as 190 kilometres of right lateral displacement based on the offset of clearly defined metamorphic zones on opposite sides of the fault. This hypothesis is certainly plausible when one considers the apparent offset of the seemingly correlative Permo-Triassic Fergusson and Hozameen Groups (F and H in Fig. 1), and that even greater movements of similar sense have been postulated for northwesterly extensions of the Fraser River Fault System (Yalokom Fault). Close constraints can be put on the timing of strike-slip movement. It must have post-dated thrusting (which occurred about 90 m.y. ago), yet has been completed before intrusion and cooling of unfaulted intrusions 74 m.y. old. The inferred rate of displacement (2 cm/yr) is acceptable within modern crustal hypotheses but reconstruction of pre-Cretaceous paleogeography becomes fraught with greater difficulties than heretofore considered.

Returning to comparisons of older crystalline rocks north and south of the border, discussion between Peter Read and Scott Babcock (University of Western Washington) revealed startling differences in lithology between the supposedly correlative Custer and Skagit Gneisses of the Cascade core zone (G and S in Fig. 1). Coordinated research in these crystalline complexes should be most fruitful.

Excellent earlier studies by Coates and Jeletzky (Geological Survey of Canada) guided us at Jurassic and Cretaceous outcrops 50 km southeast of Hope. Discussion centred around apparent paleontological hiatuses between flysch successions and indicated that further work remains to be done to present alternative syntheses of the depositional history.

The study of problems of correlation and paleogeography for Upper Cretaceous to Eocene continental deposits of the Hope and Georgia Strait areas are beginning at the University of Washington, but a cooperative effort will be required to describe models of the complete basin of deposition.

In conclusion, this field conference pointed out the need for many such informal meetings to test new ideas concerning tectonic and stratigraphic correlation across political and geological boundaries.

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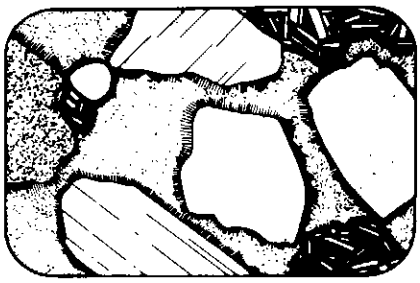

The MAC Symposium on Low Grade Metamorphism

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The MAC Symposium on low grade metamorphism was held at Memorial University of Newfoundland (St. John's) on May 20, 1974. The symposium opened with two invited papers, the first by Professor W. S. Fyfe of the University of Western Ontario and the second by Dr. E-an Zen of the U.S. Geological Survey.

Professor Fyfe began with a historical review of the study of low-grade metamorphic rocks. He pointed out the importance of low-grade metamorphism on the ocean floors and emphasized the tremendous quantities of H_2O-rich fluids that can be involved in the process. One possible side effect of these fluids is the generation of 'fluid overpressures' ($P_{fluid} > P_{load}$) with subsequent hydraulic fracturing. Consumption of H_2O in exothermic hydration reactions can be shown to have important thermal effects and could account for oceanic heat flow in the absence of radioactive elements. Professor Fyfe concluded with some speculations on the budget of H_2O on an earth which is undergoing active sea-floor spreading.

Dr. Zen discussed processes involved in burial metamorphism; in particular, the thermal regime of rocks beneath a thrust plate. He also

pointed out that the lack of a tectonite fabric in many 'burial' metamorphic rocks may be due to rock physics, not due to lack of deformation. In other words, rocks which have been deformed at low temperatures need not show schistosity.

Dr. Zen pointed out an example of presumably metastable preservation of burial metamorphic mineral assemblages in Chile. Here there appeared to be episodic burial metamorphism, separated by unconformities, in a rock section 28 km thick. An alternative interpretation is that the "unconformities" are post-metamorphic thrust-faults.

Low grade regional metamorphism, not characterized by the development of schistosity, is obviously of far greater importance in Canada than has been emphasized in previous work. Many rocks which have been previously treated as "unmetamorphosed" have mineral assemblages characteristic of the zeolite, prehnite pumpellyite or lower greenschist facies. Some points which I jotted down during the day's papers and discussion include: 1) the possibility of recognizing relict low-grade textures in high grade metamorphic rocks; 2) the importance of fluid composition, particularly CO_2 content, in the appearance or non-appearance of minerals such as laumontite; 3) the potential for transfer of copious quantities of metals by the hot fluids passing through rocks at low to moderate load pressures; 4) the intense local metasomatism involved in the transformation of many volcanic rocks and volcanic sediments to low-grade metamorphic rocks; 5) the fact that, although metastability and incomplete reactions are common, systematic patterns in the distribution of mineral assemblages in space and time are recognized.

The symposium was a successful one and the organizers are to be congratulated. Most of the papers presented at the symposium will be published in a special volume of the *Canadian Mineralogist* in the Fall of 1974.

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Conference on Rock-water Interaction at McGill

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An informal conference on experimental petrology, mineralogy, and economic geology is held each year in an eastern Canadian university. The conference was first held at the University of Western Ontario eight years ago, and became established as a traditional rite of spring as it moved eastward. This year's conference was held at McGill University on February 28 and March 1st, 1974, and attracted a large turnout of university-, government-, and industry-based geoscientists from points as far east as St. John's, Newfoundland and as far west as Saskatoon.

This year's theme was "Rock-water interaction". The two guest speakers we invited are both at the forefront of integrated field- and laboratory-oriented research projects in the field of rock-water interaction: Professors H. D. Holland, of Harvard University, and H. P. Taylor, Jr., of California Institute of Technology.

Professor Holland's address, entitled "The interaction of basalt and sea-water", covered different aspects of the significant chemical adjustments in basalts, and particularly in their K_2O and MgO content, as a result of interaction with sea-water. Most comments pertained to phenomena in areas of high heat flow near mid-ocean ridges, where sea-water may circulate downward to depths of *five km* through the highly fractured oceanic crust. Mass balance arguments were based in part on analyses of major constituents of altered basalts and surface waters from hot springs of the Reykjanes Peninsula, Iceland.

Professor Taylor's approach to the question of rock-water alteration involves the analysis of oxygen and hydrogen isotopic ratios in rocks and component minerals. He stressed the widespread nature of rock interaction with meteoric water around epizonal stocks, and correlated these profound exchanges with subtle yet clear mineralogical changes such as alkali exchange in the feldspars and chloritization of early-formed mafic minerals. He illustrated the systematics of rock-water interaction as applied to the question of serpentinization of ultramafic rocks and to the development of alteration halos accompanying porphyry copper mineralization in calc-alkaline epizonal stocks. Taylor also demonstrated the extensive exchange of oxygen isotopes in the upper half of the Skaergaard complex, and showed that exchange proceeded in the roof zone while gravitational settling was still going on below. Both guest lectures were very well received and followed by spirited discussion.

Out of the 28 papers presented, more than half pertained to various aspects of rock-water interaction. This response, combined with the forthcoming NATO Advanced Study Institute on "Volatiles in metamorphism" and the International Symposium on water-rock interaction co-sponsored by the International Association of Geochemistry and Cosmochemistry and the Geological Survey of Czechoslovakia, show that the theme selected was a timely one. It can be counted on to play an increasingly central role in debates on topics as divergent as the differentiation of the entire sial from the mantle and the mechanism of metamorphic re-adjustments of rocks on a hand-specimen scale.

The yearly conference was originally designed as a forum for discussion of new experimental techniques and results, but the organizers this year chose to broaden the scope of the conference. We