promiscuous burning of the countryside, and measure of control and research, as Byles suggests, may benefit the pastures and preserve the catchment, thus serving the interests of grazing and irrigation at the same time.

Administrators of the area are faced with the problem of reconciling pastoral occupation with the protection of the catchment from certain phases of deforestation and erosion. Perhaps the solution will be found in a rigid forest control of the inferior lands of the steep transition zone and of the snow country; in the growth of exotic grasses, as at Cooleman Plains, in the north-east of the area, where native tussock grasses have been replaced by English turf over a limited area of limestone country, and in the careful preservation of all swamps and marshes."

The evidence given before the New States Commission on this area is as follows:—

1. Map of the Area. (Exhibit 127).
2. List of Snow Lease and permissive occupancy holders. (Exhibit 195.)
3. Evidence of the following witnesses, *inter alia*:—  
Mr. Ellis (Vol. 1, p. 1114, *et seq.*), Mr. Byles (Vol. 1, p. 2057), Mr. Crouch (evidence on the western side of the Range, Vol. 6, p. 1650), Mr. Graham (Vol. 6, p. 1630), Mr. Chaseton (Vol. 6, p. 1639), Mr. Hedges, M.L.A. (Vol. 1, p. 2015), Mr. Litchfield (Vol. 7), and Mr. Lang (Vol. 7, p. 2027).
4. The following official facts were given before the Commission:—The area is administered by a committee, consisting of the Surveyor-General and Lands Department officers of Goulburn and Wagga Wagga. The access roads are under the Pastures Protection Board. The area is 1,400,000 acres. Snow leases are 358,663 acres; permissive occupancies, 119,655 acres.

