

## MOUNT KOSCIUSKO OBSERVATORY.

Mr. Arthur Mawson, of Cooma, the contractor for the building of the observatory hut on Mount Kosciusko, arrived with his men at the summit late on Sunday evening last, guided by James Spencer, under most unfavorable weather conditions.

As it was too dark and blustery to pitch their camp that night, we—that is, six of us—had to make such shift as we could in the Arctic tent, which, never colossal, since the advent of Blastus has shrunk in dimensions to about 12ft square, so it can be easily understood that with the medley of sleeping bags, provision bags, etc., as bedmates, the conditions were not the most favorable to obtain a good night's rest.

On the morrow, at daybreak, which is of hardwood, was started, and by dint of hard labor one of the rooms was sufficiently completed to afford shelter that night in lieu of the melee of the former evening.

On Tuesday the country for miles around was covered with a light coating of snow, about 6in. having fallen during the night, while later a dense fog enveloped the mountain, and did not lift for the remainder of the day, which was intensely cold, the maximum temperature being under 30deg. F., and the minimum 24.3deg. F.

This was heightened by a strong nor'-westerly wind, a peculiarity of mountain climate being that great cold is accompanied by high winds, the reverse to conditions prevailing at low levels, which made the roofing of the hut with galvanised iron a difficult task, two men having to sit on the sheets whilst four screwed them down; frequent visits to the fire in order to thaw oneself being necessitated by the cold. That night the lowest temperature registered on the mountain was experienced, the thermometer on the ground falling as low as 11deg. F., or 21deg. of frost and everything at all exposed was covered with the most beautiful icicles, principally on the windward side.

On the following day, Wednesday, matters were very little improved; indeed, they were, perhaps, under the circumstances, even worse, as the stonework for the chimney had to be built, and the temperature being considerably below freezing, the mortar with which to bind the rocks together froze into a solid mass, and had to be melted when required, from time to time. This shows the wisdom of abandoning the idea of a stone structure so late in the season, and although the one as at present built will not perhaps be so solid, with the huge rocks piled up against its sides, to say nothing of a coating of snow several feet thick, it is sufficient to stand any blizzard, even Kosciusko ones, which, I can personally vouch for, are hard to beat.—April 22.

## THE KOSCIUSKO OBSERVATORY.

### PREPARATIONS FOR WINTER.

THE observers' hut at Kosciusko is at present occupied by Messrs. Ingleby and Jansen, who intend passing the winter in the quarters recently erected. Every preparation is being made for the winter encampment. A great quantity of provisions has been placed in the hut, including tins of kerosene, which will be used for cooking, lighting, and heating purposes. There is only a small quantity of firewood, so far, and if any further supplies are required it will depend upon the condition of the snow. About two feet of snow has fallen within the past few days, the thickness being now 7ft around the summit. It is also snowing at the top of the hill at Jindabyne.

The cold weather approaching will cause an extensive use of kerosene, there being about twenty drums stacked ready for use. The occupants are practically snowed in now, but the snow is soft, and they will not be able to travel on snow shoes until it freezes. If the weather keeps broken, it will be some time before trips can be taken on the shoes. The occupants of the hut have two pairs of shoes with them, two pairs at Friday Flat, and additional pairs at Jindabyne, which is about 25 miles from the observatory. Any tourists wishing to visit the hut can go to Friday Flat, leave their horses there, and make the mountain in one day, returning to camp in the same day.

The occupants of the observatory tent are wearing leather pants, warm woollen clothing, and Tasmania fur caps. They are supplied with plenty of provisions, about two tons in all. There is also a quantity of "medical comforts," besides the usual stock of "medicines proper."

It is reported that Messrs. Kerry and party, of Sydney, will shortly proceed to Kiandra, thence to the Bogongs, and on to Kosciusko. The Manager of the mines in the Bogongs, (Mr. McAlister), reckons the party cannot reach by that route, and that they will require to go to Jindabyne. Mr. James Spencer, who acts as guide, of Jindabyne, has guaranteed to take parties out in good time to the summit of Kosciusko, if they will only communicate with him by wire, which will give him an opportunity of advising them as to the best time to start.

Besides the occupants of the hut, there is Mr. Ingleby's dog, "Zorrie," and a cat, which will spend the winter amidst the desolate surroundings.

# MR. WRAGGE'S GREAT WORK

(By EDWARD WHYMPER, IN THE "LEISURE HOUR.")

(Continued from back page of this sheet.)

The greatest (or extreme) range of the barometer at the top of Ben Nevis is about three inches. The highest reading that has been obtained since the opening of the Observatory is 26.115 inches, at noon on October 3, 1884; and the lowest is 23.174 inches, at 7 p.m. on January 26, 1884. This extremely low barometer occurred in a period of storms. During them, the mercury touched a lower point in Scotland than had ever been known before. At Edinburgh it tumbled down an inch and a half in thirteen hours, and got so low as 27.466 inches; at Fort William it was 27.400 inches, and at Obertyre 27.338 inches. Afterwards it rose again with almost equal rapidity. The occurrence of a very low barometer does not necessarily provoke a storm. What is wanted to produce currents of air is the variation from the normal in atmospheric pressure or temperature, and it is found that a very moderate variation from the normal difference of pressure between the two Observatories is a sure indication of atmospheric disturbances. What is considered the normal pressure is the mean difference between the barometers at the two Observatories. Down below, at Fort William, the mean for the year is 29.862 inches; and at the top it is 25.292 inches—the difference of the two being 4.563 inches.

The variations in temperature from the normal are greater than those which occur in atmospheric pressure. The mean annual temperature at Fort William is about 16° F. higher than that at the top of the Ben.

The fall in temperature between the base and the summit is therefore about 1° F. for every 275 feet of ascent. Sometimes, however, the difference in temperature between the two stations is as much as 2°, and there are occasions when temperature, so to speak, is turned topsy-turvy, and it is warmer at the top than it is at the bottom. An extreme case occurred in November 18, 1885, at 8 a.m., when at Fort William temperature was 10° below freezing point, while at the top it was 3° above freezing point.

The extremes of temperature which have been recorded at the top of the Ben are not at all sensational. The highest has been 67° on June 24, 1887, and the lowest 3° 5 on March 8, 1881.

The humidity of the atmosphere at the top of the Ben is one of its characteristic features. It will have been noticed that in the daily reports which are issued in the newspapers there are columns devoted to clouds, their nature and amount. The amount is reckoned from one to ten. Ten is the maximum, and the maximum occurs day after day. A great deal of the cloud which hangs about the summit is of the species called "Scotch mist." The atmosphere is apparently saturated with moisture. A typical state is the normal condition of the atmosphere, and we may almost say of the observers during the summer part of the year. The annual rainfall on the top of the mountain (estimated from the monthly means of various years) is found to be nearly 100 inches, which is the greatest amount that has been observed at any meteorological station in Scotland, and the whole of the British Islands has only been exceeded at some few places in the Lake district. Five and a third inches have been known to fall in a single day (December 12, 1885), and more than twenty-five inches in a week.

The heavy rainfalls are less troublesome to cope with than the Scotch mist, which is of an insinuating nature. An umbrella or a mackintosh give some protection against rain, but they cannot exclude Scotch mist, which goes round corners, walks up your nose, and pokes its nose, so to speak, everywhere. This condition of atmosphere produces difficulties with the barometers.

The effect of this humid atmosphere is very enervating and depressing to many persons, and the observers who have so long devoted themselves here to the cause of science must be entirely well adapted to this particular climate, otherwise they would have long since completely broken down long ago.

The humidity of the atmosphere at the top of the Ben is connected with the excessive crystallisation which takes place, and causes an unlimited amount of trouble. During summer, when temperature is above the freezing-point, the mist soaks everything, and every exposed surface, we have just seen, streams with moisture. "Silver thaw" is a term which is applied to rain which freezes as it falls, and in most places silver thaw may be considered phenomenal, as it arises from the inversion of the natural order of things. If it occurs, it is caused by the temperature somewhere above being lower than temperature down below, this being that temperature decreases as we ascend. When it happens, everything may become temporarily encased in solid ice—walls, trees, camp, as well as the ground. Locomotion or work of any sort out of doors under these circumstances is extremely difficult. I well remember when I was a kid feeling a most intense joy on these occasions at witnessing the struggles of policemen on their legs, and seeing them compelled to feel their way along the snow. In London I have only seen two cases of silver thaw in the course of the last thirty years. Such occurrences cease to be phenomenal when they happen frequently, and at Ben Nevis they are common. From 1850 to 1890 there were 199 instances of silver thaw as it fell, and more than 95 per cent of them were when the temperature was hovering about the freezing-point (28° to 31.9° F.). Mr. Whympere says that a prolonged silver thaw at the top of Ben-Nevis is emblematic of a "Scotchman's" disposition. "Outside objects are encased in ice, and the observers are encased in snow."

The rain from the clouds is very soft, placid, and even on their faces, and thus the takings of outside observations was very disagreeable.

The worst winds are in winter, and it is estimated that they sometimes travel over at the rate of 120 miles per hour.

## The Mount Kosciuszko Observatory.

(By the TELEGRAPH'S Special Reporter.)

**JINDABYNE, Monday.**—We are now installed at the top of Mount Kosciuszko. We spent the whole of Friday at the spot we called "Wragge's Camp." The heavy, driving mist hardly lifted during the whole of the twenty-four hours, and it was impossible to go any distance from our camping ground without danger of being lost. On the following morning we got up betimes, struck camp, and started off for Mount Kosciuszko exactly at 8 a.m. During the early hours we saw some beautiful effects of clouds. We were then above these level delights, and perforce looked down upon them in the valleys. As far as the eye could reach was one sea of billowy clouds, the surface slightly rippled, while from out this billowy bed rose the peaks of distant hills, for all the world like little islands in the sea. The effect of these phenomena would be that whilst we were in a beautifully clear atmosphere above the level of the clouds, the good people in Jindabyne, for instance, would be looking up at a heavily overcast sky.

Soon we began to get glimpses of the snow-drifts on the topmost heights in the distance, and finally we bowed to Kosciuszko from a point about five miles from the summit. The snow drifts gradually widened, until we reckoned they stretched out to 500 or 600 yards. Mr. Spencer, our guide, took us along a route which was accessible to horses even to the summit. Laden with tent poles and fire-wood, we reached the summit at 1.45 p.m., and saluted the cairn. Captain Penrock was first up. In amongst the loose rocks we found a visitor's book, which consists of an old jam tin, into which tourists, surveyors, and others deposit their cards. It appears that we are the first visitors since August last, so there were no absolutely new cards, but we found those of Mr. Kerry and party, who made the first recorded winter ascent of Kosciuszko on the 17th August last. Mr. Kerry, who is also of our party, has proved invaluable to the expedition. On reaching the summit yesterday, Mr. Wragge and the rest of us drank Mr. Kerry's health, and he in his turn prop and success to the expedition.

After lunch we set to work to erect our tents. Mr. Wragge was set upon pitching tents alongside the cairn, and absolutely on the summit. The only drawback is the exposed nature of the place. It catches every wind and every drop of rain. In summer, with a stone wall built round one's tent, it might be possible to live here for months, but in winter would be too terrible. The aneroid shows an altitude of 7320ft., approximately, while the corrected height is 7570ft. Some observations which Mr. Wragge had taken up here already, he estimated that the wind will go round to the north-east, and then north, when a new Antarctic disturbance will be approaching, preceded probably by an increase in temperature on the mountains, followed by a shift of wind to the north-west and north-east, and ultimately towards the south-west, with farther rain and bad weather. He is speaking without reference to figures, but he thinks this is the outlook. It is somewhat cheerful for the members of the expedition, hardly out of one disturbance before we get another.

Some delay will probably be caused in the work of establishing the observatory up here. The dray on which we stacked the scientific instruments has broken down half-way up; it would have been remarkable had it been otherwise. It started off from Jindabyne the same afternoon as we did, coming on behind us, and we heard nothing more about it until yesterday, when Mr. De Burgh Newish, from Coadello, reached the top. He was a day behind us at Jindabyne, and rode up the whole distance yesterday. On the way he passed the disabled dray, with a shaft broken. The driver had spent the whole of Friday in the same spot, waiting for the mist to clear off. On Saturday he made another shot at it, broke a shaft, and had to unload. He left the baggage in charge of one of his men, and turned back to Jindabyne for a new shaft. To-day a party from here is going down to lend a hand, and carry up some of the more valuable instruments on horseback. Mr. Wragge does not think himself justified in rigging up the standard instruments already landed on the summit until the sorrows which are to protect them from the wind arrive.

Mr. Wragge dragged us out of our warm bunk at 4 o'clock on Sunday morning to see the sun rise. We demurred for a while, but his enthusiasm was so infectious that we turned out. The sight was one to be remembered. The golden orb, apparently egg-shaped, by refraction rose over the edge of a perfect sea of cloud, with pinacles hobbling up in the middle distance, and as far as the eye could reach. We could easily see 25 miles off, and the colour was superb. Just at our feet was a steep face of snow dropping down some 400ft. at an angle of, say, 45 deg. to what the blacks call "Cootapatamba Lake," or the spot where eagles drink. This lake is the highest patch of water in the colony.

The party is just starting down the mountain to assist with the drayload of instruments. How or when it will get back remains to be seen. The road in some places hardly affords a foothold for goats, and it is only the Manaro bred horses that could live through it all. It seems probable that this week will be pretty well run before we get fairly fixed up.

**NEW PUBLIC SCHOOL.**—It has been notified for general information, in the Gazette, that it is proposed to establish a public school at Bolairo, near Adamaby.

The weather has been rather cold to-day.