

EXPLORATION IN CHINESE CENTRAL ASIA

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Based on the Christmas Lecture given to the Society on Tuesday, 6 January 1981. Michael P. Ward, MD, FRCS, is Consultant Surgeon and lecturer in surgery at the University of London. He was a member of the 1951 (reconnaissance) and 1953 (first ascent) expeditions to Mount Everest. He has been involved in scientific exploration in the Nepal and Bhutan Himalaya and was leader of the 1980 and 1981 expeditions to Mount Kongur in southern Sinkiang. His main interest is in the effects of high altitude, cold and exercise on man.

THE SCIENTIFIC exploration of the Central Asian plateau, the Chinese Pamir, the Tien Shan and the Takla Makan desert has been gathering pace in the last few years.

The results of the considerable amount of work carried out by Chinese scientists mainly in the southern part of the Tibetan plateau were presented at a six-day Symposium held in Peking in May 1980 organized by the Academia Sinica. I attended this meeting as a result of a personal invitation, as did all the other participants, and acted as chairman of a session. The presence of Deng Xiaopeng at the reception at the end of this Symposium emphasized its importance as one of the most prestigious scientific meetings held in China in recent years. Information gathered by Chinese scientists about their work in both the Earth and Life Sciences was discussed and compared with that carried out by observers mainly on the southern slopes of the Himalaya and Karakorum.

The results of this Symposium will be published in English in two volumes in the summer of 1981 and will be a landmark in our understanding of this vast and relatively unknown area of Asia.

The Chinese participants acknowledged that the first scientists to make a contribution to knowledge were members of the first British expeditions to Mount Everest, particularly those in 1921, 1922 and 1924. Professor Odell, Dr Heron and Professor Wager are mentioned specifically.

These expeditions approached Everest from the north, Tibetan, side as the more direct southern route through Nepal was closed for political reasons. A very considerable amount of scientific work as well as topographical exploration and mapping was carried out. Observations on glaciology, geology, meteorology, plant and bird life were made. In addition, the effects of adaptation to altitude were studied and the distinction emphasized between the fact that sudden transport of man to the top of Everest caused death whereas by adaptation he could ascend to 28,000 ft without oxygen. It also became apparent that indigenous high altitude dwellers performed much better at altitude than sea-level dwellers and there seems little doubt that Sherpas or Tibetans could have got to the top of Everest without oxygen if they had so wished on the pre-War expeditions.

In Europe the early exploration of mountain regions has tended to follow a definite pattern and initially the main quest is for knowledge for

its own sake. This organized knowledge or science may or may not have an immediate practical outcome. It was quite clear during the Peking Symposium that this pattern had been followed by the Chinese. For instance, the discovery of geothermal energy near Lhasa may lead to the heating of this city by this means as well as by solar radiation. The use of glaciers as a stored source of water may be influenced by the fact that of 116 glaciers studied 62 are receding whilst 35 are advancing. Because Central Asia is to a great extent a scientific *terra incognita* a vast amount of work has been carried out on numerous expeditions to establish base line data. Much of this work has been published in Chinese journals. However, going by the amount of data available in my own research subject of high-altitude medicine little of this has so far been available to those who do not speak Chinese.

My main impression was that the stagnation brought about by the Cultural Revolution had resulted in great efforts to catch up. The section on high-altitude medicine was run by Professor Hu Hsu Tsu of the Laboratory of Physiology of the Academia Sinica in Shanghai who had been to Everest on several occasions. The standard of papers from his department was extremely high, and all were delivered in English. Initially, the discussion following the papers tended to be dominated by the English-speaking Chinese scientists, the American and German participants and myself. However, after the first day we actively encouraged our Chinese colleagues to enter the verbal lists. They did this to such effect that during one discussion period the interpreter from Professor Hu's Department had to retire exhausted - Professor Hu took over. We also had to arrange for an extra three-hour session late at night to thrash out some problems.

The need to move safely in mountain country has resulted in the sport of mountaineering which is now carried out for its own sake. In China the sport of mountaineering is in its early stages though a considerable amount of scientific work has been done on the effects of altitude on man. One of the more interesting aspects is that after living at altitude for many years some individuals de-acclimatize and have to descend to lower altitude. This condition, chronic mountain sickness, is well documented by doctors in Lhasa. In high-altitude populations in South America and the southern slopes of the Himalayas it is not nearly so common. A considerable amount of scientific work has been carried out in the Everest region and during these expeditions the Chinese have made the first ascent of Everest from the north.

In the Tien Shan the Chinese mountaineers have climbed the highest peak, Mount Tomur, which is in the western part of the range whilst other peaks of which they have made the first ascent are Mt Shisha Pangma in South Tibet and Mt Amne Machin in East Tibet. All these ascents were made by groups that were part of a scientific investigation in the area.

The Takla Makan desert has seen a considerable amount of archaeological exploration by the Chinese and the museum in Urumchi has a number of exhibits from this region. The name of Sir Aurel Stein who took many priceless finds at the start of the century from cities buried by the Takla Makan desert is not particularly revered. It seems a pity too that the treasure once buried in Central Asia is now buried in Bloomsbury.

In Urumchi there is the Sinkiang Medical School Hospital which acts as the referring hospital for the whole region and contains modern and up-to-date equipment. In Kashgar one hospital practises local Uighur medicine. Cases needing modern medical or surgical treatment are passed to the hospitals established by the Chinese.

The local Uighur medicine has an oral and written tradition going back for many centuries and the textbook on which it is based is written in Arabic though a Chinese translation is being made. Skin diseases seem to be a main concern of this hospital in Kashgar and, in particular, one in which depigmentation occurs (*leucodermia*). Patients come from all over China to visit this hospital and be treated.

The Tibetan plateau is delineated on the north by the Kun Lun range, which separates it from the Takla Makan. In between this range and the desert lie the numerous oasis towns and villages on the southern limb of the Silk route which joins the northern limb at Kashgar.

The siting of these oases depends largely on the availability of water flowing from the glaciers of the Kun Lun and Tien Shan and a change in the course of a river or a retreating glacier will result in the abandoning of such centres which become engulfed by sand dunes.

The continuation north and west of the Kun Lun range brings it into an area – the Pamir plateau – where the Karakorum, the Pamir and Kun Lun are welded together in a vast, high plateau area with many mountains, some individually sited, others in distinct ranges.

The Kongur group, about 180 km south of Kashgar, is a separate range but a continuation of the Kun Lun. It runs east and west, with the Takla Makan on its northern side and the Pamir plateau to the south. It is separated by the Gez river from Mt Chakragil in the west and this group of mountains stretch to the Pamirs.

The Kongur range consists of two main peaks, Kongur Tiube climbed in 1956 by a Chinese party, and Kongur. To the east it is continuous with a jumble of peaks, the Shiwakte and Tigurman group, which are lower and different in that they are small and spiky with relatively small glaciers. Kongur and Kongur Tiube are very large with a complicated series of snow basins, glaciers and ridges.

Sir Clarmont Skrine, when Consul in Kashgar, explored the Shiwakte and Tigurman group in 1924–26. Mt Kongur (7,719 m), one of the highest unclimbed peaks in the world, was quite unexplored until the visit of Chris Bonington, Alan Rouse and myself in June and July 1980. Our reconnaissance was to find a suitable route for the ascent of this peak in the summer of 1981. In the course of this ascent we shall be carrying out medical studies which will help elucidate various mechanisms that cause the sometimes fatal shifts in body fluid in patients with chronic lung disease and mountaineers at altitude.

We spent forty days looking at all aspects of Mt Kongur which because of its topography proved an elusive peak to fully understand. The best views often were obtained from points up to 15 miles away.

The Karakol lakes (12,000 ft) on the southern side was our starting point and we encountered a number of semi-nomadic Kirghiz living in yurts with flocks of sheep, yaks, camels, goats and horses. The whole area

was part of the Bulunkul Commune. Initially, we climbed a peak of 20,000 ft (Sarakyaguqi peak) some 15 miles south of Kongur and then explored the south-west face of the mountain itself climbing up to 19,000 ft.

One of the main obstacles was the Konsiver river and its tributaries formed by the junction of streams from Mustagh Ata to the south and mountains of the Kongur and adjacent ranges. Before dawn these could be crossed relatively easily but after 8 a.m. melting snow made them very dangerous.

Though arid with no trees, coarse grass and flowers edged the streams and the Karakol lakes whilst marmots and hares were often seen. The curling horns of *ovis poli* were found at 15,000 ft.

The mountains seemed to make their own weather with sudden winds whipping up sand into curling spirals. The glaciers had little snow on them but snow did fall on occasion down to 12,000 ft.

On the northern side of Kongur our main base was the village of Gez Qaraul (8,000 ft) placed on a lateral moraine at the foot of the Qurghan Gilgha valley as it entered the gorge of the Gez river. Irrigated by glacier streams the village had been newly built. Sinkiang Poplar, lush grass and what looked like alfalfa were growing in the irrigated area. From here we inspected the southern aspect of Kongur which rose to 17,000 ft above the village, by ascending some hills on the opposite side of the Gez river. We then went up the Qurghan Gilgha valley to the summer yak pasture at its head, Tugnuk Kunush. Further exploratory journeys from here including the climbing of the 18,000-ft Karatash peak confirmed that the route on the southern side from the Pamir plateau would be much preferable.

My main impression of the Chinese Pamir is of contrast, fierce daytime heat with no shade and ice on the lakes at night, modern western scientific medicine and centuries-old Central Asian medicine, desert sand and lush grass within a few inches of each other; jet planes and buses with yaks and camels and the astonishingly sweet smell of roses as I entered the airport building of Urumchi.