

RECOMMENDATIONS

THE HIMALAYAN
MOUNTAINEERING INSTITUTE
DARJEELING



SWISS FOUNDATION FOR ALPINE RESEARCH

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MOUNTAINEERING INSTITUTE
DARJEELING



PRINTED AS MANUSCRIPT

Swiss Foundation for Alpine Research

1954

INTRODUCTION

The first contact was established when Dr. B. C. Roy, Chief Minister of West Bengal, on the occasion of his visit to Zurich in July 1953, called on the Swiss Foundation for Alpine Research to discuss the various aspects of the project. It was a happy incident that at the same time Sirdar Tenzing Norkay Sherpa was present in Zurich. At the first informative meeting between Dr. B. C. Roy and representatives of the Foundation, a *Primary Draft* (7.28.53) was given to Dr. B. C. Roy. On the following day at a second meeting, including Tenzing Norkay, the problem was generally discussed. This first contact resulted in the three following recommendations:

1st. The Foundation was to send Arnold Glatthard, Principal of the Swiss Mountaineering School at Rosenlauri, to Darjeeling for local investigation and a thorough reconnaissance.

2nd. The Foundation was to provide suitable instruction for a small number of Sherpas to become efficient in mountain craft and its instruction.

3rd. The Foundation was to agree to stand by in advising in a directive way the new Institute in Darjeeling on its first step to promineny.

Upon returning to India, Dr. B. C. Roy received from T. Wangdi, Deputy Minister, Tribal Welfare Department West Bengal, a *Report on Our Recent Visit to Darjeeling in Connection with the Selection of a Site for the Proposed Institute of Mountaineering in Darjeeling* (8.28.53) and from S. Dutt-Mazumdar I.A.S., Deputy Commissioner Darjeeling, a memorandum *Institute of Mountaineering* (9.4.53). When the Foundation's representative, Arnold Glatthard, arrived in Calcutta, he was given by Dr. B. C. Roy a *Note for Consideration of Mr. Glatthard* (10.19.53).

During his stay in Darjeeling and eventually while making the trek to Ratong-Kabru area, Arnold Glatthard was provided with ample opportunity for his reconnaissance. It was greatly appreciated that the Government of India had delegated Major Jayal of the Defence Department to accompany Arnold Glatthard to the mountains. This and the continuous cooperation of Tenzing Norkay resulted in a thorough investigation of the possibilities afforded both by Darjeeling and the Sikkim mountains.

After his return to Calcutta, Arnold Glatthard submitted to Dr. B. C. Roy *Notes for the Chief Minister, West Bengal, on the Proposed School of Mountaineering, Darjeeling* (11.21.53). On the following day Dr. B. C. Roy issued a *Note of a Visit of Mr. Glatthard and Major Jayal to Darjeeling* (11.22.53).

The end of November saw Arnold Glatthard back home for submitting the aforementioned documents to the Foundation and reporting fully on his achievements.

At the Foundation immediate orders were given that in consideration of this evidence and in reference to the Foundation's experience of long-standing a comprehensive study should be drawn-up and submitted to a small committee of experts for final discussion.

In submitting these recommendations through the good offices of the Indian Embassy at Berne to the Chief Minister of West Bengal, the Foundation wishes to stress that its views were arrived at unanimously and that, therefore, these recommendations include nothing but straight-forward truth and friendly advice.

PRIMARY DRAFT

"It is an excellent idea to include mountaineering in the physical fitness program of Indian students. The intellectual youth will certainly have a say in the future development of mountaineering in the Himalaya and Karakorum.

A course of preparatory character should include lectures on geography, morphology, geology or physiology, climatology suitable as additions to the curriculum of the individual student. More technical studies should refer to map-making and map-use, to mountaineering outfits and nutrition problems, first aid, and last but not least to mountain craft in general, i. e., the technique of mountaineering on untrodden country, especially rock climbing, ice craft and combined work on the real mountains.

Whereas teaching classes of students could include large numbers for indoor work, mountaineering itself would have to be organized in small classes of 3 to 4 pupils and 1 instructor. Of great importance is the selection of proper training areas enabling the chief instructor to rotate the classes from the various sites and to give each day enough appeal so that the pupils not only learn, but enjoy being taught.

It is obvious that the chief instructor of the Institute and his right-hand men would need a thorough education and more than basically-founded knowledge of mountain craft. In order to give students full value the instructors could not be given too much care during their own training. It would therefore be an excellent idea to let them pass the Swiss training of professional mountain guides.

Especially during training on rock and ice, and even more during training climbs on real mountains, it seems essential to safeguard the pupils from danger by assigning to each small group a guide who would be responsible for the adherence to the proper rules of mountain craft.

It would seem a very important side-line of such a mountaineering institute to lend a hand in the general development of the Sherpas. Till now they have usually been considered as being fit to do the lion's share of hard work without

being accepted as social equals by the various European nations sending expeditions to the Himalayas. Improving the Sherpas professionally would raise their self-respect; they would grow in personality, and this certainly would improve their standing both as individuals and as a class of craftsmen. The development of exploration in the Himalayas and the Karakorum largely depends on such improvements. These people, who have all been brought up the hard way, ought to find a tremendous relief in seizing the outstretched hand of India. It could not be a better proposition for the Swiss than to help the Indian authorities to find the right way to achieve this purpose.”

Written on the 28th of July 1953 for Dr. B. C. Roy, this first survey already led up to the following general considerations:

GENERAL CONSIDERATIONS

A wide scope:

An acquaintance with the *scientific background* of meteorology, geology, geography, physiology and history should provide the students either with an extension of their curriculum or at least its repetition. An increase of personal fitness would have to be acquired by *physical training* combined with a thorough acquaintance with the outfit and technical gear. Special training in the various aspects of *mountain craft* should lead up to finally obtaining a working knowledge of *climbing* itself.

The students:

In general they will be recruited from India's youth of sufficient previous education. But all walks of life may lead to a desire for profound mountaineering ability, for example as cadets, surveyors, forestry personnel, even army personnel. The preliminary education requested for the Institute will be a working knowledge of English, the capability of grasping the essentials of the syllabus and—last but not least—physical fitness of heart and lungs.

Didactic methods:

The English language will be used throughout as far as teaching and training are concerned. The syllabus of studies should be available to students in a cheap, comprehensive précis, and standard lectures with slides and 16 mm films should be provided. The complete outfit and technical gear for trekking and climbing should be on hand.

A class at the Institute would comprise 20—24 students, and all classroom teaching could be held in one room. The basic training for physical fitness and knowledge of kit and gear, including a practical course in first aid, would have

to be given to smaller groups, preferably in classes not exceeding 12 students at a time. Whereas all these doings are free from any danger, training in mountain craft asks for

Special safety measures:

Actual mountaineering cannot be instructed indoors or on level ground. Safety climbing is in itself part of the application of sound mountain craft. Of importance for the student, too, is getting acquainted with steepness and wild surroundings. The overcoming of a beginner's giddiness can only be attained on steep rock faces or ridges. The proper development of balance and the application of all devices for foot and hand in climbing must become an automatic reaction and be an ever-present help. Although there is not necessarily a mortal danger involved in climbing on steep rock, sloping snow or ice, a certain risk will always be taken. Falling free from a rocky pitch or shooting down a steep slope towards a moraine or breaking through into a crevasse may be followed by fatal injuries.

Therefore actual climbing on steep terrain cannot be taught in classes. The rope unit becomes the proper number for this purpose, i. e. not more than 3—4 students and one instructor-guide. The adherence to the standard rules of mountain craft and the ready presence of a reliable rope leader are truly indispensable. The presence of a medical graduate at the camps is desirable.

OUTLINE OF A COURSE

The syllabus of studies:

At the Institute itself a classroom large enough to accommodate 30 people will be necessary. It should have facilities for projecting lantern slides and narrow-gauge films on a screen of at least 6×9 ft.

1. *Outline of the Principles of Meteorology*
The Solar System — Day and Night — The Seasons — Ocean Currents — Air Pressure and Winds — North East Monsoons — South West Monsoons — Climate and Climatology — Precipitation — Weather Forecast.
2. *Outline of the Principles of Geology*
Geophysics — Historical Geology — Structural Geology — The Rise of the Himalayan Chains.
3. *Outline of the Principles of Geomorphology*
Decay of the Lithosphere — Work of the Water — Mountain Glaciation — Wind and Snow — Comparative Geomorphology.
4. *Outline of the Principles of Cartography*
Maps — Projection Systems — Grid and Scale — Longitude and Latitude — Height — Triangulation — Photogrammetrics — Map Making — Map Reading — Compass and Altimeter — Comparative Map Reading.
5. *World History of Exploration and Mountaineering*
The Alps — “The Playground of Europe” — Classical Mountaineering — The Main Mountaineering Institutes — Far-reaching Interests — Modern Exploration — The Swiss Foundation for Alpine Research — The Himalayan Mountaineering Institute.
6. *A Survey of the Himalayan and Karakorum Ranges*
Brahmaputra, Ganges, Indus and Subsidiary Rivers — The Main Mountain Regions — Important Centres — Routes of Access — Currency — Resources — Comparative Geography.
7. *General Hygiene and High Altitude Physiology*
Cleanliness and Fitness — Modern Dietetics — First Aid — Height and Pressure — Acclimatization — The Application of Oxygen.

These lectures should be spread over 5 days, and the schedule should include ample time for the ensuing discussions. Consult Appendix A: Time-table.

Basic training:

Physical exercise is important, the more so as most students will not be used to wearing climbing boots. In the near vicinity of the Institute, wide-open

spaces for athletics, wooded and undulating areas, and stretches of rough, even rocky, ground would have to be found. Leg training on a standard course of increasing difficulty would have to become a daily routine. Consult Appendix A.

The *personal outfit* will have to be adapted and its use explained. It is important that footwear, garments, and windproof clothing fit well. There are a hundred little items involved in preparing for a trekking expedition. Even a rucksack asks for clever packing.

The *technical gear* must be checked and its use learnt. Ropes, lines and loops, different rock pitons, ice pipes, iceaxes and crampons will have to be put to frequent experimental use. Rope knots must be mastered in any situation, and the various means of using the rope in banister-fashion or as abseil-rope will have to be learnt.

The *camping gear* and its use, the preparation of tent sites, the mounting of the tents, the use and maintenance of rubber mattresses and sleeping bags and how to break camp should be thoroughly learnt. The handling of cooking stoves and fuel should be within everybody's grasp.

In addition to the medical lectures, there should be practical application of *first aid*.

All these practical lessons will have to be spread over a period of 5 days, according to Appendix A.

Trek and shelter:

Marching towards the mountains provides ample opportunity for careful training in the various aspects of setting up, living in, and breaking camps. Wheel, pack-saddle and coolie-caravan imply different techniques of packing. They mean a different pace, too, and the daily schedule will have to be adapted accordingly. Selection of camping sites, preparation of the ground, drainage and erection of wind-shelters, construction of camp-kitchen and storage, the proper setting-up of the tents, and the best ways of bedding-down will have to be practised.

General camp-hygiene is of importance for the well-being of the students. Especially at higher altitudes, dehydration becomes a serious menace to the climber, and he who has learnt how to balance his wants will rest cheerful and efficient.

The upkeep of the outfit should be made a daily routine. Most members of modern expeditions take their situation too much for granted and waste their allotted material. Daily cleaning and drying of rubber mattresses, sleeping-bags and windproof clothing is the only means of preventing leakage and rot.

The hardening marches not only accomplish the approach but achieve the knitting of the proper team spirit for the coming period of tough work.

Mountain craft:

At the chosen areas for formal training in mountain craft, a 6-day course will be devoted to acquiring ready knowledge of the essential rules of climbing under various circumstances. For the specific allotments of the schedule, see Appendix B.

The initial day at the main *training centre* will be spent mostly on a fairly long training march over a well-chosen course on rather rough ground. The students will have to acquire the proper technique of steady walking on steep grass, gravel and pebbles. It is only after this trial that the future *rope units* will be formed and the skeleton of the *classes* organized.

In the nearby *rock climbing area* work will cope with gradually increased difficulties. In small classes the various formations of rock will be studied and the suitable climbing techniques learnt. Thus sound principles will soon be mastered for climbing and descending over rock steps, walls, slabs, along fissures and ridges, through chimneys, and face-traversing along ledges. The rope and its use together with string, loop, belaying pitons, and snap-rings are applied as general safety measures. The spare rope is used frequently for descent down steep pitches both in banister fashion or in rappel. During this training, most students will overcome any beginner's giddiness and acquire ease and cunning in the use of footsteps and handholds while climbing.

Of great importance is the properly-laid standard course combining various features of rock surface. Going over it frequently greatly adds to fluent mastery of climbing aids and correct movement both in ascending and descending.

The same methods are used in the *ice work area*. Considerable time will have to be spent on a set course along properly-cut ice steps to learn the proper balance of the stride and the use of the iceaxe.

Balance is essential in ice work. It is important for step-cutting. Each student will be taught the proper use of his iceaxe and how to cut with light, easy strokes without spending too much force.

Walking on crampons demands careful training of ankle and aiming of eye.

Rope-handling on glacier and névé must be thoroughly mastered by each student. The use of hand-loop and foot-sling and the careful watching that the rope never lose its tightness are the principle safe-guarding measures.

Rescue work on the glacier involves the use of rope, spare string with foot loops for pulling a climber out of a crevasse, and immediate ground organization to bring the emergency under control.

This abridged outline of the daily routine would not be complete without mentioning the many useful discussions of various technical aids suggested by any situation and repeating what has already been basically learnt about the scientific background of safety measures, first aid, map-reading and many other items.

Climbing:

Each rope unit should profit from the surrounding peaks for some introductory climbs on not too difficult ground.

Another 6 days may therefore be allotted to practical climbing in nearby regions such as Kangla Kang or Koktang. *Intermediary camps* will have to be carried and used in true expeditionary style. The main idea of these climbs is not to reach some important summit but to practise what has been learnt in the rock climbing and ice work areas, on untrodden ground among conditions which will check the capabilities of every rope companion.

These minor climbs will be supervised by the instructing guides of the Institute, and all precautions will be taken for the safety and well-being of the participants.

There is also the possibility for advanced students to participate in a trial expedition instead. From an advanced camp beyond the East Ratong Glacier, high camps may be advanced towards Ratong, Kabru or Kabru Dome. These great mountains south of the Massif of Kangchenjunga are not to be included in the regular schedule but are to be put up should there arise a demand for outstanding targets for an exceptionally strong party.

Return trek:

Another 6 days will be spent on the return trek to Darjeeling. There is a lesson to be learnt: tired men very often tend to neglect outfit and gear. It will be a very fine test for the tenacity of the students to let them have a hand in the organization of this final stage of the displacement.

Test diploma and dismissal:

The last 2 days at Darjeeling will be used for the general overhaul of the material, for the final tests and the closing ceremony previous to the dismissal.

THE INSTITUTE

Based on the results of Arnold Glatthard's investigations, the following recommendations emerged from our final considerations:

Birch Hill

Whereas the plateau of Birch Hill with its wide command of a superb view onto the Himalayas is certainly the very location for the Institute and its connected establishments, two important points should be made clear:

Birch Hill Park with its few rocky ribs protruding from the shrubs does not afford any suitable opportunity for teaching and practising rock climbing. However, an appropriate *standard course* for basic training (athletics) will be available. There, too, are ample ground for basic training and camping exercises.

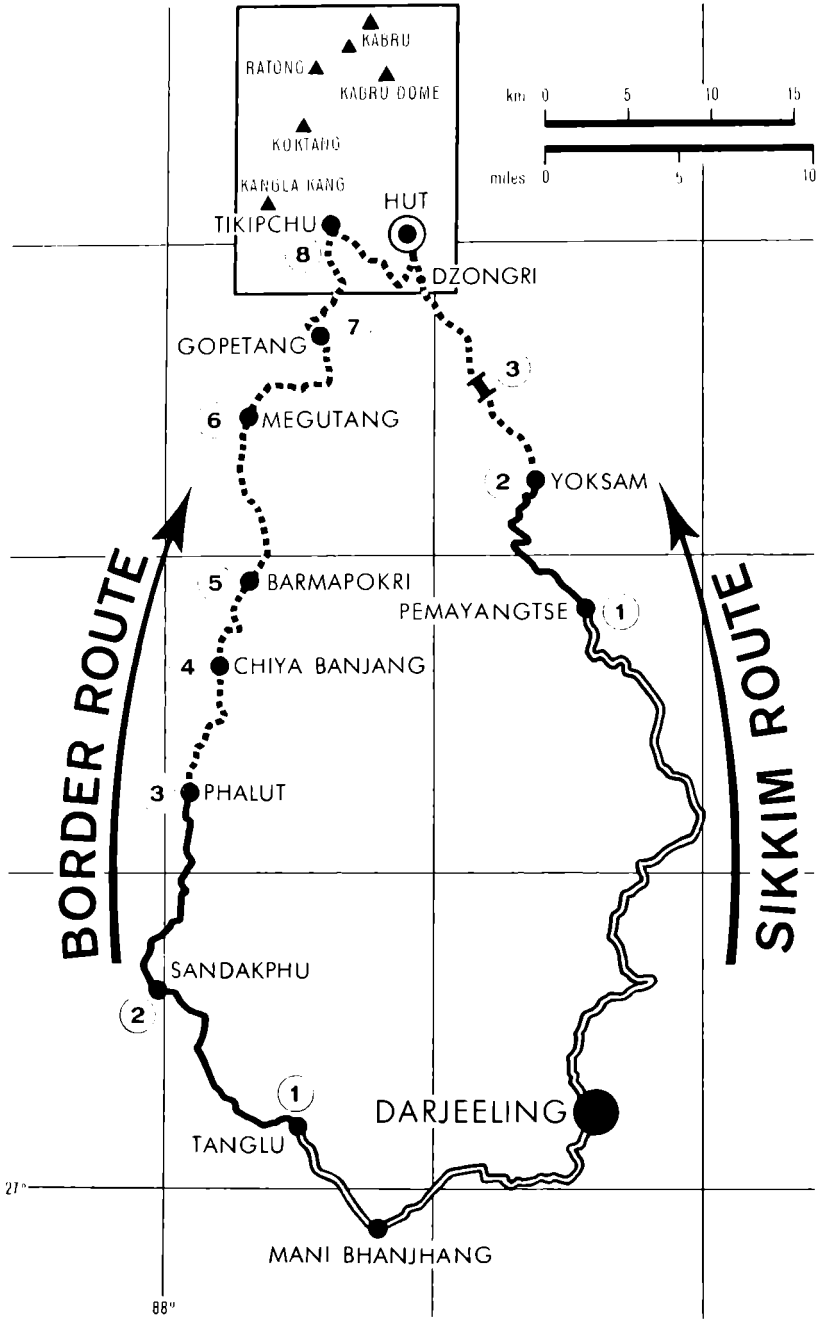
With regard to the proposed *headquarters*, we strongly recommend not to commit the Institute to a building scheme during the period of its first few years of development but to set up temporary headquarters on a rental bases in the three-storey building of *Ray Villa*, which already affords accomodation for some 30 to 40 people. This superb building could house as well the first stock of a future *Museum*.

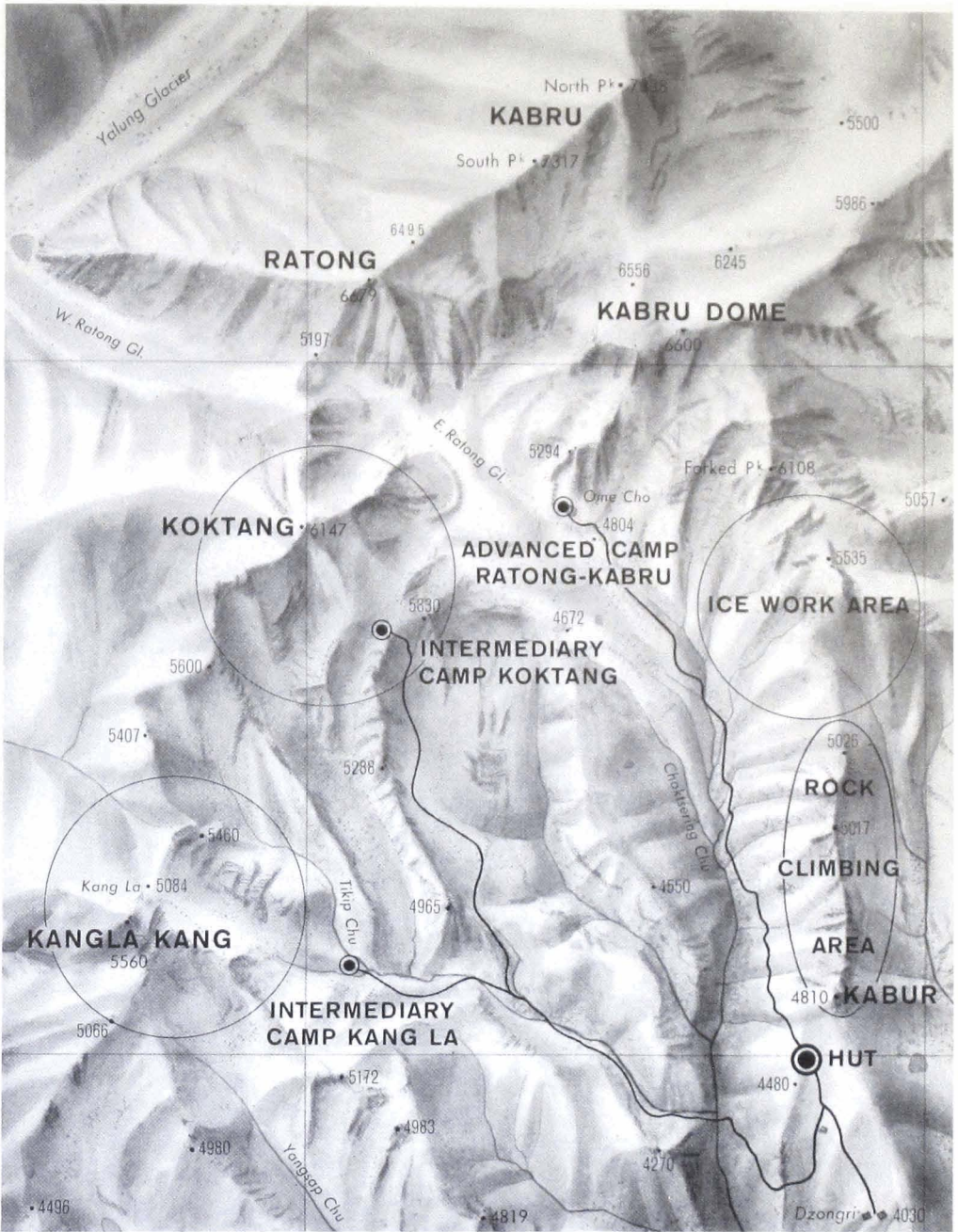
Though we fully appreciate the proposed solution of the housing problems of the Sherpa families and especially of Sirdar Tenzing Norkay Sherpa of building a *Sherpa Village* near Birch Hill and *Tenzing House* nearby to the Institute, the primary point of importance seems to suggest rather that such a welfare scheme be treated as strictly separate from the main scheme of the Institute's future building programme.

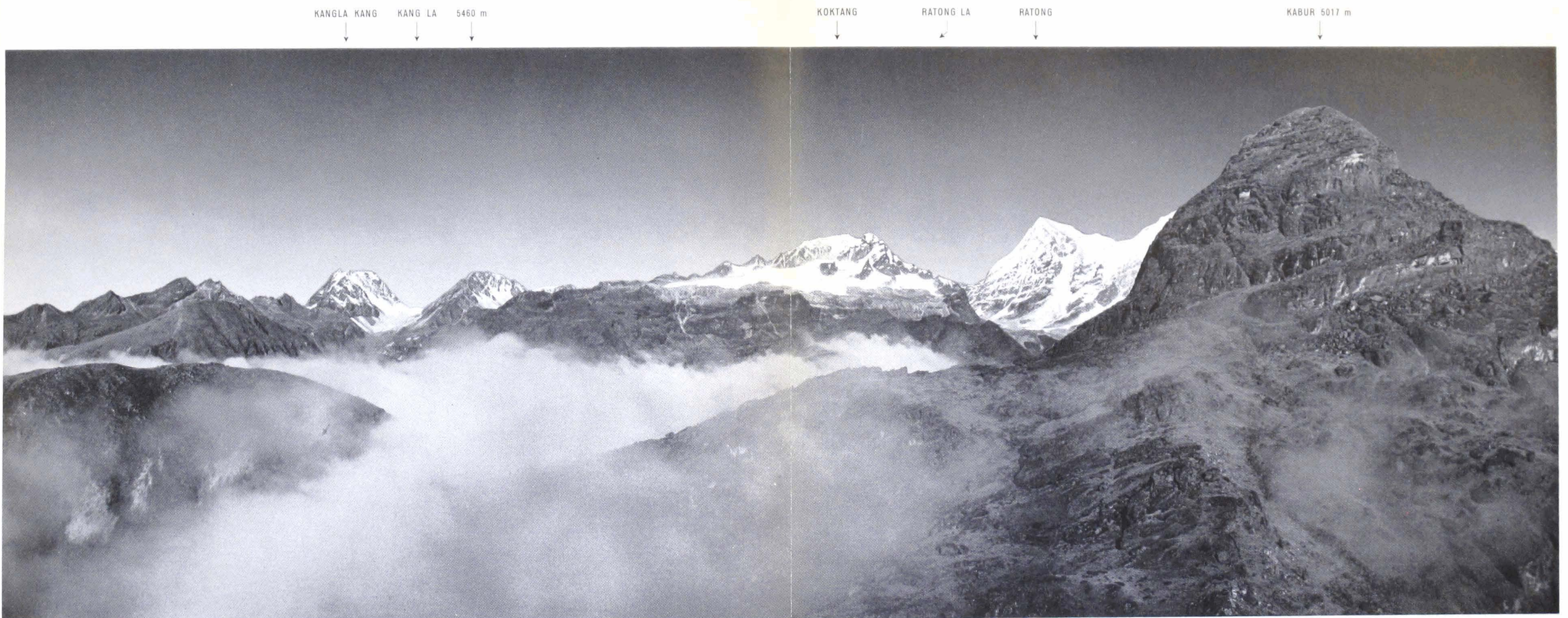
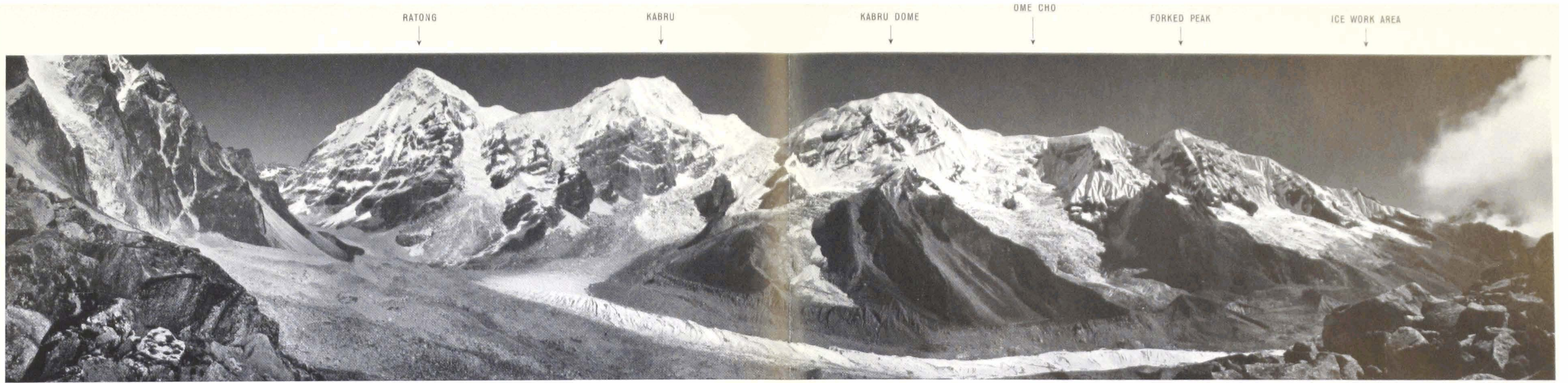
Route to training areas:

The enclosed sketch map stresses the fact that the so-called *Border Route* on its first day on a jeepable road runs west only to Tanglu without gaining any north-bound distance. As far as Phalut, pack-horse transportation might be considered, but there would still be six days more pure trail hiking before Dzungri were reached. In all, the approach along the Border Route takes nine days, which is irrational both from a standpoint of loss of costly time and undue wear on the students.

A feasible *Sikkim Route* should be earmarked for future use after the necessary improvements of the now-interrupted road to Pemayangtse have been effected. By use of the Sikkim Route, five full days could be won either for extension of the 12 days in the mountaineering area to 17 days or for a cut of the course from 35 to 30 days.

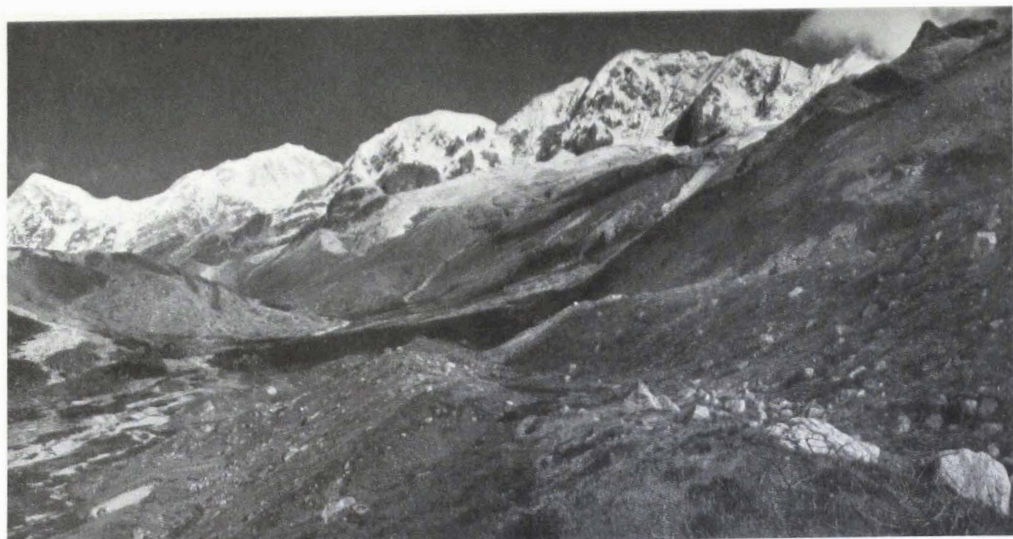






Upper view: from NE face of Koptang

Lower view: from Kabur 4810 m



View NW of Kabur Saddle



Rock Climbing Area on Kabur 4810 m

The mountain region and the training areas:

The mountain region beyond Dzungri and south of Kangchenjunga affords varied possibilities for training and touring as well. The enclosed full page map and a selection of photographs indicate the suitability of the chosen district. All photographs reproduced herein were taken by Georg Frey in October 1951, previous to his fatal accident on Kuktang, October 29, 1951.

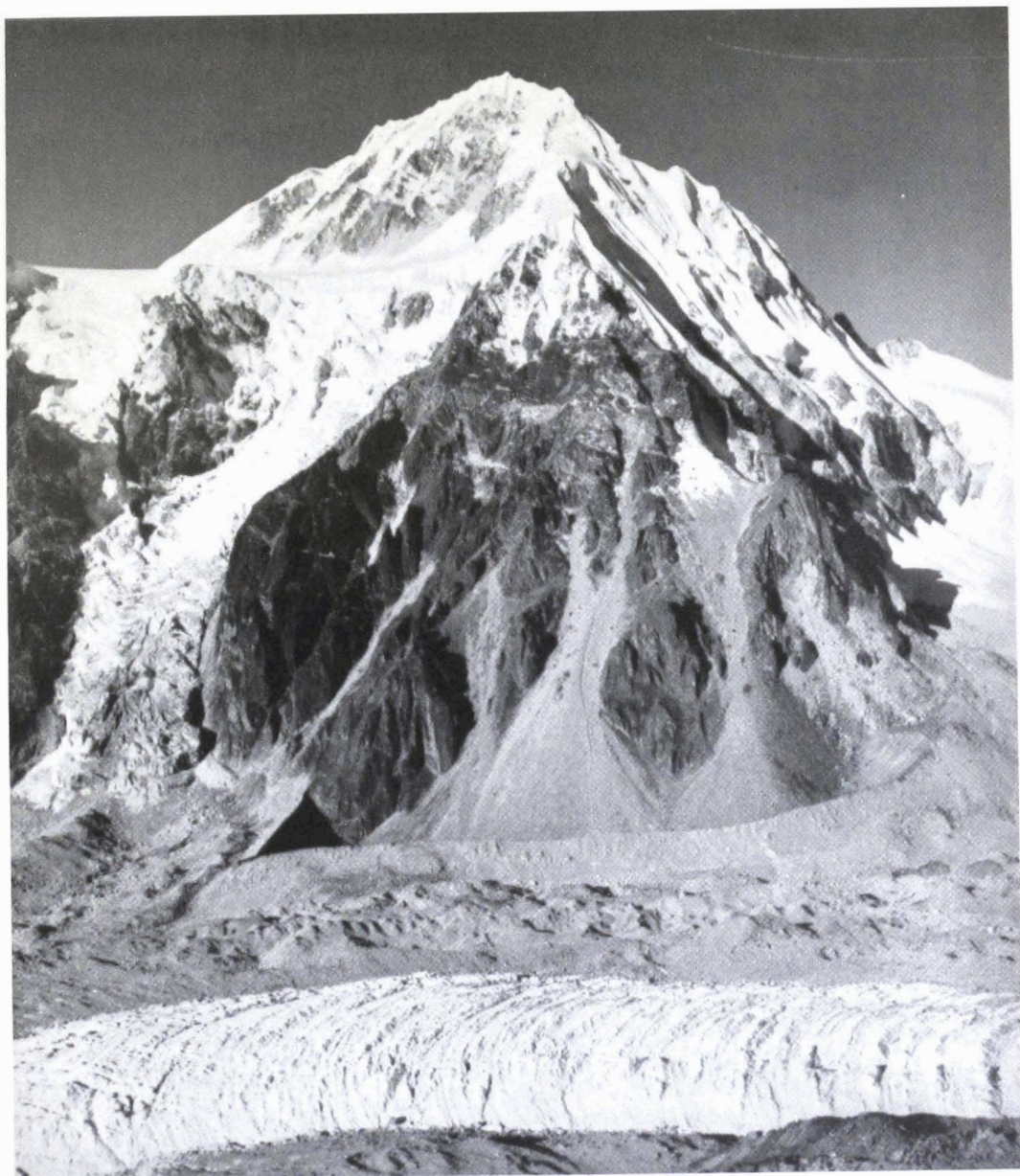
We strongly recommend a study of the possibility of having a spacious *Mountain Hut* constructed in the neighbourhood of Kabur Saddle, one hour north of Dzungri. Two essential assumptions will have to be checked by experience before the hut may be built: 1st, the actual site must be avalanche-proof, and 2nd, water must be found in the vicinity. We therefore recommend accommodating the students under canvas until the Institute's Mountain Hut can be built. The project itself will want further negotiations, and we are agreeable to supplying the necessary drafts made by Swiss experts for mountain huts.

Within easy reach of Kabur Saddle (hut site), Kabur itself and its ridge extending northward afford a multitude of rock climbing facilities. This *Rock Climbing Area* will have to be carefully organized into various set standard courses of selected rock formations. These courses will be numbered and will constitute the Institute's course in rock climbing.

Some two hours beyond Kabur Saddle, a suitable glacier sheet constitutes the *Ice Work Area*, which, of course, cannot be permanently laid-out and marked.

Whereas the first week's training in mountain craft will be based on the hut and the two training areas, the second week's touring programme will normally be based on the two *Intermediary Camps* in the upper Tikip Chu within reach of Kangla Kang and a rock peak NE of Kang La, and then south of Kuktang within reach of Kuktang and its neighbouring peaks.

For more ambitious parties, a temporary base might be set up as *Advanced Camp* near the lake of Ome Cho, with a possibility of advancing from there assault camps to the North and to within reach of Ratong, Kabru and Kabru Dome, thus bringing some of the respectable peaks within the Institute's scope.



Koktang seen from face of Kabru Dome

THE INSTRUCTOR CORPS

Under the assumption that each unit of one course will consist of 20 to 24 students, the Institute should be in a position to muster the following Instructor Corps:

The principal and lecturership:

As the acting *Headmaster* of the Institute, a person of equally good standing both in the scientific and mountaineering fields should hold a full-time office. He would direct the didactic programme of studies, and he would be responsible for the students' well-being and the Institute's prosperity.

The principal would have at his disposal two *Assistant Lecturers*, each of them available for two hours each day of the first week of a course. The assistant lecturers would have to deliver the lectures according to the syllabus of studies.

The chief instructor:

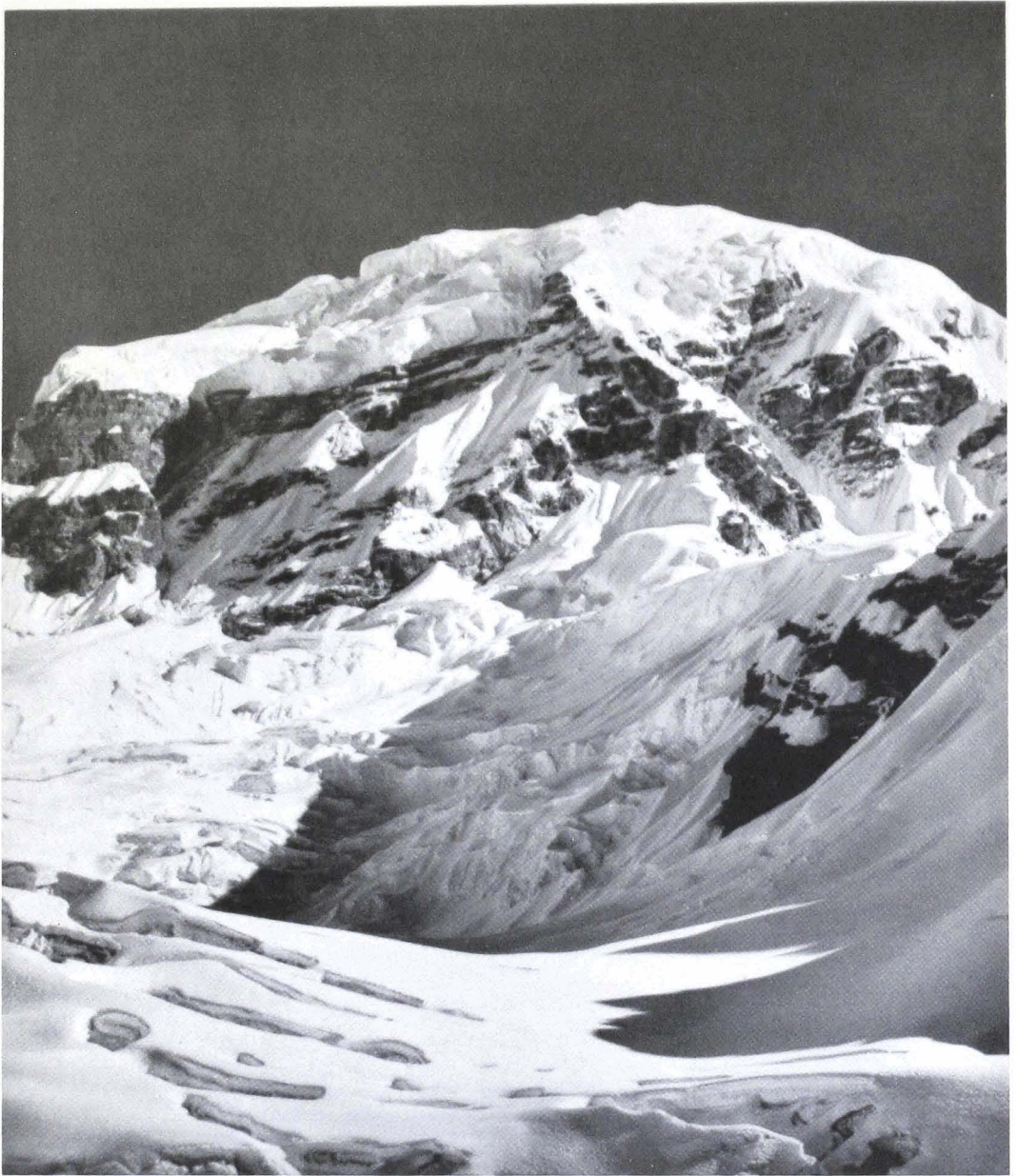
As Sirdar Instructor-Guide Sherpa, he bears full responsibility for the standard training and the rules of mountain craft as recognized by the Institute. His will be a full-time job. The chief instructor will be the students adviser in all technical matters, and he must be capable of combining leadership qualities and thoroughness of teaching. Outstanding both in character and personality, he should be regarded by the students as the true type of mountaineer.

The instructor-guide Sherpas:

Assigned to the chief instructor, six instructor-guides should be available as rope leaders and assistants. Their job would be full-time. Each of these instructor-guides must know and practise mountain craft as recognized by the Institute.

It is obvious that none of the above-mentioned personnel exists yet. The instructor corps cannot be substituted by picking here and there unequally trained people of doubtful standards. First-rate personnel seems to be of primary importance for the Institute. One can build a house and launch the Institute, but it can't be run and developed to prosperity without a solid and thoroughly-trained personnel.

We strongly recommend that this point be regarded as the kernel of the whole problem, and we suggest that the preponderance of attention be given to the selection and eventual training of the instructor corps.



Kabru Dome S face

MISCELLANEOUS

Educational supplies:

An *Outline Book for Students* should be provided. It is desirable to have not only a précis of the courses syllabus, but also a thorough briefing in mountain craft collected together in a pocket-size booklet.

For the use of the principal and his assistant lecturers, each lecture of the syllabus should be carefully designed in *Monography* form and be available in quantity for the principals of the various preliminary institutes and schools taking interest in the Institute's work.

Lantern slides and narrow-gauge *films* should be prepared for use during lectures and for informal screening.

Outfit and training material:

All materials listed in the Appendix C should be provided in sufficient quantity for use by the courses. First quality and modern, standard equipment is essential.

Demonstration material, including a modern set of oxygen apparatus, should always be ready at the Institute.

Test methods and badges:

During each stage of a course a qualifying mark should be given to each student. We suggest a simple scheme working as follows:

	Outstanding	Sufficient	Weak
General knowledge	1	2	3
Basic training	1	2	3
Trek	1	2	3
Rock climbing	1	2	3
Ice work	1	2	3
Touring	1	2	3
Notion to instruction	1	2	3

Minimum score required for *bronze badge* (Rope Companion): 17 marks

Minimum score required for *silver badge* (Qualified Companion): 10 marks

Whereas four marks of 3 would eliminate a candidate, those being qualified for 17 points and less, and 10 points and less respectively, would receive their bronze and silver badges from the hands of the principal.

To specially trained amateur instructors of outstanding qualities, the president of the Institute's board may award a gold badge as a rare distinction.



The small amateur badge

Professional instructor-guide Sherpas:

The future development of mountaineering as a means of further exploration of the Himalaya and Karakorum depends on the quality of the native guides. It seems essential that these be recognized, if they have learnt the application of mountain craft and possess the know-how and strength to safeguard amateur mountaineers.

It may be part of the Institute's duty to take the lead in such development of professional craftsmen. In any case, it seems perfectly all right to create a necessary number of trained and tested instructor-guide Sherpas for service in the Institute. Should a high authority wish to rule such a movement, it might well be possible to arrive at a similar solution as is practised in Alpine countries: a private institution sets the standard and teaches, whereas the State controls the tests and awards the diploma and badges.

We recommend that a similar badge of a somewhat larger size be given to those Sherpas who, in the course of this present scheme, prove themselves capable of instructing and guiding as well.



The professional instructor-guide's badge

CONCLUSIONS

The Swiss Foundation for Alpine Research, having promised the Chief Minister of Bengal, Dr. B. C. Roy, to act as sponsors of the proposed *Himalayan Mountaineering Institute*, hereby submits the following specific recommendations:

1. Personnel:

The Foundation agrees to welcome as their guests in Switzerland for a suitable spell (excluding journey) the following personnel designated for service at the Institute:

- a)* Sirdar Tenzing Norkay Sherpa
- b-g)* Six specially chosen Sherpas
- h)* Major Jayal, should he see fit to come to Switzerland for at least two months and be willing to accept during the first period of its development the post of the Institute's Principal.

We trust that from now on the Sherpas will give their full cooperation to the task of acquiring a working knowledge of the English language so that they may profit from their stay in the Alps.

The Sherpas would be given a thorough training, including facilities for being taught and for learning to teach the modern technique of mountaineering and the essentials of mountain craft. We propose that the training in the Alps open on May 1st of 1954 and terminate on August 29th of 1954 so that this first instructor-guide corps of the Institute might be ready to take over in early September.

Major Jayal would be expected to arrive around June 1, 1954, and he would be given the facilities for studying the Institute's syllabus and for gaining a working knowledge of the training methods of mountain craft based on the rules the Institute should henceforth follow.

2. Materiel:

We recommend that on the occasion of the presence of Sirdar Tenzing Norkay Sherpa in Switzerland, he and Arnold Glatthard should buy and ship a suitable stock of materiel for the Institute as is listed under the Appendix C. We trust that the monetary side of such a transaction would be dealt with by the Indian Embassy at Berne.

Producing the educational supplies such as the Outline Book for Students, the lecturing monographies, lantern slides and films could be effected within six months in Switzerland. We estimate the expenses involved in said production to be approximatley S. Fr. 2000.— per monography and at S. Fr. 6000.—

for the Outline Book's content and illustrations; its printing of say 1000 copies would amount to around S. Fr. 4000.—, blocks included. The lantern slides could be had at approximately S. Fr. 2.50 per slide. A first-rate film of alpine technique of one-hour screening time could be provided at S. Fr. 1500.— in 16 mm positive print.

A gross estimate for all educational supplies would not go beyond S. Fr. 30 000.—. The Foundation will be pleased to cooperate as a trustee.

3. The opening of the Institute:

In order to arrange for the necessary preparations, we recommend that the headquarters at Ray Villa in Darjeeling be opened not before September 1954.

The first course to be given by the Institute could begin on September 12th and terminate on October 16th; the second course would accordingly start on October 24th and conclude the season on November 27th.

The Foundation is agreeable to putting at the disposal of the Principal and the Chief Instructor the advice of Arnold Glatthard in order to let him help put the scheme into operation.

During his stay on Kabur Saddle, Arnold Glatthard would study the possibilities of the hut project with regard to the danger of avalanches and the availability of water.

4. The board:

In case a board for the Institute is to be formed, it might be worthwhile to include the Foundation as a corresponding member so that the proceedings might be continually studied and cooperation thus made easier.

Swiss Foundation for Alpine Research

Appendix A—Timetable

WEEK AT BIRCH HILL

Hours	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
0700 - 0730		Day-Watch	Day-Watch	Day-Watch	Day-Watch	Day-Watch	Day-Watch
0730 - 0830		Physical Exercise	Physical Exercise	Physical Exercise	Physical Exercise	Physical Exercise	Physical Exercise
0830 - 0900		Changing	Changing	Changing	Changing	Changing	Changing
0900 - 1000		Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast
1000 - 1200		Meteorology (Lecture)	Geology (Lecture)	Cartography (Lecture)	History (Lecture)	Physiology (Lecture)	Overhaul of Materiel
1200 - 1400		Lunch	Lunch	Lunch	Lunch	Lunch	Lunch
1400 - 1600		Technical Gear (Basic training)	Technical Gear (Basic training)	Visit to Town and Museum	Rope Technique (Basic training)	Oxygen First Aid	Hygiene (feet)
1600 - 1830	Arrival	Personal Outfit (Basic training)	Geomorphology (Lecture)		Geography (Lecture)	Camping Gear (Basic training)	
1830 - 2000	Dinner	Dinner	Dinner	Dinner	Dinner	Dinner	Dinner
2000 - 2200	Inauguration	Informal Screening				Informal Screening	
2200	Retiring Time	Retiring Time	Retiring Time	Retiring Time	Retiring Time	Retiring Time	Retiring Time

Appendix B—Timetable

WEEK AT KABUR SADDLE

Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
0600		Reveille and Breakfast	Reveille and Breakfast	Reveille and Breakfast	Reveille and Breakfast	Reveille and Breakfast	Reveille and Breakfast
0700 - 1200		Off the beaten Track	Rock	Ice	Rock Kabur-Traverse (S.-N.)	Ice	Rock work by rope units
1300		Luncheon	Luncheon	Luncheon	Luncheon	Luncheon	Luncheon
1400 - 1700		Rock	Rock	Rappel	Ice	Rock Kabur-Traverse (N.-S.)	Overhaul Materiel and Hygiene
1800		Dinner	Dinner	Dinner	Dinner	Dinner	Dinner
1900 - 2000	Taking up of Quarters	Discussion	Discussion	Discussion	Discussion	Discussion	Discussion

Appendix C

SCHOOL SUPPLIES AND EQUIPMENT

1. Climbing ropes (11 mm, 6 at 30 m, 6 at 25 m) nylon, grt.no.
2. Rappel ropes (8½ mm, 3 at 50 m)
3. Standing slings
4. Rappel slings
5. Climbing hammers
6. Assorted pitons
7. Ice pipes
8. Carabiners, screw-type
9. Climbing carabiners, oval-form (snap-ring)
- * 10. String (5 mm, 2 at 100 m)
11. Climbing or Vibram boots
12. Rucksacks
- * 13. Transport sacks for Sherpas
14. Iceaxes
15. Crampons
- * 16. Lanterns with candles
- * 17. Tea flasks (¾ liters) with cup
- * 18. Flashlights
19. Sun and glacier goggles
20. Glacier salve
21. Gaiters and leggings
22. Mittens
23. Pocket pharmacy and bandaging equipment
24. Sikkim maps mounted on cloth
25. Compasses
26. Altimeters
27. Eating utensils (knife, fork and spoon)
28. Aluminum cooker (Benzine and Meta)
29. Wind jackets
30. Socks and stockings
31. Head protection (caps, stocking caps, hats)
- * 32. Small provision-sacks
- * 33. Tents
34. Sleeping bags with changeable inner lining
35. Air mattresses with pumps
- * 36. Repair tools for camps
37. Climbing trousers
- * 38. Eating dishes and utensils (pitchers, plates, pots)
- * 39. Tarps for kitchen roof and materiel
- * 40. Packing equipment for provisions (boxes, wrappings, *etc.*)

A gross estimate for all school supplies and equipment for 32 participants would not go beyond S. Fr. 40 000.—

* Items marked with an asterisk may be as well procured in India.

