churchyard of Moos, where the church was shot to pieces during the war. Even the new mauve atrocity they have now built cannot destroy the peace of the Friedhof with its charming native paintings and sculpture, the flowers and the view of the Drei Zinnen beyond, while a realistic carved presentation of the poor family Watschinger roasting in the fires of Purgatory did much to prevent chilly feelings of depression.

We finished our Alpine summer with two days at Zermatt. What a treat it was to look at real snow mountains again! Most of us never waver in our allegiance to the Western Alps, and yet those fantastic Dolomite summits capture our imagination in some strange way. Even among the mountains of our choice we sometimes feel a wave of longing for the evening glow on Cristallo, the hayfields of Val Fassa, and for the charming courteous inhabitants of the Dolomite country.

[We are greatly indebted to the writer for her excellent paper.—*Editor*, ' A.J.']

Some Notes on Climbing in Formosa.

By W. H. MURRAY WALTON.

THIS article is based on notes made during a climbing expedition to Formosa in the spring and early summer of 1930. Though every precaution was made to enable the 5 weeks spent there to be spent most profitably, though the writer had the benefit not only of introductions to those administering the island and so most capable of advising him in general detail, though the whole expedition was planned in closest collaboration with Japanese climbers who were familiar with certain parts of the mountains covered, and though the writer had the advantage of an intimate knowledge of the Japanese language, yet in the course of an expedition lasting some 5 weeks only, it is impossible to give anything by way of an exhaustive description of the mountains, or of mountaineering in this, relatively speaking, little-known island. Consequently any suggestions that are made must be accepted in the light of the above limitations, and naturally the description that follows can only be of that part of the mountains covered during the expedition.

The island of Formosa, lying some 600 miles S. of Japan, and only 100 miles off the coast of China, is remarkable from a mountaineering standpoint inasmuch as, although only 240 miles long and 80 broad at its greatest breadth, it contains the highest mountains in the Japanese Empire and, in its E. coast cliffs, one of the most striking mountain phenomena in the world.

Photo, Japansee Artist.]

MT. DAIHASENZAN.

The height of the central peak is about 600 feet above its base.

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By courtesy of R.G.S.]

N.E. FORMOSA.

The island is roughly divided into two distinct sections: the western half is flat, fertile, and densely populated; the eastern half, with the exception of one narrow belt of land to the S.E., is mountainous, covered with dense forests, and but sparsely inhabited, and that by a people until a few years ago so savage that it was risky to venture within their territories. This mountainous area, according to present statistics, contains fifty peaks of over 10,000 ft., but both their number and height have to be accepted with some reserve as, with the exception of a small area round Niitaka, the highest peak, these figures are based on a survey made 30 years ago and of a somewhat approximate character. It is only in recent years that a survey on modern scientific lines has been undertaken, and one of the first results has been to shear 50 ft. off the 'height' of the highest peak. It is estimated that there are at least five, and probably six, mountains higher than Fujiyama, the monarch of Japan proper. The highest mountain of all is Niitaka (Mt. Morrison), first climbed in 1896 by a Japanese party under the leadership of Dr. Seiroku Honda, some two years after the acquisition of the island by the Japanese. Its height is 12,960 ft., a figure which may be accepted as accurate. The next peak is Tsugitaka (Mt. Sylvia), at present given as 12,897 ft. These new names were given by the late Emperor Meiji and mean 'new high' and 'next high' respectively. What will happen if a more accurate survey makes Tsugitaka the higher of the two—by no means a remote possibility—remains to be seen!

When the Japanese took possession of the island their first task was one of pacification, and though force was necessary in certain areas, nevertheless it has been remarkably successful. At the time of our visit only one small area remained unsubdued, which prevented us climbing one of the peaks on which we had originally set our hearts. Outbursts, however, occur from time to time, one such happening in a centre not very far from where we had been, only 3 months after our visit, resulting in 100 Japanese losing their heads.

In order to control these savage tribes police posts are dotted all over the mountainous area. These are connected by a first-class system of paths, which render it comparatively easy to get to the base of any group of mountains in the island. Once off the paths, however, tracks are relatively unknown, save here and there where they have been made by some savage hunter, or by deer. It is necessary to get a permit to enter savage territory, and even when this is secured all plans are subject to police approval, as we found to our cost. In addition an armed police escort is necessary, and though the mountain police enter with zest into any such expedition, woe betide climbers who have attached to them some lowland police unaccustomed to the harder life of the mountains. There are virtually no special facilities for climbing by way of huts, and mountaineers are dependent on the hospitality of the police themselves, for which payment is obligatory, but judging by our experience such hospitality is generously and spontaneously given. There is no difficulty

in securing porters, as the savages, now that they are being encouraged to follow more peaceful pursuits, such as agriculture, are only too glad to get the opportunity of supplementing their very meagre income. Both men and women are employed, and on the whole the women make the better porters. Age seems to bear no relationship to hardihood. Arrangements with regard to porters, etc., have to be made through the police.

With regard to equipment, the bulk of the provisions required can be bought in the very excellent shops in Taihoku, the capital of the island. But biscuits should be taken, as the bread we purchased and took with us was highly unsatisfactory. One form of food to be specially recommended, both on account of its nutritive value and its portability, is *miso*, or bean paste, which is one of the commonest articles of food among the Japanese country people, and forms an invaluable item in the provision list of the Japanese climber. A climbing tent of course is necessary, but the police and savages do not require them. With regard to footgear, while climbing boots are satisfactory, a very good case can be made for the Japanese canvas sock with divided toe and hempen sandal, as such footgear is very much lighter and dries much more speedily than the leather boot. Personally, I used this type of footgear almost exclusively in all my climbing in Japan, and after the first day or two, while my feet were getting harder, found it most satisfactory on everything but snow and long wet grass. The lightness in particular is a very great consideration.

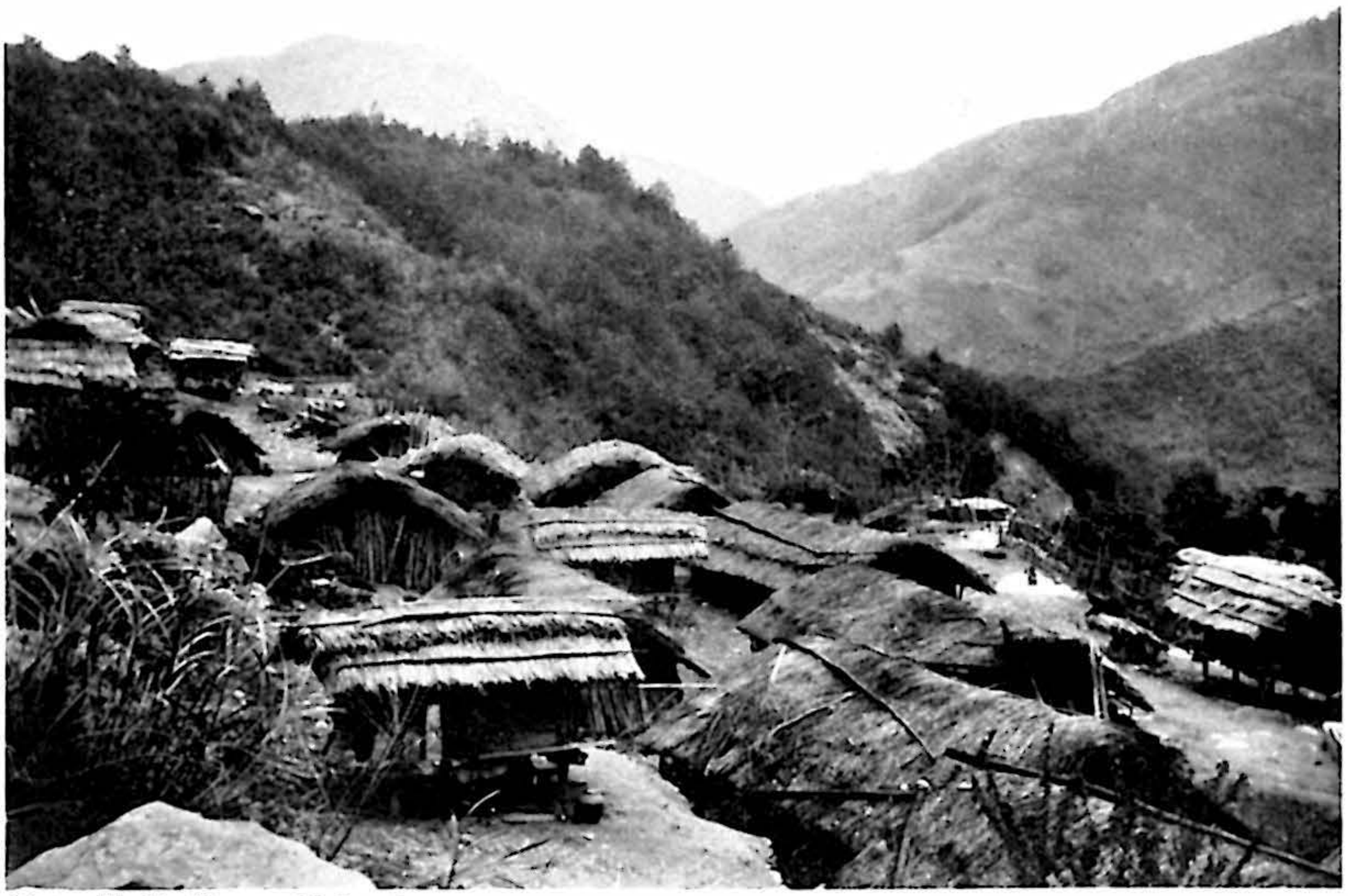
With regard to maps, there is a complete set in Japanese, published some 30 years ago, but they have to be accepted with a great deal of caution, as we found them frequently inaccurate on the higher ranges, but so far as general plans are concerned they are indispensable.

It is necessary to make all plans well ahead, otherwise days and even weeks may have to be spent at Taihoku. Introductions to the authorities are necessary. In addition, no doubt, every help will be given to responsible climbers by the officials of the Formosan Mountaineering Club, of which one of the Directors, Mr. T. Numai (c/o Sotoku Fu, Taihoku), knows English. Mr. C. Koshimura, also an official of the Club, now Commissioner for Foreign Affairs to the Formosan Government, also proved a very good friend to us on the occasion of our visit. It is almost essential that one member of the party be conversant with the Japanese language.

With regard to the mountains themselves, as was mentioned above, the paths render their bases comparatively easy of access but no more, for in most places their lower slopes are covered with dense forests, and though these give place to great belts of alps on the heights, punctuated by patches of rock and scree, or stretches of creeping pine of a peculiarly insidious character, yet any climber venturing on new paths must be prepared to sacrifice several days if necessary in order to gain the heights, unless perchance he is fortunate

Photo, Japanese Artist.]

MT. NITAKA IN CLOUD.



Photo, W. H. Murray Walton.]

A SAVAGE VILLAGE.

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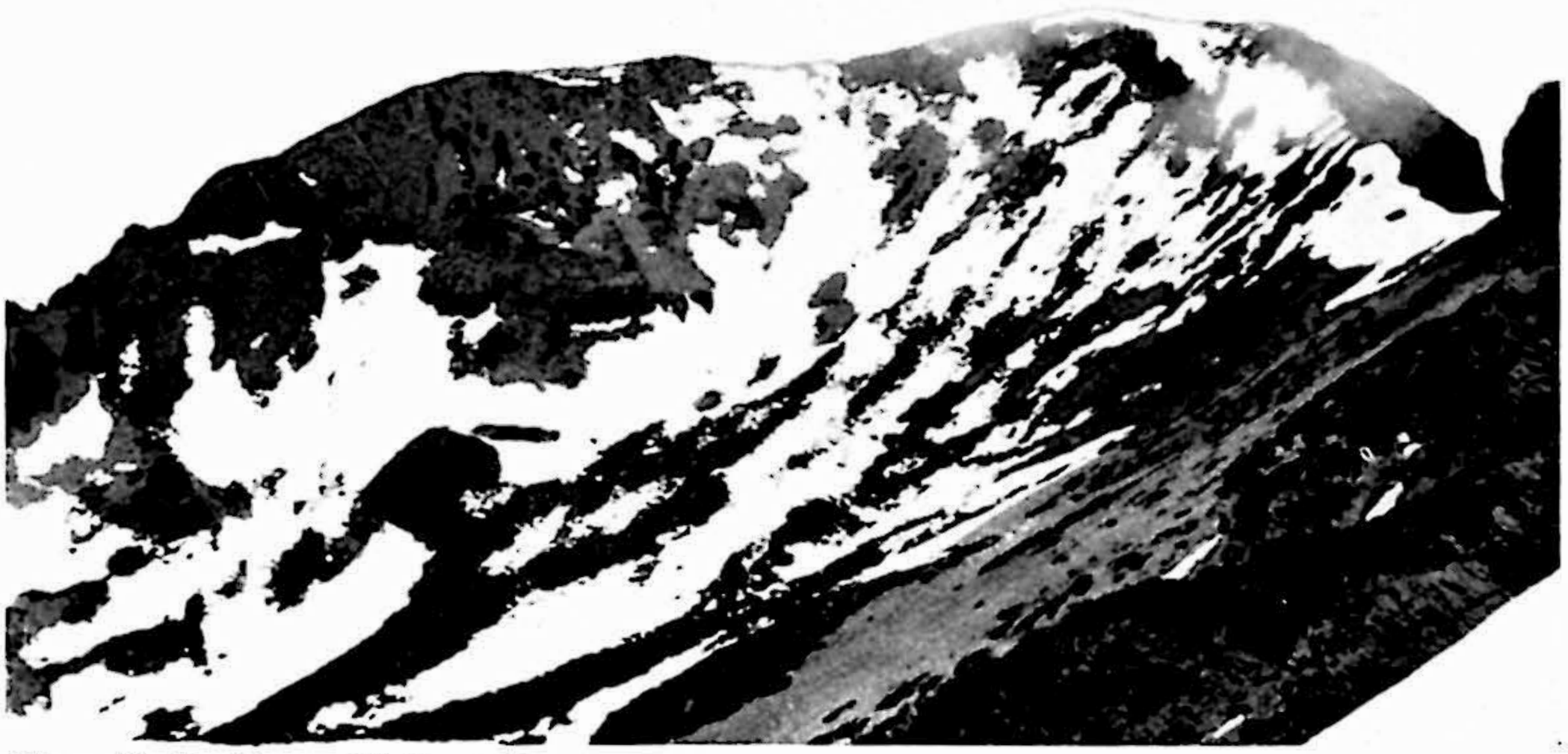
THE PARTY ON THE VIRGIN PEAK OF HAPONARU.



Photo, W. H. Murray Walton.]

THE SUMMIT OF TSUGITAKA.

enough to strike some savage track. One of the mistakes we made in planning our trip was to embark on too ambitious a programme. We calculated too much in terms of the Japanese mountains, and then found we could not cover the ground in the days at our disposal. On the whole, it seems a better plan to make some police post a centre for shorter expeditions to the mountains in the neighbourhood, returning to it every 4 or 5 days for rest and re-equipment. The timber-line in places goes up to 11,000 ft., some 2000 ft. higher than in Japan proper. Snow is comparatively scarce during the summer months. The rock is of every character, in some places hard enough to satisfy the most exacting demands, in others, such as on the higher reaches of Chuosen, so soft and flaky as almost to resemble the pages of a charred book.

One of the problems of climbing in Formosa is that of leadership, as often the police, efficient enough at their own job, have little idea of climbing. At the same time they are the people to whom the savages look naturally for orders. The whole matter requires careful thought, and before any expedition is undertaken it should be made quite clear who is leader.

With these remarks by way of preface, let me go on to give some description of the work we attempted during our weeks in the island.

My companion throughout the greater part of my climbs was Mr. K. A. C. Gross, who had left Cambridge a year or two before and was an enthusiastic mountaineer. In addition, the Formosan Government kindly released two of the leading members of the Formosan Mountaineering Club to accompany us during the first 3 weeks of the expedition, with the result that Mr. T. Numai was with us in the ascent of Tsugitaka, while Mr. K. Inoué accompanied us in the climbs up Nankotai and Chuosen. We decided for the first part of our programme to concentrate on some of the peaks in the N.E. of the island: Tsugitaka (12,897 ft.), Nankotai (12,459 ft.), and Chuosen (12,189 ft.), according to the maps. These each involved distinct and separate expeditions, though originally we had intended combining the two latter by means of traversing a long unknown ridge. On account of the bad relations between the savages at either end, however, the police forbade this, and in consequence we were obliged to make an 8 days' détour.

Mount Tsugitaka, our first objective, is the second highest mountain in Formosa. It had been first climbed a few years before by a party of Japanese, though Dr. Mackay, the famous Presbyterian missionary, had made an attempt many years before in company with a party of friendly savages, but when they were nearing the summit, certain omens appearing unfavourable, the savages flatly refused to proceed any farther and the good doctor had no option but to return. The first white man to make the ascent was Herr Grubler, a Swiss Professor at Hokkaido Imperial University in North Japan, who climbed it some 6 months before us. He, too, was nearly robbed of his goal, this time by bad weather, but managed

to make a dash for the summit. In view of the likelihood of a great increase in the number of climbers, the Japanese authorities have put up a hut at the base of the final arête. This was the only mountaineering hut we saw all the time that we were climbing in Formosa.

The journey to the base of Tsugitaka occupied 3 complete days, the greater part of it on foot. For the first night we stopped at a little Japanese inn at the head of a light railway, built to convey timber from the mountain. It was kept by an old widower, whose experiences of matrimony, it would seem, had not been over-successful as women were forbidden to enter the hotel. The old man himself, however, seemed to be in the best of health, and bore unconscious witness to the same by a woollen belt round his middle marked in large letters with the words ' superior durable quality.'

On the second night we were right in the heart of the savage area, guests of the police at the Pyanansha Post, and the cynosure of savage eyes from the time we arrived till the time we left. Whether we ate or bathed or dressed or slept we were inescapably in the public eye. We had our revenge, however, by bequeathing half a spherical cheese tin to a savage belle of dubious proportions, who waddled off with it in great style, wearing the latest Paris creation labelled ' Fine Old Dutch.'

The last day's march took us over the Pyanan Ambu Pass, at a height of 6000 ft., to the Shikayau Post at the base of Tsugitaka itself. All that day we would have been in sight of the higher ranges, but unfortunately bad weather shut out the views. The next day it poured and any possibility of a start could not be considered. The following day the weather improved, but the stream at the base of the mountain proper was in spate and any hope of crossing it out of the question, so we spent our time visiting the savage villages and seeing their inhabitants at close quarters. Any temptation to a feeling of superiority was prevented by Trevelyan's description of our English forefathers, who seem to have lived in very similar conditions. In the meantime a small party of savages were at work constructing a small bridge, so that there would be no fear of delay the next morning should the weather be good. The method of construction is rather unusual. A big tree is stretched out over the river at an angle of about 30°, one end being made fast in a pile of stones. A savage then crawls along this till he is over the other bank, a stony shore not much higher than the level of the river. He drops down, and with the aid of a rope, pulls the end of the tree down so that it is in the form of an arc. This end is then made fast in like manner, and after one or two more trees have been treated in a similar way the bridge is ready. What would happen if one end of this catapult were suddenly to go off is perhaps best left unsaid. Fortunately, weather conditions proved good and we were able to make an early start. Our party consisted of three climbers, a body-guard of two police and four Formosan servants, all armed, and

nine savage porters, over half of them being women. One of them, an old dame of some sixty years, was dubbed 'scavenger' as there was no fear of litter when she was about. By the time we got back she had the finest collection of old tins of any savage in the tribe. After crossing the bridge we followed the steep bank of the river for some way and then turned up one of its tributaries, through which we had to wade in order to get to the actual base of the mountain. The climb from this point for the next 5 hours was uneventful, being steep, hot, and largely over grass. We were not sorry to reach a little mountain tarn for lunch, after which once again we resumed our way, following the shoulder of one of the lesser peaks of Tsugitaka known as Shikayautaisan (11,160 ft.). From its summit we got a particularly fine view of the mountain itself. Our way lay across large belts of alp, punctuated at times by inrushes of the forest. To the left the mountain fell away with surprising steepness, with here and there some tree-clad promontory jutting out into the depths. Darkness was falling ere we reached our goal, the hut described above. But, alas! the mountain sprite had not welcomed this intrusion on its domains, and the greater part of the building lay in ruins. We found one room, however, where it was possible to shelter. The savages, who seemed absolutely tireless, went off in the meantime with one or two guns which they had borrowed from the police in order to try to get some game, but although three or four shots rang out, they returned with empty bags. The hut itself lies some 2000 ft. below the summit.

We made an early start next morning, following the steep and dry bed of a rocky stream, and after nearly 2 hours' scramble emerged on the heights above amid the snow and the creeping pine. Shortly after we were on the southernmost of the two peaks which constitute Tsugitaka. The view was magnificent: to the S. and W. the mountain falls away in a series of huge precipices; to the E., except for the arête we had just climbed, the slope is more gentle; to the N. stretches a long unknown ridge swinging gradually away to the E. towards Momoyama (11,123 ft.), while a shoulder struck N. just before this mountain, leading to the remarkable peak known as Daihasenzan which was to be our goal. This last-named mountain consists of a huge rock, vertical to begin with, and also a conical top, together about 600 ft. high. It had been climbed once before by a party of three Japanese. We could see the peak away in the distance, at least 3 days off; alas! we were not destined to get near enough to reach it. For the rest of the day we made our way along the ridge, now glissading down some small snowfield, scrambling up or down rock of varying qualities, now having a particularly severe tussle with the creeping pine. This shrub rarely attains a height of more than 6 ft., but stout stems and branches are twisted together in the form of a net, and those who would cross it have to step from branch to branch. Lucky is the man who does not have frequent falls. The Formosan pine is considerably more unpleasant than its Japanese

cousin, because in addition to its tough twisted branches there are also prickly leaves. As the day progressed the clouds gradually began to ascend; by the late afternoon visibility was decidedly poor. When we reached the point on the ridge at which we estimated it should swing away to the right, it was lost in the clouds far beneath.

Finally we decided to call a halt and retrace our steps some half a mile to a point which seemed suitable for camping, at the side of a small snowfield. Next morning we discovered that the shoulder to the right was actually our route, while the ridge in front along which we had made our way suddenly fell away in huge precipices only a few yards beyond the point where we had called a halt. After a drop of over 1000 ft., we started up what was to be for us a virgin peak, unless savage hunters, far off their usual track, had trodden its heights before us.

The last bit of Hapanorau, as our savages called it, or Shimita, as it is named by the savages on the other side, presented a fairly tough proposition, as not only was there considerable rough rock work, but also in places the creeping pine was almost impenetrable. The actual summit (12,250 ft.) consists of a slope of 45° covered to the S. with creeping pine soon ending in the forest, while to the N. there is an overhang of about 1200 ft. From this vantage point we got an excellent view of our goal, Daihasenzan, truly a remarkable peak. About half a mile further on the ridge turned sharply N., and we scanned its serrated ridge with no little anxiety, wondering how much further we could get along before nightfall. Numai and one of the savages went on ahead a short way to reconnoitre, and came back with the report that a bit of sheer precipice rendered progress along the actual ridge proper quite impossible. There was no alternative but to drop down the S. face in order to circumvent this difficulty and reach the actual junction of the two ridges from the flank. Here the lack of definite leadership wrecked our whole scheme. The climbers naturally were anxious to keep as close to the ridge as possible, but the savages and police seemed more intent on getting off the mountain altogether, and we were powerless to prevent it. When finally we forgathered once more it was to find ourselves on a small ridge parallel to the main ridge and separated from it by an almost impassable ravine. The way back through the forest of creeping pine made the question of retracing our steps almost impossible in the time at our disposal, so with considerable difficulty and no little anxiety on account of the steepness of the final slopes to the river bed we made our way down as best we could, and camped for the night. Our plan next morning was to get across the ravine, and make our way up once again direct to the 'great divide.' But with Numai compelled to start back for his duties in two days' time, after a preliminary reconnoitre next morning, we realized that it was more than we could do, and so somewhat reluctantly turned finally from the ridge which we had nearly conquered, and set out as best we could to make our way down once again to the

valley. All that day we made our way over ground of every conceivable type, alp, rock, scree, forests of creeping pine, and not until late that evening did we find ourselves in the bed of the Kiyan river, a tributary of that stream we had crossed nearly 4 days before. A final and easy march next morning took us back to the Pyanan Ambu Police Post. We had failed to reach our ultimate goal largely because we had lost those first two days at Shikayau on account of the bad weather, but we had at all events the satisfaction of traversing for the first time some 5 or 6 miles of a new territory, including one 'first ascent.'

After a day's rest with our old friends at the Pyanansha, we started out on the second stage of our climbs in this section of Formosa. Between the Pyanan valley and the E. coast lay a great range of mountains culminating in two peaks, Nankotai and Chuosen, both over 12,000 ft. As was mentioned above, our original plan had been to climb the former and then traverse the 4 or 5 miles of ridge between them, but intertribal relations made this impossible. We decided, therefore, to make a col of the former peak which would take us down to the N. end of the steepest part of the famous E. coast cliffs, and then, after following the road girdling them, still in course of construction, to strike in some 20 miles further S. and make a separate and distinct ascent of Chuosen. This involved the best part of a fortnight's hard going. We bade farewell to our porters at the Pyanan Ambu Police Post, as fresh porters were being sent over the mountain belonging to a different tribe, who were to accompany us on our second stage. They were certainly the wildest set of men that we struck, and cannot have been tamed very long. They gave us the impression that, were it not for our police body-guard, they would be delighted at any time to relieve us of our heads. On one occasion they succeeded in killing a mountain goat, which they promptly proceeded to eat, warm and raw, with obvious relish. At the same time they marched with the precision of soldiers, the steady tramp, tramp, till word rang out for a halt, when almost in answer to the Sergeant-Major's 'one, two, three,' loads were lowered, propped up, and pipes lit, till once again the order for advance was given. Their clothing was of the scantiest; there was no fear of getting their trousers wet when they sat down.

Unfortunately Numai had had to return to his duties, but his place was taken by Mr. Inoué, the Secretary of the Formosan Mountaineering Club, and though of a very different physique to Numai, an ardent and hard-working climber with a passion for botany.

We left the Pyanansha Post early one afternoon, and after a fairly long scramble up the rocky bed of the mountain stream, in which the advantage of Japanese sandals over mountain boots was very obvious, finally reached the base of a long sinuous shoulder of Nankotai. For the next few hours our way lay up an extremely steep slope of about 1 in 2 through the forests which seemed interminable, but we were rewarded at the end by emerging on a small open patch of grass-

land with a savage hunting-box and a small spring. Here we camped for the night, studying, as the sun set, the long ridge we had climbed the days before, now silhouetted against the evening sky.

The next morning we made an early start, and soon after were once again in the steep forests ; but when finally we did emerge some 3 hours later at the height of about 10,000 ft., it was to see the final slopes of Nankotai in front of us. The peak looked far more imposing near at hand than it ever had in the distance : triangular in shape, with great masses of precipice, boulder and rock, broken by patches of vegetation. Between the shoulder on which we were and the final arête lay a deep ravine, the bottom of which we could not see on account of the forest. Formosan valleys are often so steep for their last few hundred feet as to be to all intents and purposes uncrossable, and so we decided to avoid a direct attack and instead follow the alp-covered shoulder to the left, and try to get in from the rear. An ideal spot was found for a camp, and the police sergeant informed us that from that point it would be possible to make the return journey to the summit in something like 3 hours. As he was probably one of the first persons to make the ascent after the visit of the survey party some 30 years previously (the rotting posts of their triangulation survey still remained), we accepted his statement at its face value, and after a short noonday siesta, which Leslie Stephen reminds us ' Amongst the mountains belongs to a finer growth,' we set out for the final assault. Slowly, steadily, now through thick grass, now across rocky slopes, now over big boulders, we gradually mounted till we reached the summit of Mount Koshi, 12,052 ft., from which we got a really superb view of Nankotai, a great massive rocky triangle, rising up from the valley below. To the left a ridge, three parts of the arc of a circle, linked us to the final peak, and enclosed within its compass a truly magnificent and utterly wild amphitheatre.

It would have been an easy matter, had we had more time at our disposal, to follow the ridge round, but as we were beginning to get a little doubtful about the time-sense of our companion, we decided to strike down a long valley of scree, cross the entrance of the amphitheatre, and make a direct ascent. The climb was interesting in its variety, though in no place could it be described as really difficult. Some of the bigger rocks and boulders, however, afforded plenty of fun. Unfortunately the last 100 ft. of the mountain were under a cloud which quite effectively shut out any view of the forbidden ridge. It was a keen disappointment. By this time, however, we realized that if we were going to get back before dark we would have to go all out to do so. Accordingly one of the savages was despatched post-haste back to the camp to get lights, while we pushed down the mountain side and up the stony slopes of Koshi as fast as we could. Unfortunately one of the party was taken ill, which somewhat delayed progress, and though we reached the summit just as darkness fell we had still a considerable way to go.

We had to proceed very cautiously before we got off the rock and on to grass once more, and it was nice to see in the distance at last the flashing of the lanterns telling of the approach of the search party.

Next day the peak was clear again, but as our plans were rather congested, we decided to continue our way down. One special feature of Nankotai will ever remain in our memories—the rhododendrons. These flowers, white blooms with pink buds in a setting of dark green and brown, literally covered the northern face of Koshi. I do not think I have ever seen such a prodigality of flowers before : in places they made the mountain look as if it were covered with fresh snow.

All that forenoon we were crossing belts of alp and scree and forests, following the ridge northward, dropping slowly all the time. The distant views of the Tsugitaka range were glorious, and here and there we could get glimpses of the upper Pyanan valley far beneath. At last the time came to leave the ridge. We struck down a very steep grassy slope, the slipperiness of which was calculated to try the best of tempers, indeed it seemed at places as if the step, bump, step, bump again, was almost automatic. When finally we reached the bottom it was to find ourselves in a narrow and very rocky gorge, blocked by huge boulders. Our police friend told us we had only an hour more. It was 4½ hours later before the Pyahau Police Post was attained. During the last 2 hours the climbing was thrilling. The gorge got wilder and wilder, while the river, gaining ever in volume, raced on its way. Time and again it was touch and go as to whether we were going to negotiate some huge rock over which the river fell with deafening roar. When finally we did reach the bottom triumphant it was to find that the next thing was to ford the river. This became more and more dangerous, and latterly we never crossed without forming a living chain which stretched right across, and even then one or another of the links were frequently swept off their feet, and only saved from being carried away by the strength of the chain.

We got a cordial welcome from the head of the post, and also the Chief of the tribe, a scarred and tough old warrior, whose home must have been adorned with many human heads before the Japanese stepped in. Next day involved a long, tiring, hot tramp of over 30 miles to the Sendan Police Post, which we finally reached after dark, perhaps more exhausted than on any day of the expedition, but it was the end of three days' very hard work. Next morning we reached the famous E. coast cliffs of Formosa, and were this not strictly a climbing JOURNAL, we would be sorely tempted to detain our readers with a description of them ; but inasmuch as they are now girdled by a fine motor road and can be traversed in a matter of 3 or 4 hours, they are hardly suitable material for an article of this kind. We saw traces here and there of the old and narrow path which the Chinese authorities had made years before when they had disputed with the savages the right to the possession of this part

of the island. We came to the conclusion that probably the savages were less dangerous than the path, for at all events if they caught you proceedings were soon over, whereas a slip on that path would mean a tumble of 800 ft. or so down a rocky wall of 80° slope.

After a night in a little inn in the colonial town of Kenkai, which was wiped out three months later by a typhoon, we started out on the last lap of our climb in this part of the island. The approach to Chuosen along the well-kept police paths leads through perhaps the finest scenery in Formosa. At one point it is cut out of the face of a precipice 3500 ft. in height, and 2000 ft. above the bed of the river below. So sheer is it at this point that it is possible to throw stones right across the river on to the cliffs which rise almost as steeply on the other side.

It was a day and a half before we reached the Police Post of Tausai, which is the starting-point for one of the two ways up Chuosen at present known. As both these routes had only been used once, the mountain cannot be said to be very much on the map as yet. As a matter of fact the survey height is, like many other details in that old Survey, probably very inaccurate. Viewed from the Tsugitaka range, Nankotai and Chuosen, which are equally distant, give one the impression that the latter is very much the higher, but the map puts Chuosen some 140 ft. lower. In addition, whereas Nankotai looks flat and dull, Chuosen with its more marked peak looks a far more interesting proposition. The year before we made the ascent, however, Mr. Kano, a Japanese climber, took careful barometric observations and estimated that Chuosen was some 130 ft. higher than Nankotai, which the distant view would suggest. Fortunately, when on the Tsugitaka ridge we took a photograph of these two peaks early one morning, when they were shut out except for their tips by one of those long, straight, flat, horizontal clouds, and this showed beyond any doubt that Chuosen was the higher, and so confirmed the truth of Mr. Kano's observation. Mount Chuosen, therefore, is quite probably the next highest peak in the island after Tsugitaka.

We were looking forward to this climb as much as any, largely because of the impression we had of the shape of the mountain, which seemed to offer plenty of excitement. We were, however, from every standpoint condemned to disappointment. After a welcome afternoon at Tausai, where we rested so far as the curiosity of the savages would allow, we made an early start next morning, accompanied by a party of some 30 savages and innumerable dogs of every variety—the Japanese called them 'mixed'—they certainly were the ugliest set of mongrels I have ever seen. We had a very easy half-day, mounting all the time but along well-established hunting tracks, till we reached a little savage hunting-box at a height of about 7500 ft. Here we were glad of shelter as it came on to rain, indeed this was the beginning of the bad weather which spoilt the greater part of the rest of our time in Formosa. The hut

was of a very crude description, but at all events it kept out the wet, and with a margin of $1\frac{1}{2}$ ft. between the fire and the centre and the outside wall you could be quite sure of some part of your body being warm, even though it might be necessary to turn frequently. Next day we soon left all tracks behind us, and after emerging from the forest once again found ourselves on those alps which are such a feature of Formosan mountains. The savages had started earlier and we saw them in full cry, hounds and men, with two deer far in front. After a climb of about 1500 ft. from our previous bivouac we reached the final arête of Chuosen. As the distant view suggested, it was fairly steep, but except for occasional patches of extremely rotten rock there was nothing particularly difficult about it. It was a case of slogging up slowly and steadily towards the summit. Ominous clouds, however, which had been hanging about all the morning, turned into rain as we reached the top, and though we waited patiently in the cold for over an hour in the hope that things would clear, we were disappointed and finally had no alternative but to turn back. Three hours later we arrived back at the hunting-box, for once in our lives envious of the savages, who when they got in had no wet clothes to dry. The tramp back of the next two days needs little description. It was a disappointing ending to what had been certainly three of the most interesting weeks of mountaineering that we had ever spent.

Looking back on this part of the expedition as a whole it may be more truthfully described as a mountaineering rather than a climbing expedition, for though here and there, notably on the ridges near Hapanorau and the final arête of Nankotai, there was rock to rejoice the climber's heart both in quality and steepness, yet on the whole it was more a matter of opening up a new high territory rather than performing breathless feats. It was a great disappointment not being able to reach the rock pinnacle of Daihasenzan, which promised most interesting work, but we had at all events the privilege of opening up new territory for more accomplished climbers to develop.

After our climbs in the N.E. corner of the island we cast longing eyes farther south towards the mountains around Niitaka, the monarch of the Japanese Empire. Mt. Niitaka, when first climbed nearly 40 years ago, was a very formidable proposition indeed, as not only were there untamed savage tribes in the vicinity, but also the approach to the mountain was very largely through virgin forest, and the actual ascent took some 10 days of the hardest work. Since then civilizing forces have been at work, and to-day there are the most excellent police paths. Apart from weather conditions, the ascent of Niitaka is so simple that only a few months previous to our visit a party of schoolgirls, with cinematographer and all, had made the ascent.

But weather conditions, path or no path, were serious factors, as we were to find to our cost, for only once before in my experience have I been in a more formidable storm than that which struck us

when some days later we stood on the summit. Though Niitaka, apart from its being the highest peak, had lost some of its glamour, there were, however, in the neighbourhood two other peaks, Shukoran, 12,577 ft., and Maborasu, 12,487 ft., which were still largely unknown. Indeed the first and only ascent of the latter had been made some two years before by a Japanese Government official.

When we had first discussed the plan with the authorities in the capital, we decided that we would make the ascent of Niitaka conditional on permission being given to our venturing to climb these two peaks as well. An unforeseen difficulty, so far as we were concerned, was that on the southern slopes of Niitaka there still remained the last remnants of the untamed savages, and for two years previously Niitaka had been largely closed to climbers. There seemed to be some uncertainty as to whether leave could be obtained, but our minds were set at rest when a wire came to a police post on our way down from the ascent of Chuosen to say that leave had been given for Shukoran. When later we saw the authorities in Taihoku, a hint was dropped that while they could not give official leave for us to attempt Maborasu, it might be possible to wangle it when we got nearer to the mountain. We took the hint, and after an all-night journey reached the little wayside town of Suiriko, some 20 odd miles from the N.W. base of Niitaka. All that day I travelled by the slowest vehicle on earth, a sort of timber trolley, which carries down wood from the mountains by its own momentum, but has to be shoved up by perspiring coolies. We averaged 2 miles an hour. By the time I had been thoroughly sunburnt and my appearance was reduced to vanishing point we reached our destination, the Police Post of Tompo, at the base of the Niitaka massif. This post is fortunate in possessing a private hot spring, and in normal conditions we should have welcomed its waters, but amongst the few things that it was not supposed to cure was sunburn, and it will be many a day before I forget my bath in its waters.

The next day, accompanied by a police officer and two carriers, I made my way slowly and easily up the magnificent police path which leads to the Hatsukan Post, some 7000 ft. higher up. This post lies on the col separating the Niitaka group from Shukoran and the neighbouring peaks. I learnt on the way from a friendly police official, the Assistant Superintendent in these parts, that there would be no difficulty about making the attempt on Maborasu, and instructions were telephoned ahead to make the necessary preparations. I reached the Shukoran Police Post at the height of 9600 ft. late that evening, and found plans had already progressed. Next morning we were due to climb Shukoran, making a col of the peak, and then to push on towards Maborasu as far as possible. Water had been found by Mr. Ito when he made his ascent 2 years before at the lowest point between these two peaks. It was our intention, if the conditions were favourable, by making an early start, to reach our water supply in the early afternoon. We would then push on

as fast as we could for the remaining 2 miles to the summit of Maborasu (we had learnt from Mr. Ito that the vegetation at that height did not offer a very serious obstacle), returning to camp by nightfall. This was a possibility, although it would mean hard going, but we were all in excellent fettle. The mountain police and savages are as hard as nails, very different from their lowland brethren. Accordingly we made an early start next morning and, though the weather left a good deal to be desired, things seemed to be going more or less according to the schedule. A steep scramble behind the Police Post took us on to the S.W. shoulder of Shukoran, and after crossing patches of rock which in places required considerable care, or making our way across soft alp, or through belts of low scrub, we reached the summit of Shukoran, some 4 hours after our start. On the way up we got occasional glimpses of Niitaka to the W., but weather conditions were getting less pleasant.

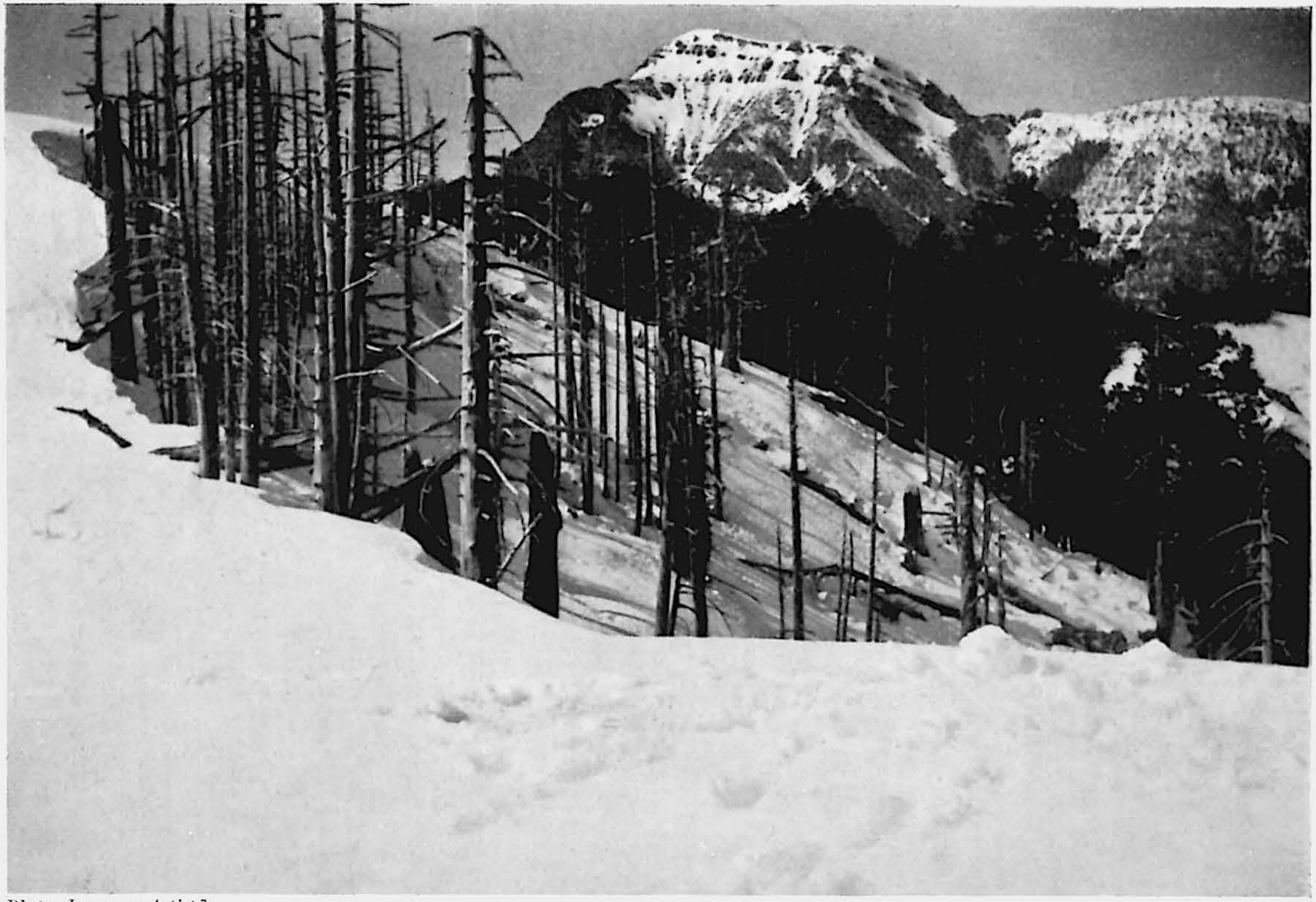
The descent to the col between Shukoran and Maborasu was fairly simple on the whole, though in one or two instances we got caught in belts of mist just as we found ourselves on some ticklish pieces of rock. We were now getting near where I deemed should be our water supply. Yes, here it was, spoors of animals of all kinds, and some traces of a savage hunting-party, but whatever there had been of water long since had vanished, and all that remained was hard mud! We looked down the mountain side on either slope, hoping that it might be possible to find some spring by which we could camp, but after an hour or so of fruitless search we realized that on that day at all events Maborasu could not be ours. The only thing to do was to retrace our steps some 3 miles to a spring we had passed on the approach to Shukoran and there camp, making a return trip to Maborasu the next day. From that moment our troubles began. To begin with, weather conditions got rapidly worse and a few sharp showers put in an unwelcome appearance. After traversing Shukoran one of the party got separated and we had an anxious 2 hours searching for him. It was already dusk when we reached the spring, by which time the conditions were getting so ominous that, following the strong advice of one of our police body-guard, who declared that he knew that part of the mountain well and that we were only $1\frac{1}{2}$ hours from the Minami Post, we decided to push on rather than face the storm in the mountain at a height of some 12,000 ft. Darkness fell rapidly, as is usual in the tropics, but fortunately for us weather conditions showed some improvement and we were able to enjoy the benefit of the full moon. But after we had been going for well over $1\frac{1}{2}$ hours and there seemed to be no sign of Minami, a few leading questions elicited the fact that our police guide really had no idea where we were. The only thing was to trust to the compass and make more or less a bee-line over the mountains till we came to the police path. This was no easy task, as by this time our carriers were exhausted. By taking some of their loads, however, and giving them all the assistance we could, despite the necessity of crossing one o

those sharp, steep ravines, so common a feature of the Formosan mountain scenery, we finally found ourselves on the summit of Daisuikutsu, 11,958 ft., from which could be seen the lights of the Minami Post far below.

It was no easy task getting down, as the mountain face was seared with deep ravines, but all's well that ends well, and we finally reached the Minami Post after 14 hours of hard going since we had left Shukoran that morning, with very little rest during the whole period. The bath that was awaiting us was doubly welcome except for one factor, there was no bath-house. The building was under reconstruction, and in the interval the bath was placed in the open air. The Japanese bath, it may be mentioned, consists of a large iron cauldron or a big square box, say 4 ft. by 3 ft., by 3 ft. deep, with a stove attached and a tap above, so that the water is being continually heated from one end only, while the tap above enables one to regulate the temperature. In this case there was no tap, but at that height the cold of the mountain winds exercised a moderating effect. It was the queerest of feelings, when one was inside the bath with one's head sticking out, to enjoy the night scenery of the mountains—mists sweeping down one mountain side and up another, patches of cloud racing across the moon, silhouettes of the heights above against the glory of the starlit sky—but somehow the poetic nature of it all vanished at the thought of the time when it would be necessary to get out into the icy cold air and dry oneself with a pocket-handkerchief. We were very glad of a shelter over our heads that night as, long before dawn, the weather had taken another change for the worse, and next morning it was decidedly stormy. We had an easy day ahead of us, a walk of some 15 miles to the Niitaka Post, at the base of the final arête of Niitaka.

As we made our way along those wonderful mountain paths, an occasional lull in the storm allowed us to get momentary glimpses of the scenery we were missing, but on the whole there is little of interest to record. The azaleas which clung to the mountain slope, mostly of brick-red colour, were even more gorgeous than the rhododendrons of Nankotai. Our chances of making the ascent of Niitaka on the day following seemed to grow less and less with each passing hour. All through the night the storm raged in fury, and we had resigned ourselves to at least another day at the post, when suddenly it cleared. The police and savages alike gave it as their opinion that the weather would improve, but we were dubious. The nearest rocky spurs of Niitaka, however, as they forced their way through the mists on the heights above, whetted our appetites at the expense of our judgment, and we decided to make the venture.

Of course, as has been mentioned above, it merely meant walking up a mountain path, and so there was nothing really thrilling from a climber's standpoint. Once, however, we left the hut we were under an obligation to see it through, for the summit of Niitaka is the



Photo, Japanese Artist.]

THE FINAL ARÊTE OF MT. TSUGITAKA IN EARLY SPRING.
Photo taken at a height of about 11,000 feet.

[*To face p.* 342

Photo, Japanese Artist.]

THE EAST COAST ROAD AND CLIFF. FORMOSA.

meeting-point of three provincial boundaries, and it would be necessary for us to change both body-guard and bearers on the summit, for these provinces are very much by way of being water-tight compartments. Indeed at more than one post we saw maps of the provinces drawn in such a way as to suggest that nothing whatever existed beyond their boundaries. Accordingly, before we left the Niitaka Post a telephone message was sent to the police at the first post on the other side of the summit to come and meet us, and so we were in honour bound to turn up. For the first mile or so our way lay through a dense forest, and though the rain had ceased, the drops from the trees had not, and long before emerging we were drenched. The last 2000 ft. of Niitaka are very rocky and steep, and as we left the forest the storm once more burst forth in all its fury. We were well clothed, but the wind went through us in a way not unlike that described by certain writers on the Everest Expedition. The savage bearers, whose tailors' bill at the best of times is a minimum, and who seem compensated by nature with extraordinarily thick skins, found it altogether too much for them and dropped behind in the shelter of a rock. We pressed on to the summit, and shortly after were joined by the relief party from the other side. The summit itself consists of a small rocky platform, with a concrete shrine—somehow very out of place in such conditions—a triangulation point, and a small brass disc pointing out the various objects on the horizon, which, however, on this occasion was limited to a few feet.

Four spurs run out from the mountain, terminating in peaks somewhat lower than the central one; that to the E. offers many interesting routes to the rock-climber, and Numai had spent several weeks exploring them. Had the weather been fine we had meant to spend the greater part of the day on that E. buttress, but under present conditions it was quite impossible. We said goodbye to our police friends and struck down the W. shoulder of Niitaka for the Niitaka Shita Post, in the meantime sending some bearers to relieve our 'marooned' men, whom we had left in shelter on the way up. After a short rest and refreshment with our hospitable hosts we continued our way another 7 miles to the Taataka Post—the only post in Formosa where we found definite accommodation set apart for climbers. Here, as the storm showed no sign of abating, we decided to stay the night, and next day after many false alarms about broken roads and flood-swept valleys got down to Arisan, the starting-point for the ascent of Niitaka from the W., and our climb was over. The ascent of Niitaka to-day, thanks to the enterprise of the police, may be little more than a long steep walk uphill except for the last 2000 ft., but never again do I want to go through an experience like a storm on the monarch of Japanese mountains. Lord Conway has said: 'No one can really know the High Alps who has not been out in a storm at some great elevation; the experience may not be, in fact is not, physically pleasant, but it is morally

stimulating in a high degree and aesthetically grand.' I think I now understand the truth of that statement.

With these words our brief description of our climbs in Formosa must come to an end. The one thing that we can claim for them is that in some small measure we have been allowed to introduce these wonderful ranges to the Western world. But we left them with the feeling uppermost in our minds, not of what we had done, but of the vast amount to be accomplished. In the meantime, all success and honour to the redoubtable band of climbers belonging to the Formosan Mountaineering Club, who are gradually opening up these new territories.

[We are greatly in the writer's debt for his instructive article.—*Editor*, ' A.J.']

The Glaciers of Upper Ishkoman.

By REGINALD SCHOMBERG.

THE state of Ishkoman is the smallest and remotest of the Gilgit agency and lies between Hunza, Yasin, and Afgan Wakhan, and it is on the frontier of the last that the river Karambar rises, the chief tributary, if not indeed the main source, of the Gilgit river. At the head of the river is the so-called Karambar Pass, but the glacier itself lies much lower down and close to Bhort, the first cultivation in the valley and some three miles below. The Karambar Glacier flows almost due E. and W., and thrusts itself across the river until stopped by the wall of rock opposite. Sometimes it completely blocks the valley and causes a flood ; at other times, as in 1933, it enables the river to flow past. But in the summer, from May till October, the Karambar valley is impassable above the glacier on account of the flood water from the melting snows and the perpendicular sides of the valley.

I had intended to descend this valley, but was dissuaded by the Governor of Ishkoman, Rajah Mir Bais Khan, who sent one of his men to meet me in Chitral and to tell me of the dangers. The messengers, two active Wakhis, came across country, that is over the precipices and rocks on the left of the river. They took five days to accomplish one day's normal march. They were unimpeded with anything, they had not even a blanket, and I felt that I should never manage a journey with my impedimenta, even were I lightly equipped.

The source of the glacier is a great mass of snow and ice which is one of the chief features of the extreme Western Karakoram, although, strictly speaking, these mountains may claim to be a part of the Hindu Kush.

The drainage of the right side of the lower Hunza river, as well as