Orogenesis, a time odyssey

Introduction

On the occasion of the sixtieth anniversary of the 'Leidse Geologische Vereniging' (Leiden Geological Society) it was decided to commemorate the event with a one-day symposium on orogenesis. The theme of this symposium was quite appropriate as during its existence (1877-1983), the Leiden Geological Institute has done most of its scientific work in orogenic belts. Not only structural geologists, but also stratigraphers, sedimentologists and petrologists have investigated rocks and processes leading to the formation of mountain chains. Before the last world war the Bergamasc Alps were the favourite hunting ground of the Leiden geologists. After the war first the Precambrian of Sweden, then the Pyrenees, the Cantabrain Mountains, the Alps, Galicia and the Scandinavian Caledonides were mapped and studied by dozens of geology students. One of the main driving forces behind the fieldwork in orogenic belts has undoubtedly been my predecessor, professor L.U. de Sitter, who initiated the study of the Bergamasc Alps, the Pyrenees and the Cantabrian Mountains. Altough he was primarily interested in producing geological maps, he, his co-workers and colleagues have made important contributions in various disciplines as a result of fieldwork.

When the board of the Leidse Geologische Vereniging asked me to organise this symposium, they probably had in mind a paper I wrote almost thirty years ago, called 'The duality of orogenic belts'. This publication, written just before the advent of plate tectonics, made a distinction between different orogenies, like the Alps and the Variscides, based, among other factors, on the products of orogenesis like different types of metamorphism rather than the original geosyncline. Although at present there is a general consensus that both types I distinguished are the result of continent-continent collision, and that compression and extension have played a crucial part in the formation of these orogens, the differences still exist and some of the aspects of the dualistic concept still hold.

The symposium was planned in such a way that it should cover various orogens, from the Precambrian to the recent. The speakers would be geologists who have been associated with the former Leiden Geological Institute as student, teacher or researcher. Five papers were presented: by C.W. Passchier on Precambrian orogenesis, by A. Senior on the Scandinavian Caledonides, by Ph. Matte on the Urals and Variscides, by E. Niggli on the deep structure of Switzerland, and by C. Biermann on the Betic Cordilleras. Three of these papers are published in this issue of Geologie en Mijnbouw. They provide comprehensive insights into various problems connected with the building of mountain chains.

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