
Preface

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PREFACE

The Tibetan Plateau is a unique feature of the Earth's surface. Its elevation, 5 km above sea level, and a crust twice the normal thickness, have long been recognized as resulting from the collision of the Indian and Eurasian continents. The region is regarded as the prime example of collision tectonics. However, because Tibet was for long virtually inaccessible to geologists from the rest of the world, the mechanism by which the Plateau evolved and by which the crust was doubled in thickness, remained speculative.

During the past two decades, Chinese geologists have explored and systematically mapped much of this vast and largely uninhabited region; Academia Sinica mounted a series of geological expeditions. The results of this and other work were presented at an international symposium on the Qinghai–Xizang (Tibet) Plateau in Beijing in 1980 and demonstrated on a traverse through southern Tibet from Lhasa to Kathmandu.

The excitement generated by this introduction to the geology of Tibet led Professor Gansser, Professor Molnar and me to the idea of a Geotraverse, based on the newly completed road from Lhasa to Golmud across central and northern Tibet. Chinese colleagues were enthusiastic. Because the Royal Society and Academia Sinica had an agreement for scientific cooperation, I submitted our proposal to the Society and an agreement was eventually signed.

Chinese geologists chosen for the project prepared for the Geotraverse by making detailed geological strip maps of the region to be covered and locating significant outcrops. In June 1985, the geologists, ten from the Royal Society side and fifteen from Academia Sinica, assembled in Lhasa. The next two months were spent working across the Plateau.

The Chinese took complete responsibility for the logistics. A fleet of lorries and jeeps, loaded with supplies, was driven into Tibet across the mountains and gorges from Chengdu. After acclimatization in Lhasa, and work from there, we set off northwards towards Golmud. Along the road, we stayed in military posts and, off it, in tents. Access to exposures was by jeep as far as they could go (heavy rains had made much of the area a morass) then on foot. Rarely, we used horses and yaks. Most of the food had to be brought in from outside.

We worked in small specialist groups, so understanding and friendships developed quickly. The thorough preparation by the Chinese geologists meant that little time was wasted.

The large collections of rocks and fossils were divided between ourselves and our Chinese colleagues for analysis and identification. Work on all this material is not yet complete; the results so far obtained are presented in this volume. The conclusions were discussed at an exceptionally successful conference in Beijing in 1986, followed by another geological traverse from Lhasa to Kathmandu.

The 1985 Geotraverse was inevitably only a reconnaissance. Many important unsolved problems remain. We hope that this is only the start of a collaboration between ourselves and our Chinese colleagues, which has led already not only to the results presented here but also to close and lasting friendships.

We acknowledge the wise and experienced leadership of Professor Chang Chengfa of the Chinese team, the linguistic and organizational skills of Freddie Sun Yiyin and the remarkable feats of the drivers of the jeeps. We thank Dr Peigi Wallace for editing the volume. Finally, we thank the Royal Society and Academia Sinica for enabling us to carry out this project.

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ROBERT SHACKLETON

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Note

In reading the papers in this volume, reference should be made to the coloured geological map (1:125000) in the pocket at the end of the volume, and to the microfiche copies of the 1:100000 maps on which all localities mentioned in the text are plotted, together with structural and other field data. Copies of these maps, as well as satellite imagery and other materials, will be housed in the British Museum of Natural History, where they are available for study. Any type specimens of fossils will be preserved in Nanjing; duplicates of many of them will be housed in the B.M.(N.H.).

Meanings of a few commonly used Chinese and Tibetan words may be useful: Co, Tso (Tibetan), Hu (Chinese) = lake; Jiang = large river; Qu, He = river; Heyan = source of river; Datan = valley; -gou = valley; -quan = spring (as in Wenquan: hot spring, Budongquan: not-quite-frozen spring); Shan = mountains; Tagh = mountains; Tsangpo = Zangbo; Jinsha = Yangtze = Yangzi.