

Preface

This book is mainly about the field geology of granites at all scales from that of a single outcrop to plutons and batholiths. All field geologists work initially at the scale of the outcrop, consequently most of the phenomena treated herein are those which are visible at outcrop scale. However, granites typically occur as plutons and batholiths, some of which are so large as to apparently defy any effort at systematic treatment. Having had the opportunity of mapping two very large and very different batholiths, namely the Coastal Batholith of Peru and the tin granites of Southeast Asia, I have found that it is possible to map large batholiths within a relatively short time, so that the geology of the batholith as a whole can be appreciated. Moreover batholiths are one of the most common modes of granite occurrence, so it makes sense to study them at their natural scale.

During my working life I have worked with many geologists from underdeveloped countries and this book is mainly to help them in unravelling the geology of their native batholiths.

I have been lucky with my friends and colleagues of many nationalities, and I particularly thank Wallace Pitcher, who took me on as an untried apprentice in Peru, and who, by his kindness and example, showed me how to look at granites properly.

Some geologists may consider that too much of this book is devoted to stating the obvious. It is written mainly for those many third world geologists engaged in mapping granites in inaccessible terrains, with inadequate logistic support and an inadequate time frame in which to complete their task.

The structure of the book has been devised with these requirements in mind and is based on workshops given in Malaysia, Indonesia, China and Norway. It is concerned principally with the practicalities of field mapping but the first four chapters are of a more academic turn, and are meant to provide an outline of the current state of theoretical knowledge of granite geology as the background to field work. The bulk of the remainder is concerned with the purely practical aspects of the regional mapping of granitic terrains, and the final chapters provide guidelines for the requirements to be borne in mind when preparing geological maps of these terrains, and the presentation of the data in written form.

I have tried to make the descriptive sections on granite geology as comprehensive and intelligible as possible. Most of the phenomena described are not now controversial, but in those which still are, I have endeavoured to indicate where the areas of controversy lie, and to state my own opinion if I have one. I have not attempted to provide a fully comprehensive account of every aspect of granite geology, but have tried to cover most of the features which are likely to be met with by field geologists. Paradoxically regional studies of granites are best served by the very careful

observation of the details of granite geology at the scale of the outcrop. I have endeavoured to focus on these details and show how they may be systematically identified and recorded. This will ensure that the regional interpretation is solidly based on an accurate and comprehensive record of the field geology. All granites result from the interaction of different processes during their generation, crystallisation and emplacement, and many of these processes leave a permanent imprint on the rock which can, with care, be identified in the field. One of the objectives of this book is to indicate how the details of the field geology provide information relating to these processes.

Many granites are deceptively simple in their appearance and there are many examples of granites which have been studied carefully and in great detail, but which have continued to yield additional, and sometimes quite contradictory information to later investigators. The history of granite geology is full of instances of such reversals of interpretation. With this background it is unlikely that any study will not be subject to reinterpretation at some stage. This should not however discourage future work, for there are still many granite terrains of which we remain wholly ignorant, and which need to be mapped in order to provide the basis for comparison and further work. The people who do the regional work form that section of the profession to which this book is directed, and although they are particularly vulnerable in this respect, since the reconnaissance nature of their task renders their conclusions subject to later revision, they should take heart and persist. Their work provides the basis for all subsequent investigations.

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