

Preface

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PREFACE

At the suggestion of Professor Dr. J. CADISCH, from 1943 to 1946 I chose to investigate the geology of the area of Arosa (Grisons, Switzerland) as a subject for my thesis. As a result of Professor CADISCH's inspiring guidance I directed most of my field and laboratory work towards a comprehensive study of the radiolarian chert-ophiolite problem not only in the Arosa area, but in other parts of the Swiss Alps as well. From 1953–1956 I made a further effort to gain a better understanding of the chert problem in the Central Alps, and once again Professor CADISCH gave me his valuable advice and rendered me every help possible to facilitate materially my investigations. – When I was requested to contribute an article to an *Eclogae* volume in honour of Professor CADISCH's 70th birthday, I accepted gladly and decided immediately to prepare an article on the regional aspects of the radiolarian chert problem. Although I am aware that I have no original contribution to offer, I thought it would be useful to compile data from literature on the world-wide occurrence of radiolarian cherts and associated rocks, and discuss the implications of such a comprehensive review. Field excursions in ophiolite-radiolarite areas of California, Turkey, Iran, Oman and Portuguese Timor have enabled me to add a few personal observations and remarks.

I owe a great debt of gratitude to Professor CADISCH, who first stimulated my interest in the chert problem. I also wish to express my sincere thanks to the BATAAFSE INTERNATIONALE PETROLEUM MAATSCHAPPIJ N.V., The Hague, for permission to publish the present article, to my colleagues who have contributed to the present study by supplying published reference and personal experience, and to Mr. E. G. EVERETT for critically reviewing the manuscript.

1. Introduction

The frequent association of radiolarian cherts, red shales, pelagic limestones and clastics on the one hand with peridotites, serpentinites, gabbros, diabases, spilitic pillow lavas and their metamorphic equivalents on the other hand, has been recognised and described in literature for more than 80 years: PANTANELLI (1880) and LOTTI (1886) probably gave the first explanation of chert-ophiolite relationships. MOLENGRAAFF (1900) incorporated under the name of Danau Formation a variety of rocks ranging from diabase-tuff, diabase, and diabase-porphyrite to quartzite, chert, clay-slate, and sandstone, which he saw for the first time typically developed in the area of the great lakes in Central Borneo. DAVIS (1918) in his classical work on the radiolarian cherts of the Franciscan Group in California devoted a full chapter to the occurrence of radiolarian cherts and related rocks in many parts of the world. STEINMANN (1905, 1927) emphasised the frequent association of ophiolites with cherts from the Mediterranean mountain chains. Many more contributions of a general nature were made by a great number of authors, among which should be mentioned TALIAFERRO (1933), BRAMLETTE (1946), ROUTHIER (1946), GRUNAU (1947), WENK (1949), CORNELIUS (1951), CADISCH (1953), KÜNDIG (1956), CONTI (1958), GANSSER (1959), IRELAND (1959), KÜNDIG (1959), GRUNAU (1959), and TRÜMPY (1960). Strangely enough, no effort has ever been made before to put the observations from many parts of the world together in order to arrive