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Society for the Preservation of Natural History Collections

Randall F. Miller

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Cenozoic magmatism in western North America is that a good understanding of the tectonic/geologic history of the area is needed to sort out the volcanic environments present, and their inter-relationships. Without fossil and paleomagnetic evidence to recognize accreted terranes, reliable geochronology, and the ability to reconstruct plate motions in the Pacific, we would be a long way from truly understanding the development of western North America. This is a sobering thought for any of us who work in older terranes.

For the most part, the unique format of the meeting was quite successful. It was certainly easier to learn more, and to interact with other volcanologists with this set-up, than if 76% of the papers had been presented orally. A short wrap-up at the end of each day, highlighting the outcome of some of the discussion sessions, would have been an added touch for those actively involved in one of the four concurrent sessions, but life is never ideal.

Volcanology is clearly an active and dynamic field in the late eighties. The Santa Fe meeting follows two earlier, very successful volcanology meetings (IVC in New Zealand in 1986 and "How Volcanoes Work" in Hawaii in 1987 (see *Geoscience Canada*, v. 14, p. 232-234)). The next major international meeting is the International Volcanology Congress meeting in Mainz, Germany next fall, and it will have quite a task to top Santa Fe 1989.

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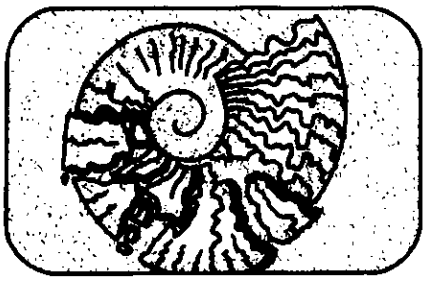

Society for the Preservation of Natural History Collections

Randall F. Miller
Natural Sciences Division
New Brunswick Museum
277 Douglas Avenue
Saint John, New Brunswick E2K 1E5

What happens to specimens after they have been collected? Once a study has been completed and a paper has been published, how many of us give much attention to the long-term survival of reference material we worked so hard and spent so much to acquire?

The Society for the Preservation of Natural History Collections (SPNHC) does address this issue and, as demonstrated by presentations at this year's annual meeting, seriously considers how we collect, what we collect, and how we can ensure specimen longevity. The fourth annual meeting of SPNHC was sponsored jointly by the Tyrrell Museum of Palaeontology in Drumheller and the Department of Biological Sciences, University of Calgary, from 22 to 29 July 1989. The meeting was the first co-operative venture between the University of Calgary and the Tyrrell Museum since the two institutions signed a joint agreement in 1984 to establish a working relationship.

SPNHC is a multidisciplinary organization composed primarily of managers, conservators and curators of museum collections from across North America and abroad. The society's goals are to improve knowledge of the practical problems of maintaining collections. As well, philosophical and ethical aspects of collecting are discussed. The society publishes a reviewed journal — *Collection Forum* — that provides invaluable information on collections care. A growing "awareness" of the need for conservation and cost-effective care of natural science specimens is apparent from the increasing level of activity of SPNHC. Membership in the society has tripled in the past three years, and now stands at over 350. Many of North America's major museums are represented and institutions are lining up to host future conferences (1990, Field Museum, Chicago; 1991, National Museum of Natural Sciences; 1992, University of Nebraska Museum).

To discuss this year's theme — "Collections — Our Treasured Heritage", conference organizers staged eight sessions over a five-day period. Even though some of the sessions dealt with biological collections, many of the topics should be of direct interest to geologists. Dr. Emlyn Koster, Director of the Tyrrell Museum of Palaeontology, and Gerald Fitzgerald, Collection Manager and Conservator of the Paleobiology Division of the National Museum of Natural Sciences (NMNS), chaired the opening session on Geology. George Robinson from the Mineral Sciences Division of the NMNS delivered the keynote address — "Geological Collections: The Broad Spectrum", stressing the need for accurate documentation to ensure the value of reference specimens. Minerals from the Pinch Collection were used to illustrate the lecture. Presentations on ocean sediment collections, meteorite preservation, a case study of dinosaur trackway conservation, radon hazards in earth science collections, consolidation of subfossil walrus bone and techniques for measurement of specimen oxidation followed.

Session 2, dealing with conservation concerns, began with an address by keynote speaker Mary-Lou Florian from the Royal British Columbia Museum. Her perspective on developments in conservation of natural history collections was followed by case studies of a wide range of specimen storage problems.

The final session at the Tyrrell Museum was a panel discussion on the topic of "Public *versus* Research Access to Natural History Collections". The ensuing discussion demonstrated that a wide range of opinions exists as to why specimens are collected, how much is enough, if we should collect more if we cannot properly store what we have, and if the public should have access to collections and in what fashion.

Session 5 at the University of Calgary leg of the conference began with presentations on biological topics. Session 6 contained two presentations on geological topics. The first, by Anna Curtis of the Tyrrell Museum of Palaeontology, outlined implementation of Alberta government legislation to protect the province's paleontological resources. The importance of a group like SPNHC that examines collections care was dramatically summed up during the presentation by Philip Doughty, Keeper of Geology at the Ulster Museum, Belfast, who presented a somewhat frightening picture of the state of some geological collections in the UK. As part of the Geological Curators Group, he helped examine many important collections from smaller museums in Great Britain. Photographs of heaps of scientifically important paleontological collections in musty basements, lit by a single dangling bare light bulb, were not uncommon. Fortunately, the Geological Curators Group has taken vigorous steps to improve the situation. The point was made that scientific societies should be

aware that irreplaceable parts of our scientific heritage lie forgotten. One wonders how we could let our geological heritage deteriorate to such a degree.

Anyone interested in geological conservation should be aware of *Geological Curator*, a journal published by the Geological Curators Group, and their *Guidelines for the Curation of Geological Materials*.

The workshops during Session 7 covered a number of topics from computer-generated labels to packing specimens for travel to methods for extracting plant fossils. The final day was devoted to storage design and materials for natural history collections. Presentations during this session perhaps best point out the serious problems facing museum collections by demonstrating what we know (or how little we know) about many of the materials that surround our specimens. Paper, plastic, fumigants, paint, and other materials all come into contact with specimens and, in many cases, their effects on specimens have been neglected or not understood. While a lot of work has been done in art and archival conservation, it is only recently that natural sciences collections have begun to receive the conservation attention they deserve.

A common theme presented by many of the participants was concern about long-term, subtle damage to specimens. The word "subtle" means not noticeable rather than referring to the seriousness of damage. Most geoscientists do not work in museums or manage large collections on a daily basis. Therefore, they may only observe acute damage such as physical breakage. As pointed out by several speakers at the conference, chronic problems caused by repeated handling, temperature and humidity fluctuations, vibration and oxidation may cause serious damage at imperceptibly slow rates. When museums consider storage over tens and hundreds of years, chronic effects are realistic considerations that must be dealt with by conservators and collections managers. SPNHC has taken a large step toward taking better care of our natural history collections. For those of us who collect, base our research on specimens, or manage collections, the SPNHC organization offers valuable information on preserving our natural sciences heritage.

Information about the Society for the Preservation of Natural History Collections and *Collection Forum* can be obtained from SPNHC, 5800 Baum Blvd., Pittsburgh, Pennsylvania, USA 15206.

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Second International Research Symposium on Clastic Tidal Deposits

Gerard V. Middleton
Department of Geology
McMaster University
Hamilton, Ontario L8S 4M1

The First Symposium in this series was held in Utrecht in 1985. The proceedings were published in 1988 as *Tide-Influenced Sedimentary Environments and Facies*, edited by P.L. de Boer, A. van Gelder, and S.D. Nio (Reidel, 530 p.).

The Second Symposium, held in Calgary on August 22-25, 1989, was jointly sponsored by the Canadian Society of Petroleum Geologists (CSPG) and the Society of Economic Paleontologists and Mineralogists (SEPM) The meeting was co-chaired and efficiently organized by Ray Rahmani (Canadian Hunter Exploration) and Derald G. Smith (Department of Geography, U of Calgary). It was attended by 185 registrants. Field trips before, during and after the conference visited the Bay of Fundy, Peace River, Drumheller, the Columbia Ice Fields, Writing-on-Stone Provincial Park, and Willapa Bay (Washington State, USA). Most of the trips were well attended, and allowed considerable discussion of the outcrops and of issues related to tidal sedimentation raised by them and by papers presented at the symposium.

The Symposium itself consisted of two and a half days of oral presentations and poster displays, held at the University of Calgary; a half-day core and peel workshop, held nearby at the Energy Resources Conservation Board (ERCB) Core Research Centre; and a day devoted to a choice of field trips, the core/peel workshop, posters, or a Short Course, given by S.D. Nio. The Short Course was also offered before the meeting: a total of 182 persons registered. Though the Symposium extended over four days (not including field trips before or after the main session), most participants found that their time was fully occupied, and some complained that not enough time had been set aside for examination of posters and for discussion.

The oral presentations were organized around the themes of Quaternary Sedimentology, Tidal Rhythmites, Tidal Inlets, Tidal Flats and Fauna, Modern Sediments and Processes, Facies Models, Bedforms, and the Stratigraphic Record of Tides. It is obviously impossible to summarize all the papers, and what follows is largely a personal reaction to the presentations, ameliorated by input from several other registrants.

The dominant themes of the Symposium were subtidal sedimentation, estuaries, and the development and recognition of tidal rhythmites. Most notable by their near-absence were papers dealing in depth with intertidal sedimentation, though intertidal sediments were discussed in passing in many oral and poster presentations. An exception was Martini's discussion of the cold tidal flats of James Bay. The most exceptional features of these flats are that they are very wide, have a restricted fauna, and almost no tidal channels. This contrasted nicely with the paper by Zhuang and Chappell on mangrove-fringed, grassy and sandy tidal flats from SE Australia.

In his opening address, Middleton pointed out that tidal sedimentary environments are found in four major environmental complexes: estuaries and bays, barrier island complexes, tide-dominated shelves, and tide-dominated river deltas. Although 8 of the 12 largest rivers (ranked by sediment discharge) show strong tidal influence, none of them has yet been adequately studied by sedimentologists. This symposium, however, heard several papers dealing with major estuaries (defined geomorphologically as drowned river valleys rather than as regions of mixed salinity). Notable examples discussed were the Cobequid Bay / Salmon River system (Zaitlin and Dalrymple), the Gironde (G.P. Allen), and the James (Johnson, Nichols and Peebles), as well as several ancient examples, including the deposits seen on the Drumheller field trip (Rahmani), the Middle Devonian Mahantango (Duke and Prave), and several formations seen in the core workshop. My industry friends tell me that the search for tidal estuaries is now "hot" in the Alberta oil patch.

Facies models for estuaries were presented by several speakers at the conference, but agreement seems to be limited to a rather primitive level: estuaries generally are sandy at the head, with the sand supplied by a river, muddy in the center, and sandy at the mouth, with sand supplied from the coast (the tripartite model). This model works for the James and the Gironde, and for several small Australian estuaries, but is not true for some larger macrotidal estuaries such as the Cobequid/Salmon and the Severn, where sand comes mainly from the outer part of the estuary. Some estuaries, such as Chignecto Bay in the Bay of Fundy (Amos and Tee) are predominantly muddy, with the mud having multiple sources. The only paper to give a