This survey has covered briefly the main aspects of winds characteristic of mountain regions, and indicates the great variety of phenomena which result from the motion of air masses under favourable conditions. The author would like to thank Professor R. S. Scorer for providing photographs and information about lee waves and Ted Pyatt for suggesting other useful sources.

General References
2 ‘Clouds of the World’ R. S. Scorer. (An atlas to cloud formations with several examples of lee wave phenomena.)

The feminine share in mountain adventure. Pt I
Cicely Williams

(In this paper there are many extracts from my book ‘Women on the Rope’, George Allen and Unwin, 1973.)

It is hard to realise in these days, when great mountaineering expeditions take place almost every year, that for centuries mountains were regarded with dread—especially by those who lived among them. Suddenly a great change occurred; the age of nature worship was ushered in by Rousseau and a bevy of English poets and early in the 19th Century mountaineering became a sport, something to be enjoyed for its own sake. Of course the first adventurers were men, in those days that was always the case, but for once women were not far behind and as early as 1808 the first woman stood on the summit of Mont Blanc.

This event, although historically important, can hardly be said to mark the moment at which women began to climb seriously and regularly. It was an isolated event. Maria Paradis was an 18 year old Chamonix maid servant who kept a rather shabby little stall at the foot of Mont Blanc; it provided light refreshments and a few commodities for passing climbers. Maria had little enthusiasm for mountains and less for climbing; her interest was centred on earning a little extra income. However, numbered among her boy-friends were guides and porters who had been involved in some of the early ascents of Mont Blanc. They managed to persuade her that if she allowed them to take her to the summit the fame of her little stall would spread far and wide.

Maria reluctantly agreed and set out with a party which included a member of the famous Balmat family. She did not enjoy the climb and suffered from every form of discomfort, but somehow she was dragged to the summit and brought safely back to Chamonix. The financial results of the exploit were far beyond her expectations and, in her own words, she ‘made a very nice profit out of it’.
So far as is known Maria Paradis never attempted another mountain nor did her example trigger off a passionate desire among other members of her sex to follow her example. Many years passed but it is known that in 1822 a Mrs and Miss Campbell crossed the Col du Géant in the Mont Blanc range. Sadly these intrepid ladies did not leave any record of this or any other alpine adventures; perhaps it never occurred to them that future generations would be interested in their doings.

In 1838 another woman reached the summit of Mont Blanc and it is true to say that she was in fact the first woman actually to climb, rather than to be hauled, to the top. Henriette d'Angeville seems to have had no doubts whatever that her ascent of the mountain would be of immense interest to a vast public—and so it proved to be! The huge stock of provisions carried by her porters; the remarkable wardrobe she deemed necessary for the event; her consultations with her medical advisers and the fact that she was careful to make her will were all duly noted and surrounded the affair with an aura of excitement and solemnity.

The first bivouac was at the Grands-Mulets and the night was spent under canvas. Early the next morning the party was off again; Henriette experienced
great difficulties and much physical suffering but strength of will kept her going and at 1.30pm she stood on the summit. Her delight and that of her guides knew no bounds. They stayed less than an hour on the top and descended for a second bivouac at the Grands-Mulets. Her arrival in Chamonix the next morning was a triumphant affair; the whole village turned out to meet her, a cannon was fired and the enthusiasm was indescribable. Never before or since in the annals of mountaineering has there been such a saga.

Henriette d’Angeville has been much criticised, not without reason, for this flamboyant first ascent and it is true that her behaviour bears little resemblance to the great traditions that have since been established by later women climbers. But Henriette never lost her enthusiasm for the mountains; she continued to climb for another 25 years and made no less than 29 further ascents, including one in winter. She mellowed much with the years; when, at the age of 69, she climbed the Oldenhorn she decided that this should be her last effort and wrote rather humorously to her friend Mary Paillon, ‘. . . it is wise at my age to drop the alpenstock before the alpenstock drops me’.

Miss Anne Lister, the woman pioneer in the Pyrenees, began her climbing career in Switzerland but in 1830, while staying in France, she crossed the Spanish frontier and succeeded in climbing Mont Perdu with the guide Jean-Pierre Charles. The Pyrenees captured her imagination; she returned in 1838 with her heart set on the Vignemale. She engaged her former guide and with him climbed the Piméné. On the mountain they met Cazaux, the Vignemale guide who had explored the mountain during the previous year. Anne engaged him at once and would have set off immediately on the expedition had not the weather suddenly broken. While waiting impatiently for conditions to improve she heard that she had a possible rival for the Vignemale in no less a person than the Prince of Moscowa—the son of Napoleon’s Marshal Ney. To Anne Lister this seemed an impossible situation; she was determined not to be forestalled. Enveloped in a complex assortment of capes, cloaks and petticoats, plus a useful pair of crampons, she set off with 2 guides to meet Cazaux at the Cabane des Saoussats Dabats. At 2.0am on 7 August they began the ascent and at 1.0pm they reached the summit. Anne was an unemotional type and seems to have enjoyed little sense of elation at her success. For those days, however, it was a considerable achievement for a woman and deserves to be recorded as such.

Sixteen years later, in 1854, Mrs Hamilton with her husband and her guides reached the summit of Mont Blanc. This was an occasion of some importance; Mrs Hamilton was the first British woman to climb Mont Blanc and this was the first husband and wife partnership recorded in the annals of climbing. Surprisingly little attention has been paid to the event but it is right that Mrs Hamilton should take her place among British woman pioneers. During the years 1850–8 a certain Mrs Cole was blazing a new trail in ‘mountain touring’, as distinct from big ascents. She was greatly attracted to Monte Rosa and in 1850 approached it via the Gemmi Pass and the Zermatt valley. She and her party obtained magnificent views from the Schwarzsee and the Gornergrat; they then departed for Saas Fee via Stalden. With Joseph Lochmatter as guide they crossed the Monte Moro Pass to Macugnaga and were rewarded with an entirely new aspect of Monte Rosa. In 1858 Mrs Cole made her last visit. The party crossed the Grimsel and arrived eventually at Aosta. They proceeded up
the Val Tournanche to Breuil, hoping to cross to Zermatt by the Théodule Pass. Sadly Mrs Cole was prevented from completing this tour but her modest mountaineering achievements make interesting reading in a little book entitled 'A Lady's Tour Around Monte Rosa' published in 1859.

In 1861 Longmans Green published a small book with the title 'Alpine Byways' by 'A Lady'. It contains descriptions of family holidays of the Lady and her husband and young son in 1859 and 1860. Their travels were prodigious; the Bernese Oberland, Engelberg, the valley of Sixt, the Graian Alps, the Val Tournanche and the Zermatt and Saas valleys. With the guide Michael Alphonse Couttet of Chamonix they climbed the Schilthorn, the Titlis, the Pousset and the Cima di Jazzi and crossed innumerable passes. These exploits certainly entitle the Lady to an honoured place among women mountaineers; but she has another claim to fame. The enthusiastic teenage son who accompanied her was none other than Douglas Freshfield, later to become President of the Alpine Club, President of the Royal Geographical Society and a member of many Everest committees.

By this time Victorian Britain was gradually becoming aware that women mountaineers did, in fact, exist. At first this situation was regarded as somewhat shocking but these adventurous young women conducted themselves so demurely and so unostentatiously that no public scandal was caused. Society shrugged its shoulders and slowly women climbers came to be accepted, and even publicly applauded.

The very first woman, still regarded as one of the most famous, to climb regularly in the Alps was Miss Lucy Walker. She came in 1858 with her father and brother who were already well-known in the mountaineering world. Climbing was almost the only physical activity in which Lucy indulged and
she climbed because she liked it—mountains became part of her life. She climbed essentially as a woman; she never aspired to breeches and climbed always in voluminous skirts—usually a white print frock. Each year the Walker family came to the Alps, moving from valley to valley, from centre to centre. Lucy’s first introduction to high mountains was in the Oberland when she climbed the Altels with Melchior Anderegg as guide. From that day Lucy climbed always with Melchior; in the course of 21 years they made 98 expeditions together.

In 1862 Lucy did the Dufourspitze of Monte Rosa and followed this up with an ascent of the Finsteraarhorn. In 1864 she was on the Rimpfischhorn and later in the season the Walkers made the pioneer ascent of the Balmhorn en famille. By 1870 Lucy Walker was already a thoroughly established and experienced mountaineer but somehow no one had ever heard of her. Then on 20 July 1871, in her white print frock, she climbed the Matterhorn—the first woman to do so and only 6 years after the success and subsequent tragedy of Edward Whymper’s party. She became news at once and was immediately the heroine of her generation. News of her earlier exploits was noised abroad, including the fact that she had been the first woman on the Weisshorn and the Lyskamm. She became a notable figure in alpine circles, no gathering seemed quite complete without her. In Whymper’s famous picture, ‘The Clubroom at Zermatt’, she is the only woman in the group, standing behind her father in front of the door of the Monte Rosa Hotel.

In 1879 Lucy gave up climbing on her doctor’s orders but she came every year to the Alps, calling on Melchior Anderegg and his family in the Oberland and always spending a few days at the Monte Rosa at Zermatt. When the Ladies’ Alpine Club was founded in 1907 she became one of its first members and in 1912, at the age of 76, was elected to be its second President. She died in 1916, just 2 years after her beloved guide Melchior Anderegg.

While Lucy Walker was establishing her brilliant career 2 English sisters were building up an almost equally remarkable reputation for mountain exploits. The Misses Anna and Ellen Pigeon were quiet, unspectacular women and had reached their mid-30s before they undertook their biggest expeditions. During the course of 10 years they travelled out to the Alps every summer, engaged guides and porters and proceeded to carry out a programme entirely devised by themselves. Their list of achievements is impressive; in 7 years they climbed 63 peaks and crossed 72 passes.

Anna and Ellen were tough and courageous; they thought nothing of sleeping out on alps and in hay huts and frequently spent the night in the open at a considerable height. ‘Slept out for Gabelhorn’; ‘Slept out for Weisshorn’ are typical entries in their diaries. In 1873 they made the first traverse by women of the Matterhorn from Breuil to Zermatt. Conditions were poor on account of a violent snowstorm but this in no way deterred the Misses Pigeon. Their most dramatic and famous expedition took place in 1869 at the very beginning of their alpine careers. In the autumn of that year they crossed the Sesia Joch from Zermatt to Alagna. This pass had been crossed only once before—in 1862 by Messrs George and Moore of the Alpine Club. It had then been regarded as a ‘most daring exploit’, possibly a tour de force which should never be repeated.
Members of the Alpine Club were astounded to hear of the remarkable feat of Anna and Ellen Pigeon; strict investigations were made but the Club agreed unanimously that they had indeed crossed the pass by this very severe route. Having established the true facts the Alpine Club recorded the event for posterity in volume V of the AJ.

In 1885, in response to repeated requests, Anna and Ellen published a slim little volume called 'Peaks and Passes'; a diary account of their achievements between 1869 and 1876. The only extant copy was eventually presented to the Ladies' Alpine Club and was always one of its most prized possessions.

Only 2 months after the Matterhorn disaster in 1865 an American lady, Miss Meta Brevoort, arrived in Zermatt. She was accompanied by her nephew—a short, fat boy somewhat given to picking up germs of every description. Meta Brevoort’s plan was to improve this unhealthy child’s physical condition by inspiring him with her own passion for the mountains. Her success must have exceeded her wildest dreams—the nephew was none other than W. A. B. Coolidge, later to become one of the most famous and controversial figures in the alpine world and one of its best known historians. Meta Brevoort was a mountaineer in her own right and engaged in a regular programme of ascents season after season. Most of her climbing, although not all, was done with her nephew, frequently accompanied by the dog Tschingel. In 1868 they engaged Christian Almer as guide and so began another of the great guide–amateur partnerships. She had hoped to be the first woman to climb the Matterhorn but was forestalled by Lucy Walker. Nothing daunted, within a few days she made the first traverse of the mountain by a woman from Zermatt by the Hörnli ridge, descending to Breuil by the Italian ridge.
In September of the same year she was involved in an exciting ascent of the Bietschhorn during which the party had to bivouac in a cave without food or blankets. Meta Brevoort wrote a paper entitled ‘A Day and a Night on the Bietschhorn’ which she submitted to the Alpine Club under Coolidge’s name—knowing full well that it would never be accepted under her own! It was published and makes delightful reading. Winter climbing had scarcely been heard of in those days but in January 1874 Meta Brevoort ascended the Wetterhorn with Coolidge, Christian Almer and 3 porters. A week later she made the first winter ascent of the Jungfrau. In all she must have had more than 70 major peaks to her credit, including several first ascents, not to mention innumerable minor expeditions. She died very suddenly in 1876; the dog Tschingel survived her and her nephew W. A. B. Coolidge continued for many years on the course on which she had first set him.

During the 1870s 2 women climbers appeared in the Alps who could almost be said to be early exponents of Women’s Lib. Emmeline Lewis-Lloyd and Isabella Straton saw no reason why any sport—particularly mountaineering—should be the preserve of men. With much courage and determination they set out to prove their case.

With 2 guides they made the first ascent of the Aiguille du Moine and the first ascent by women of Monte Viso. After Emmeline Lewis-Lloyd gave up climbing Isabella Straton continued to climb with Jean Charlet as guide and her subsequent career was truly remarkable. She made 4 ascents of Mont Blanc, including the first winter ascent; she did the Aiguille du Midi; the N summit of the Aiguille de Blaitière and the first ascent of the Pointe Isabella. She also included in her list the Dents du Midi and the Dom, not to mention many ascents in the Pyrenees. Isabella eventually married her guide Jean Charlet, settled down with him in a small house near Chamonix and had 2 sons, one of whom climbed Mont Blanc at the age of 13 and the other at 11½.

In the 1880s Miss Kathleen Richardson took up the torch that Lucy Walker had laid down in the 1870s. She was quite unlike most women climbers of those days, being petite and fragile-looking. But her appearance belied her; she was unusually tough and utterly tireless. When she was 16 she paid her first visit to Zermatt and immediately lost her heart to the mountains. During the next 12 years she made 116 major ascents; 6 of them were pioneer first ascents and 14 were first ascents by a woman. The French christened her ‘the immortal Miss Richardson’. From Zermatt in one week she did the Zinal Rothorn, Weisshorn, Matterhorn and Monte Rosa. One of her most outstanding exploits was her pioneer ascent of the Aiguille de Bionnassay which included the traverse of the E Ridge and the Ice Ridge to the Dôme du Goûter. The ‘Morning Post’ commented on this: ‘The honours of 1888 fall to a lady, Miss Richardson, who, with Emile Rey and J. J. Bich, ascended the Aiguille de Bionnassay and traversed the E arête to the Dôme du Goûter, previously considered impossible’. Kathleen Richardson, always affectionately known as ‘Katy’, seems to have been insatiable. Within a few days of the Aiguille de Bionnassay adventure she traversed all 5 points of the Grand Charmoz and then set off for the Dauphiné with designs on the Meije—which she climbed direct from La Bérarde in one day!

Mary Paillon, who came from a French medical family, was so close a friend of Katy Richardson that their climbing careers have almost to be considered
Miss K. Richardson with guides at Chamonix. Reproduced from 'La Montagne' 12/1927

together. They established a number of records and achieved a quite astonishing mountaineering programme each year. In the severe winter of 1890–91 they made a traverse of the Belledonne Group in snow shoes. In 1891 they did the Méridionale d'Arves, the first ascent by women. In 1893 they made the third ascent by women of the Meije Orientale and in 1897 they did the Pelvoux—one of the peaks of the Pelvoux has since been named the Pointe Richardson. Soon after this they gave up climbing high peaks but continued to walk in the hills. 'Katy' made water colour sketches of the mountains, Mary wrote articles and thus their links with the alpine world were maintained. Katy Richardson died in 1927 but Mary Paillon outlived her by nearly 25 years and died in 1946 at the great age of 98.

One of the best known women mountaineers of her own, or any other, generation was Mrs Aubrey Le Blond. She it was who founded the Ladies' Alpine Club and became its first President and her many books, although definitely period pieces, still give immense pleasure to mountaineers of all ages. Mrs Le Blond climbed both in summer and winter and her mountaineering career lasted for more than 20 years. She began in a small way in Pontresina and then transferred to the Chamonix area where she soon did Mont Blanc and the Grandes Jorasses. Her enthusiasm for the mountains increased at an incredible speed. She made the first winter ascent of the Aiguille du Tour, the Col du
Tacul, the Col du Chardonnet, the Col d’Argentière and the Aiguille du Midi. From Chamonix she set off for Zermatt bent on a late winter ascent of Monte Rosa and reached a height of 4200 metres before violent winds forced her party down. In the Engadine Mrs Le Blond made a long series of winter ascents including Piz Palü, Piz Sella, Piz Zugö and the Disgrazia. She also had the distinction of being the only lady who had led a party guideless in winter and in spring. It is highly probable that her ascent of Piz Palü with Lady Evelyn Macdonnel was the very first ‘women’s rope’.

She was, of course, a frequent visitor to Zermatt and accomplished all the great peaks in the district almost as a matter of course. Joseph Imboden and his son Roman were her constant companions on these expeditions; in Chamonix her favourite guides were Edouard Cupelin and Emile Rey. It is a well-known fact that Mrs Le Blond’s exploits considerably shocked Victorian society in London in the early days of her career, but in spite of her bold approach to many matters she loyally obeyed many of the current standards of respectability so that the cause of women’s mountaineering should not be regarded in too unfavourable a light.

In 1895 Roman Imboden was killed on the Lyskamm and neither she nor her guide Joseph could face the sad associations of the Alps. They climbed a little in Norway but quite soon Mrs Le Blond’s fantastic climbing career came quietly to an end. She retained her enthusiasm and love for the mountains and was elected for a second term of office as President of the Ladies’ Alpine Club.
in 1932. She died in 1934 while still in office which is exactly what she would have wished.

There can have been no more attractive woman mountaineer of this late Victorian period that Mrs E. P. Jackson, described 25 years later by Mrs Le Blond as ‘one of the greatest women climbers of her time’. She was unassuming, unsophisticated and quite unspoilt and beguiled everyone by her natural charm. She never hit the headlines in the same way as some of her contemporaries but her achievements were often the equal of theirs. With her husband and guides she made the first ascent of the E face of the Weismies and 2 years later she began her long association with Alois Pollinger. They pioneered the W ridge of the Dom and after reaching the summit of the Dent Blanche made the first descent by the Ferpecle ridge. Soon after this they were on the Dru, followed quickly by an ascent of the Grand Charmoz. Mrs Jackson was a regular visitor to the Alps in winter and became fascinated by the possibilities of winter mountaineering. Her dearest wish was to traverse the Jungfrau from the Bergli hut to the Guggi and so down to Wengernalp. This is a difficult ice climb in summer; it calls for almost superhuman endeavour in winter conditions. On 15 January 1880 after several frustrated attempts Mrs Jackson and her party spent the night at the Bergli hut and set out early next day. At first all went superbly, then conditions became poor, darkness set in and a bivouac became inevitable. They were short of food and one lantern failed. However, the longest night has an ending; when daylight came they found their way easily to the Guggi glacier and were soon returned to their anxious friends in Grindelwald.

The Alpine Club asked Mrs Jackson to write an account of this amazing first winter traverse for the AJ. She called it ‘A Winter Quartette’ and it is altogether charming. As a result of the severe frostbite which she suffered on this trip Mrs Jackson was unable to make any further attempts on big mountains but she was always to be found among gatherings of mountaineers at home and abroad—a kind of Snow Queen whom everyone loved.

Towards the end of the 1880s that redoubtable climber A. F. Mummery brought his bride out from England to introduce her to the mountains for the first time. Mrs Mummery proved to be a natural mountaineer and a great enthusiast and immediately won the heart of their guide, Alexander Burgener of Saas Fee. The first season included the Jungfrau, the Obergabelhorn and, naturally, the Matterhorn. Towards the end of this season Mummery and Burgener were planning to make the first ascent of the Teufelsgrat on the Taeschhorn. Burgener announced that Mrs Mummery must certainly ‘go up the Teufelsgrat’. She was delighted and her husband, fortunately, agreed. On 15 July 1887 they set out from Zermatt to sleep at the highest chalet on the Taeschalp and left at 1.30am the next day. The Mummery’s ascent of the Teufelsgrat is one of the great epic husband and wife exploits of mountaineering history. At the outset they were constantly threatened by stone-fall; at one point the second guide came off the mountain to the rope’s length; another near-disaster occurred when Mrs Mummery’s ice-axe was swept away into space. Difficulties and disappointments were endless; there was a moment when Burgener decided that further progress was impossible. Mummery was not prepared to accept this decision; a detailed reconnaissance was made and at last came the joyful announcement ‘Herr Mommery, das geht’.
But more disappointments were to follow and at one time their situation seemed truly desperate. At last a solution was found and at 5.30pm they stood on the summit of the Taeschhorn. At 5.30am the next morning they reached the little inn at Randa after a freezing bivouac above the tree-line. They were wet through and worn out, but nothing mattered—the Teufelsgrat was theirs. In his book 'My Climbs in the Alps and Caucasus' Mummery insisted that his wife should write the chapter on their ascent of the Teufelsgrat—a perfect tribute and one well-deserved.

In the 1890s the position of women in the mountain world was considerably enhanced by Miss Lily Bristow who made history as the only woman included on a rope of famous members of the Alpine Club. In 1892 with Mummery and Ellis Carr she made a guideless N-S traverse of the Grand Charmoz; the next year she did the N ridge of the Zinal Rothorn guideless with Mummery and followed this up with yet another guideless expedition—the Italian ridge of the Matterhorn, making the descent by the same route on a rope with Mummery, Collie and Hastings. In the same year, with Mummery, Hastings, Slingsby and Collie she did the Petit Dru guideless, leading herself as far as the gendarme. This is one of the earliest recorded instances of a woman leading on a rope composed of men.

In 1894 with her guides she made the first descent of the Z'mutt ridge of the Matterhorn. In 1895 came the climb which crowned her career and brought her undying fame—the second traverse of the Grépon guideless with Mummery, Hastings, Slingsby, Collie and Brodie and thus she achieved the honour of being the first lady to stand on the summit of the Grépon.

(To be continued)

Antipodean ventures
II. The Snowy Mountains
J. G. R. Harding

Eight months after landfall in Perth we moved en famille to Canberra and the Eastern States in search of greener pastures. Canberra itself lies high in a bowl surrounded by hills. The Federal capital which was born of an unresolved rivalry between Sydney and Melbourne was for long a Cinderella and has burgeoned only in the last 2 decades. Australia's major cities cling umbilically to the seaboard but Canberra has struck inland and at 1800 ft has 6 months of frost and the occasional snow-fall. The city's outstanding attribute is its proximity to the Snowy Mountains, Australia's highest range and barely 3 hours' drive away. The Snowys have recognisably Alpine features and comprise the only area on the Australian mainland with evidence of former glaciation. Their culmination is known as the Main Range, which has 6 distinct peaks of over 7000 ft and nine others over 6000 ft in an area no bigger than the Cairngorms. Indeed, for those who enjoy such comparisons there are curious similarities between the 2 ranges. Certainly, the Snowys have little