HIGH ALTITUDE RESEARCH STATION ON THE HIMALAYAS.

Systematic studies on the biological and physical problems encountered at high altitudes were commenced from the latter part of the 19th century. At first, this was done by sending scientific expeditions to regions of high altitude to study the physiological effects and to make meteorological observations. It was Jansen, the famous Director of the observatory at Meudon, who established the first High Altitude Observatory on Mount Blanc. Since then, a large number of such stations had been established in Europe, Africa, Asia and America. At present the highest observatory in the world is the one situated on the summit of Mt. Evans, Colarado, at a height of 15,180 ft. This laboratory is being used by a number of Universities for cosmic-ray research and for biological experiments.

2. The India Meteorological Department is maintaining a number of observatories at various heights on the Himalayas for recording precipitation and other meteorological data. The highest of these observatories is at Khamachin in the upper Tamur region of the Kosi Catchment in Nepal at a height of about 13,960 ft. These observatories on the Himalayas are taking only routine meteorological observations; so far no attempt has been made to establish any research or observing station on the Himalayas in any other physical or biological science.

3. There are many features, particularly the Himalayan glaciology, its rich flora and fauna, its seismicity which requires sustained observations and experimentation, and this can only be done from a high Altitude Research Station. For studying cosmic rays, radiation, astronomy, astrophysics, micro-biology and high level meteorology, a research station at an altitude of 16,000 to 17,000 ft. will provide unique opportunities. With such a multitude of problems to be studied and more to be added to them, as always happens, when an active band of scientific workers are diligently engaged in research, the establishment of a Research Institute in a suitable location in the midst of the mightiest mountain system of the world must be regarded as one of world importance. The report that India is planning to establish such a station has already excited a good deal of interest and enthusiasm among the scientific men all over the world.

4. One of the essential features which the location, of such a research station, should satisfy is that the place should be easily accessible from the nearest rail head or motor head. The site for the main observatory should be on a barren mountain top with a fairly extensive area at a height of about 17,000 ft. where scientists can work comfortably, provided modern working conditions are made available. The site should have an unobstructed horizon, specially towards north and south, and no neighbouring peak or object should subtend an angle more than 10 degrees. There should be easy access to neighbouring glacial fields and the locality should be such that instruments, such as cosmic ray recording apparatus, or radiation instruments can be carried by mechanical or other means to still greater heights, say, 18,000 or 20,000 ft.; exposures arranged for limited periods and brought back. The residential colony for scientists should be located at such a height so that scientists could live there comfortably throughout the year and from where a road could be constructed to the observatory.

5. Enquiries made from people who had travelled extensively in the Himalayas and a study of the reports on the Himalayas published by explorers and mountaineers show that the regions where suitable sites are likely to be available for setting up of the observatory are (*i*) Bara Lacha Pass, (*ii*) Jumnotri, (*iii*) North Sikkim, (*iv*) Badrinath, (*v*) Lipu Lekh area (near Mansarowar). After detailed discussion, it was agreed that the investigation of Lipu Lekh area should be given up, because this area is not easily accessible. All the other sites were inspected by parties of scientists during 1948 and 1949. Their reports indicate that sites satisfying all the requirements are available in North Sikkim close to Thanggu on the road from Gangtok to Thanggu, in Bara Lacha area in the East Punjab near the road from Manali to Leh and in Mana Pass near Badrinath. Before deciding upon the final site, systematic meteorolgical observations will have to be arranged for a year or so and detailed surveys will have to be undertaken to find out which of these areas will provide the most suitable site for the multipurpose research station.