

top, after the wild delight at finding myself there, were those of caution and doubt whispered as by an enemy, 'Yes, but you are not down safe yet.' But never came there a moment's fear or a moment's apprehension. A passing shudder there was as I saw the place where they fell, and the hopelessness of rescuing such a fall. But when difficulties were passed and success complete, and we were on the green grass and thankfulness to God had welled up in my heart almost making my eyes run over with tears of joy, then there came a vague feeling of loss and of the absence of someone I expected to find there, a sort of instinctive putting out the hand to grasp another, and groping for it in vain. . . .

[Mr. Whymper, to whom several references are made in Mr. Elliott's letter, informs us that he has no recollection of having shown or of having made any drawings at the point referred to by Mr. Elliott, who may possibly have had in his mind two drawings by Gustave Doré which were lithographed and circulated extensively, but had nothing to do with Mr. Whymper. It is also right to add that Mr. Whymper entirely dissociates himself from the opinion expressed by Mr. Elliott concerning the experience and capabilities of the guides, for Lochmatter was a competent mountaineer, and Peter Knubel, says Mr. Whymper, 'is still alive and in working order at 75 years of age, after having made more than a hundred ascents of the Matterhorn.'—EDITOR, 'The Field.']

MOUNTAINEERING IN DUTCH NEW GUINEA.

By A. F. R. WOLLASTON.

(Read before the Alpine Club March 3, 1914.)

BEFORE reading this paper I must apologise to you for its title. It is of a mountain expedition that I am going to speak, but so much time was occupied in reaching the mountain range that mountaineering in the proper sense of the word will occupy but a small part of what I have to say. New Guinea, the largest island in the world, is, roughly speaking, 1400 miles long, and, at its greatest, 400 miles wide. Running through the island, from west to east, is an almost unbroken chain of



A. F. R. Wollaston, photo.]

[*Swan Electric Engraving Co., Ltd.*

MT. CARSTENSZ, FROM THE S. (Telephoto.)



C. B. Kloss, photo.]

[*Swan Electric Engraving Co., Ltd.*

THE CLIFFS OF MT. CARSTENSZ.

mountains, varying from 6000 to 16,000 feet in height. In the east or British portion of the country, most of the peaks have been surveyed, and some of them, notably the highest, Mount Victoria, have been ascended. In the west or Dutch division, the mountains are still, with the exception of three small areas, entirely unexplored. As long ago as 1623 a Dutch navigator, Jan Carstenszoon, or Carstensz, drifted out of his course and saw 'a very high mountain range, in many places white with snow, which we thought a very singular sight, being so near the line equinoctial.' He was exceedingly fortunate to see the snow mountains from the sea; there are very many days when nothing can be seen but white banks of fog hanging over the low-lying swamps along the coast, and there are ships' captains sailing those seas to-day who still deny the existence of the mountains. From the time of Jan Carstensz up to 1909, when my friend Mr. H. A. Lorentz reached the snow-line of Mount Wilhelmina, no man had ever approached even the foothills of the range. In 1910 a Dutch military expedition reached a point about 10,000 feet high in the Goliath Mountains by way of the Island river, and in the same year an English expedition tried to reach the highest group of mountains, which includes the snow-topped mountains Idenburg and Carstensz by way of the Mimika river. That expedition, of which I had the fortune to be a member, spent fifteen months in the country, and in that time we reached a point about half-way to the mountains, but even if we had spent twice that time in the country, I doubt if we should have come as far as the foot of the highest range. During those fifteen months we had a view on (I dare say) some one hundred mornings of the distant snows of Carstensz, and any one who has a love of mountains can understand how tantalising it was day after day to see those untrodden peaks so comparatively close at hand and yet as unattainable as the Mountains of the Moon. Our experiences in the Mimika expedition were not such as to give us a strong attachment to that country, but those early morning views and the desire to 'go and look behind the ranges' persuaded me that for my own peace of mind, if for no other reason, I must go there again. Before we returned to England I had a chance of visiting the Utakwa river, about sixty miles to the east of the Mimika river, where a Dutch expedition was at that time exploring the rivers, and it appeared that it might be possible to reach the snow mountains by following the Utakwa.

In May 1912 I left England, and after spending two months in the middle of Borneo, where I went to engage Dyaks to

accompany us as carriers, we sailed from Java on the last day of August. Besides my companion Mr. C. B. Kloss, of the F.M.S. Museum at Kuala Lumpur, we had a Eurasian engineer, five native collectors, 74 Dyaks, boys and others, to the number of 93. With us was the escort provided by the Dutch Government, commanded by Lieut. Van de Water, whose detachment of soldiers and convict coolies brought the total number of the expedition up to 226. The great part of the stores for my party alone consisted of 17 tons of rice, 1600 lb. dried meat, 1000 lb. dried fish, 200 lb. tea, and 1200 lb. sugar. The more important articles of the equipment were a 15 h.p. Thornycroft motor-boat, 25 feet long, 360 gallons petrol, 24 tents, tarpaulins, ropes, axes and other tools, red cloth, knives, and beads for trading with the natives, many cases of apparatus for collecting animals and plants, besides guns and cartridges. Every man was supplied with a blanket, a khaki coat and trousers, a woollen sweater, a flannel shirt, socks, and a long canvas bag to hold his belongings, and, if necessary, to serve as a sleeping-bag. Woollen caps and Canadian moccasins were taken for the smaller number of men who were expected to reach the high mountains. I ought, perhaps, to explain here that this apparently excessive number of men required for the transport of two Europeans for a comparatively short distance, and the consequent huge bulk of supplies and gear, were made necessary by the nature of the country. There is no food of any kind to be found in the country, so that every scrap of provisions for the whole party must be imported and carried laboriously inland; a considerable number of men are required for making canoes to navigate the upper waters of the river; and when water transport is no longer possible a way has to be cut literally almost every yard until the limit of vegetation is reached. The natives living near the coast, such few as there are, pick up a scanty living on rats and mice, roots and fruits and such things, and the people living in the mountains grow sweet potatoes, barely enough for themselves. Between the coast and the mountains is a region of utter desolation, in which, as we had abundant and most tragic evidence, no man can find a living.

After spending a few days at Amboina, we entered the mouth of the Utakwa river on September 18, and ten days later we had landed all our stores and established a base camp about twenty miles up the Setakwa branch of the river. Ten days more were occupied by the Dyaks in cutting down trees and making four large canoes; with these we were able to ascend the river for two days' journey, that is about fifteen miles, until

the rapid water made further navigation impossible. At that place we established a second base camp, the Canoe Camp, and from there we set out on our overland journey in a north-west direction. The only practicable way of making a long journey in that country is by making depots of food. Thus, while a certain number of men were always employed in bringing stores up the river to the Canoe Camp, others were carrying on loads to the first depot, and, when the first depot was well provided, from the first to the second, and so on. It was found that in the given circumstances, calculating by coolies' loads and their daily rations, the most economical and consequently the quickest plan was to make depots at intervals of three days' march. It will be obvious that at the best this was a very tedious process, and much time was necessarily occupied in waiting until the next place had been stored with food and an advance could be made. I will therefore try to describe our journey to the mountains as if it were a single uninterrupted march, merely remarking that between the day when we cleared the ground for our first depot camp and the day that we reached the snow of Mount Carstensz, thirty-one miles distant, ninety-two days elapsed, and I do not think we wasted any time.

Our first depot camp was in the foothills, at a height of about 2500 feet, and it was of great importance to us, partly because it was the first place where we were comparatively cool at night and were beyond the leeches and other objectionable creatures of the low swampy country, and partly because it was the only place from which we were able to obtain a comprehensive view of the range and were able to some extent to plan our probable route. From that place, the first depot camp, a day's march brought us back into the main valley of the Uta-kwa, and two days' march further on we established our second depot camp at a place where the narrowing valley made it necessary to cross the river. This was done at first by means of a long rattan stretched across the torrent, which was there about forty yards wide; loops of rattan were hung on the rope, and through one of these you thrust your legs and after sliding down to the middle you hauled yourself up to the other side—a very arduous and somewhat perilous proceeding. In the course of time a bridge of rattan was stretched across the river at that spot. Thereabouts we found ourselves beyond the foothills and surrounded by high mountains, and after that time, except when we descended to cross a river, we did not again find ourselves below 5000 feet. In that region, between 4000 and 6000 feet, we found natives living, scattered here and there,

wherever the slopes of the mountains were not too steep for cultivation of the sweet potatoes, on which they principally live. These people, though they could not by any chance ever have seen any stranger before, were from the first quite friendly to us—in some ways, indeed, too friendly—and it was to a large extent owing to their help, in showing us their tracks through the complicated ridges of the country in which they live, that we made such comparatively good progress. It ought to have been explained above that until you reach an altitude of about 8000 feet the whole country from sea-level is covered with the densest possible jungle. In the level country, before the foothills are reached, the ground is in many places a swamp, where you flounder knee-deep in slime, or wade deeper still through pools of stagnant water. The foothills begin abruptly, and thenceforward there is hardly ever a place so level that you can take two steps of equal length.

Our third depot camp was made at a place about 6,000 feet up, where there was a small clearing and a couple of native huts; beyond that place the slopes are so steep that cultivation even for a Papuan was impossible.

When we left that camp, we were accompanied by a few natives, who had been up the valley before. Though we saw in one or two places traces of fire under stones, where they had evidently rested, there was no track, and our progress was exceedingly slow and arduous. It was impossible to follow the river, which was a roaring torrent, confined in many places between sheer walls of rock; it was equally impossible to cut a track along the slopes above, for they were much too steep and were constantly broken by precipitous watercourses, divided from each other by sharp ridges. Thus our course was a series of toilsome ascents to avoid precipices and heart-breaking descents again to the bank of the river, so that our first day's march, though it involved climbing several thousands of feet, resulted in bringing us up only about 600 feet. It was wonderful that we met with no disaster, for the great weight of men clambering along those slopes was quite likely to cause one of the landslides which occur so frequently. In the steeper places the vegetation is only small trees growing on a thin carpet of mosses and orchids, and a little extra weight on it will cause the whole to slide off the slippery rock to which it clings into the depth below. With the help of ropes and rattans we traversed those places as lightly as possible. Sometimes we scrambled over the boulders of the river-bed, and in one place a sheer rock seemed to block our way completely. A young tree was felled

and thrown along the side of the rock to the head of the pool, where it jammed between two stones under water; then we sidled carefully along it, feeling for it with our feet about a yard under water, as it was a mere sapling and bent like a fishing-rod; there was nothing to hold on to, as the rock was sheer and slippery, and the water was running like a mill-race. Had a man slipped there he would never have been seen again. When the rain began to fall, as it did with a deplorable regularity every day, we climbed or descended through torrents of liquid mud, a mixture of rain and moss and earth set in motion by the feet of the men in front or behind as the case might be. It was impossible, on account of the dense vegetation, to move aside from the track, and as we were constantly halting while the men in front were cutting a track it can be imagined that the way was as disagreeable as it was steep. At about 7000 feet there began to be a noticeable diminution in the size of the trees of the jungle, and the undergrowth, which was up to that altitude extremely thick and difficult to penetrate, became less dense. On the third day, at 8000 feet, the valley became wider and the character of the vegetation changed completely; the large forest trees of the lower ranges disappeared, and their place was taken by pandanus and tall fir-like casuarinas. Above that altitude trees thinned out very rapidly, and the last trees (*Podocarpus papuanus*) were seen at about 10,500 feet.

The region between 8000 feet and 10,000 feet was by far the pleasantest we had yet traversed in the country. Our way lay up the rocky bed of a stream, one of the sources of the Utakwa, and the banks were covered with flowering shrubs and many flowers of a familiar appearance: a small geranium, a sort of meadow-sweet, a little blue gentian, and numerous terrestrial orchids, some of them very beautiful. In front of us were the towering precipices and the gleaming ice of Mount Carstensz, and behind us lay the deep valley of the Utakwa, and the many steep forest-covered ridges we had so painfully traversed. But it was never for long that we had any view at all. Every day in those higher regions the clouds descend about 9 A.M., followed soon by rain, so that during the latter part of those days' march we were groping blindly through the fog, and all were drenched to the skin. The Mummery tent of waterproof duck which I used on this journey developed a very unfortunate peculiarity in the higher regions. Moisture condensed so quickly on the roof, and flowed down to the floor in such large quantities, that I was obliged constantly to swab up the pools that collected and swamped my blankets. For

many days we were never dry night or day, and by reason of the consequent softness of our skins we were painfully scratched and cut by bushes and rocks. Every scratch became infected and quickly suppurated, and Kloss' hands were in such a deplorable condition that for several days he was unable to hold a pencil. The feet of the coolies, whether they wore boots or not, were dreadfully cut about, and their labour was very severe. At our camp, at 10,500 feet, it became evident that we should not be able to proceed further with a large party of men, as we were at the foot of the cliffs of Mount Carstensz, on which it would be very difficult to find even a small camping-ground, and the men were beginning to suffer from the cold. A serious drawback was the difficulty of cooking; the meagre brushwood was wet and unwilling to burn; the temperature of boiling water was so low that rice had to be cooked for a very long time; the result was that many men ate their food only half cooked, and many stomachs were disordered.

On January 30 Mr. Van de Water and I, with a few followers, including three Papuans, pushed on in the hope of finding a practicable way to the snow. For a mile or so we cut our way through a very dense moss forest, interrupted here and there by patches of bog; then a steep ascent brought us on to a little col between the main mountain and an outlying spur which had hitherto cut off our view. At last we stood on hard stony ground, unencumbered by the hateful vegetation, and were free to turn and gaze upon the land below us. At our feet lay the Utakwa and its many branches, arising from Mount Utakwa and Mount Venus. To the south-west were the many tops of Mount Cockscomb, and to the west the view was limited by the splendid mass of an unnamed mountain, a buttress of Mount Carstensz, resplendent with bands of red and yellow rock. Beyond the lowest hills lay the wide brown plain of heavy forest, water-logged jungle reaching to the distant grey line of sea. Here and there could be seen gleaming in the sunlight wide reaches of the great rivers winding through the forest, the Wania, Kamura, Neweripa, and very many others. Behind us towered the cliffs of Carstensz, so steep that we could not see even the lower limits of the snow. Fortunately, the south face of the mountain is not a sheer wall of rock; it is interrupted here and there by projecting buttresses at a gentler angle, and by occasional terraces or platforms covered with broken fragments fallen from the cliffs above. At about 13,500 ft. vegetation, except a daisy and a few grasses, came to an end. There we encountered a steep wall of limestone

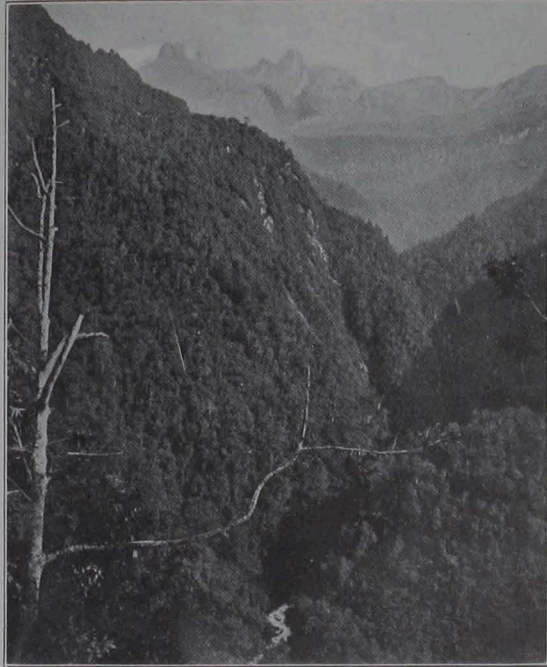
rock, which at first sight appeared to bar our further progress ; one of the Papuans—they can climb like cats—found a way up it, and by means of an Alpine rope we were able to return that way in safety. Then a stiff scramble up smooth rocks brought us, at 14,200 ft., to the lower limit of permanent snow. This was a steepish slope of snow, leading up to a wall of ice, whose séracs, fifty and more feet high, seemed to be toppling almost over our heads. It was then too late to search for a further passage, so we descended to our camp, 4000 ft. below.

On the following day Kloss and I, with half a dozen Dyaks, made a camp above 12,000 ft. We were prevented from going higher by heavy rain which fell during our ascent. It was curious to observe that as soon as the rain ceased the water which had been coursing down the mountain-side immediately disappeared, soaking into the very porous sandstone which occurs at that level. There we spent a night which, judged even by the low standard of New Guinea comfort, was one of the most disagreeable I can remember. On the morning of February 1 clouds were low on the mountains, and no distant view could be seen ; by the time we reached the snow we were in thick mist, and it was obvious that we should not see much even if we attained to the summit ridge. We skirted along the face of the mountain westward, following a more or less horizontal terrace for about half a mile until we came to another easy slope of snow. This we followed until (at 14,866 ft.) we found our further progress barred on the one hand by precipitous rocks, and on the other by a steep wall of ice, the abrupt termination of the ice-field above. Either of these obstacles might have been overcome by a party of three competent Alpine climbers, but for two people to make the attempt in fog and rain would only have been to court disaster. Had we had time to skirt the mountain further to the west, we should certainly have found a less difficult way of ascent, but in the circumstances that was impossible. The point which we reached was near the dip between the eastern and western peaks of the mountain, and was, I am sure, considerably less than 500 ft. below the summit ridge. From the eastern summit of Mount Carstensz (15,800 ft.), an ice-field, much crevassed, as we saw from a distance, sloped down at a fairly steep angle to about 15,000 ft., where the angle of the underlying rock becomes so steep that ice and snow can no longer lie on it ; the result is that in most places the limit of the ice-field is an abrupt wall of broken ice, like that which confronted us. In one or two places where the rocks are not quite pre-

capitous the ice trickles down, though even there very steeply, to a lower level. Judging from the formation of the mountain, it is fairly safe to assume that on the other side the slope would be considerably less steep, and the limit of snow and ice would be correspondingly lower. That was, of course, one of the questions which we had hoped that an ascent of the mountain would enable us to answer.

I need not here dwell upon our feelings of disappointment as we slowly stumbled down to our camp again. I had known well the southern face of Carstensz for three years, and I had often dreamed of reaching the ridge and seeing the unknown country beyond unfold itself range by range, higher mountains still perhaps—who knows? To have the prize withheld when it was nearly within our grasp was almost more than Christian patience could bear. However, it still awaits another opportunity. During the following days, as we went down the valley our disappointment was a little mitigated by seeing Carstensz always in the clouds; had we been there still we could have seen no view. The rest of the month of February was spent at different places in the mountains in making collections of animals and plants, and in March we returned by degrees to our base camp on the Utakwa river, in readiness to leave the country at the beginning of April.

As I began this paper, so also I must end it with an apology. I have told you of rain and mud and jungle, a dreary and depressing story of failure, an account of a gloomy range of mountains generally lost in fog, to which the Alpine joke is as foreign as (I am glad to say) is the broken bottle. In many sleepless nights and days of unceasing rain, when the rivers are unfordable, the fires refuse to burn, and the men are sick, you wonder what sort of a fool you were to come. But there are, of course, some few compensations. Of all the various kinds of men with whom I have travelled, none have been such good companions to me as were my Dyaks. Their music and their incomparable dancing, and the evenings' gossip in their huts, will be a happy memory when all the disagreeable things are forgotten. There are compensations, too, in those rare moments when you see a glorious view of snow-topped peaks and cliffs and distant hills through the magic atmosphere of the Tropics, and there is always a delight in the anticipation, not yet fulfilled, of looking over to the land beyond.



A. F. R. Wollaston, photo.]

UPPER UTAKWA VALLEY (7,000 ft.).



C. B. Kloss, photo.]

[Swan Electric Engraving Co., Ltd.

ICE-FALL OF CARSTENSZ GLACIER.