and friendliness, as well as ability to link files as needed, is Borland's "Paradox". The database is divided into a number of distinct areas (ARCHIVAL = Basic data; LOOKUP = Code numbers and names; RESEARCH = Interpretive or Subjective; SYSTEM = Database integrity, and VIEWS = Information derived from other tables).

These presentations led to a great deal of discussion, particularly concerning the merits and/or needs of establishing a distinct Canadian database. Most participants were of the opinion that a Canadian national database should be established, most likely at the GSC, with programmers funded, if necessary, from NSERC funds. (There were other workers who took the opposite view, that creating a Canadian database would be an unnecessary duplication of the efforts at Boulder. It was pointed out that many Canadian workers (Gajewski, Richard, Ritchie and others) have contributed to the pollen databases already housed at NOAA, and are key players in the advisory board for the NOAA database). With the ability of Canadian researchers to retrieve Canadian data contributed to NOAA, perhaps a "national" database is not required.

The final presentation of the day was a proposal generated by Richard Peltier to submit a Collaborative Special Project to NSERC on "Climate System History and Dynamics: A Canadian Contribution to the IGBP Core Projects PAGES and GAIM". This is a proposal to look at three time frames (6 ka, 18 ka, and 125 ka) by using proxy data, and by matching this to computer simulations for those time frames. The funding level requested would be considerable by NSERC standards, and would closely follow the amounts provided by NSERC to ODP and LITHOPROBE.

Monday morning was devoted to two different topics: a discussion of items not covered on the previous days, and a working plan for implementing the 6 ka study. The former revolved around further debate of the proposed GSC database, and the latter broached some of the methodologies that might be used in understanding the 6 ka time frame. Two of these involved taking the output of the newest GCM and comparing it with the Canadian Eco-regions Map, and comparing the 6 ka GCM output to the 6 ka GSC vegetation map (prepared independently from the GSC Paleoecology database). At the same time, the 6 ka GSC map will be refined by careful comparison of data acquired from regional proxy indicators, such as peat and ostracodes, and specific point data from sites with multiple proxies, such as plant macrofossils, insects, molluscs and vertebrates. This effort will take about four years of co-ordinated work.

CONCLUSIONS

Was the 6 ka Workshop worthwhile? I think the answer should be a qualified yes. It served to outline (again) the range of experience and expertise of Canadian proxy data workers, who are among the best in the world in their respective disciplines. It was extremely encouraging to have members responsible for the GCMs sitting in the same room and listening to the comments and concerns of proxy data workers. At the same time, it was an eye-opening experience for the researchers working in data gathering from the recent past to see the limitations and promises of the GCMs. Such interaction is quite rare, and in the experience of many in the room, something which usually takes place at the end (rather than the start) of a long consultative process. We can only hope that this augurs well for newly forged links between the two areas in coming years.

Unfortunately, the meeting also highlighted some of the schisms which exist between the various sub-disciplines and working groups in Canada. Some of these are the result of natural geographic isolation within the huge Canadian landmass. The interests and concerns of those from Quebec universities working in Nouveau Québec are quite different, in terms of processes, from those of a new combination of researchers coming together to study the Palliser Triangle IRMA (Integrated Research and Monitoring Area) in western Canada. Nonetheless, both are connected by a need to better understand the global circulation which was taking place at approximately 6 ka. The same can be said for groups on the west coast, in the Great Lakes region, or along treeline in the Yukon and NWT. The most promising aspect is that with each meeting people are starting to realize the advantages of positive interactions with other disciplines, and collaborations are emerging which would have been unimagined a decade ago. It is time to take these interactions one stage further by linking them to "external" agencies, such as the Canadian Climate Centre, to produce new insights. Natural systems do not operate in isolation: it is time for Quaternary workers to realize that co-operation on local, national and international levels is necessary to understand the big picture. Global change is upon us; we have too little time to provide big results, and such co-operative ventures have to be undertaken as soon as possible. The 6 ka Workshop may have forced us a little further along that road.

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Penrose Conference: Tectonic Evolution of the Coast Mountains Orogen

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A Penrose conference on the "Tectonic Evolution of the Coast Mountains Orogen" was held 17-22 May 1992 in southwestern British Columbia. The conveners were Maria Luisa Crawford, George Gehrels and James Monger. The conference consisted of two parts: a two-day field trip (led by Monger and Murray Journeay) which focussed on the geology and crustal structure of the southern Coast Mountains, using new seismic reflection data; followed by three-and-a-half days of informal discussions and poster displays at Bowen Island Lodge, which is situated within the southwestern Coast Mountains.

Most discussions during the conference concerned the nature, age and significance of the tectonic boundary that trends acutely across the Coast Mountains, from the eastern side at its south end (latitude 49°N) to the western side north of the British Columbia-Alaska boundary (latitude 54°N). This feature was examined in light of: 1) stratigraphic and magmatic characteristics of terranes that can be traced into the Coast Mountains and are juxtaposed along the boundary; 2) the structural, stratigraphic, metamorphic and magmatic features associated with their juxtaposition; and 3) the linkages between formation of the Coast Mountains orogen, tectonic events elsewhere in the Cordillera, and Mesozoic-Cenozoic plate reconstructions. The latter suggest that >13,000 km of lithosphere may have been subducted beneath western North America in the last 150 million years. This subduction may have occurred close to the present continental margin, may be recorded in the Cretaceous-Tertiary accretionary complexes (*e.g.*, Chugach terrane and equivalents), and may be partly accommodated/concealed by the complex structures of the Coast Mountains orogen.

Features of the North Cascades and contiguous southern Coast Mountains were compared and contrasted during the meeting. The origins and emplacement modes of the Jurassic through Tertiary igneous rocks that consititute ~80% of the Coast Mountains were touched upon in discussions, but did not feature prominently.

Most conferees agreed on the following aspects of the tectonic boundary:

1) Significant differences in the Paleozoic and Triassic histories of inboard (Stikine, Cache Creek, Quesnel and Yukon-Tanana) and outboard (Wrangellia and Alexander) terranes suggest that they were juxtaposed after Triassic time.

2) Pre-Triassic metasedimentary and subordinate metavolcanic rocks of continental margin affinity extend southward along the east side of the boundary as far south as latitude 52°N. These rocks may correlate with the Yukon-Tanana terrane, and may in part underlie or grade laterally into the Stikine terrane.

3) Jurassic through Lower Cretaceous strata within the eastern part of the southern Coast Mountains and in contiguous portions of the Cascade Mountains may record subduction-related processes leading to accretion of outboard terranes. No record of Jurassic-Cretaceous subduction along the boundary within the Coast Mountains has been recognized north of latitude 51°N.

4) Early and Middle Jurassic deformation, magmatism and metamorphism occurred in both inboard and outboard terranes, but the connection of these features across the boundary within the Coast Mountains is uncertain. Paleomagnetic data permit juxtaposition of inboard and outboard terranes at any time between the Late Triassic and Late Cretaceous.

5) Upper Jurassic and Lower Cretaceous basinal clastic rocks crop out along the length of the tectonic boundary. These strata accumulated on the eastern margin of outboard terranes and, in the southern Coast Mountains, also along the western margin of inboard terranes. In the south, the mid-Mesozoic clastic rocks locally appear to stratigraphically overlie Mississippian through Middle Jurassic oceanic rocks (Bridge River terrane); no record of the latter is recognized north of latitude 51°N.

6) Mid-Cretaceous (100-85 Ma) contraction of these clastic basins, accompanied by high-pressure, low- to medium-temperature regional metamorphism, large-scale displacement along west- and east-vergent thrust faults, and widespread emplacement of dioritic through granodioritic plutons with associated contact metamorphic aureoles, record accretion of the outboard Alexander and Wrangellia terranes.

7) This event was followed by Late Cretaceous through Early Tertiary, eastward-migrating plutonism across the boundary, by uplift and erosion of deep-level metamorphic rocks, and, in the southern Coast Mountains, by orogen-parallel deformation.

8) The Coast shear zone, prominent in the northern and central Coast Mountains but not obvious at their southern end, is an 800 km long, steeply dipping to vertical feature with both normal and reverse slip. This shear zone was closely associated with the emplacement of tabular tonalite plutons of latest Cretaceous-Paleocene age.

9) Jurassic through Early Tertiary igneous rocks in and adjacent to the Coast Mountains probably result mainly from subduction-related processes. During mid-Cretaceous through Early Tertiary time, east-dipping subduction clearly occurred along the outboard margin of the Alexander and Wrangellia terranes. The facing direction of Jurassic and Early Cretaceous arc-trench systems is uncertain.

10) Anomalous paleomagnetic data from plutons within the Coast Mountains can be explained by a combination of northeast-side-up tilting of portions of the orogen and 500-1000 km of dextral displacement on inboard strike-slip faults.

Three pre-conference tectonic scenarios existed. 1) Mid-Cretaceous accretion of outboard terranes as the end product of Jurassic(?) through Early Cretaceous subduction of an intervening ocean basin. 2) Initial juxtaposition of inboard and outboard terranes and formation of pull-apart basins along dextral transcurrent faults during Late Jurassic-Early Cretaceous time, followed by mid-Cretaceous collapse of the basins and accretion of outboard terranes. 3) Pre-Late Jurassic amalgamation of inboard and outboard terranes producing a single large terrane, which was rifted in Jurassic-Cretaceous time to form basins; these subsequently collapsed in mid-Cretaceous time as the outboard components of the terrane were accreted.

These three scenarios remain viable alternatives, largely because mid-Cretaceous through Early Tertiary thrusting, metamorphism and plutonism have obscured the pre-mid-Cretaceous relations between inboard and outboard terranes. Although probable Jurassic-Cretaceous subduction-related stratigraphic assemblages have been recognized in the south (and are definitely present in along-strike parts of the North Cascades), these have not been seen to the north. In the first scenario, northern continuations of these assemblages may have been tectonically buried by mid- to Late Cretaceous thrusts or elevated by such structures and eroded. In the second scenario, pre-Late Jurassic accretionary complexes may have been removed from the central and northern Coast Mountains by Late Jurassic-Early Cretaceous strike-slip displacements. Such assemblages in the southern part of the orogen may be remnants of an outboard subduction assemblage (*e.g.*, southern extension of the Chugach terrane) that were trapped inboard of Wrangellia by sinistral transcurrent faulting. In the third scenario, the subduction-related assemblages may have been emplaced by strike-slip faults in the southern Coast Mountains, but were never present further north.

Finally, although fundamental tectonic questions remain, the 44 conferees are now familiar with the observations and ideas of workers from all parts of the Coast Mountains, which cannot but help lead to a better understanding of the orogen. It seems to the conveners that this is the real purpose of a Penrose conference.

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