

President's Report

Two years ago, I wrote to members who had decided not to renew their membership in the hope of obtaining insights that might enable the Society to persuade them, or others who were dropping out, to continue their membership. A majority of those contacted responded to my letter. Perhaps not surprisingly, most respondents measured the value of their membership in terms of how many monthly meetings they attended. Thus, most members who had moved away from the Denver area decided to discontinue membership because they would not be able to participate in monthly meetings. Similarly, members who had not moved but also had not attended a meeting in a long time gave lack of participation in monthly meetings as the reason for discontinuing membership.

One of the purposes of this letter is to counter the perception that the Colorado Scientific Society is all about monthly meetings. I would argue that although participation in the monthly meetings may be a benefit of membership, it is not the principal reason for being a member of the Society. I believe that the principal reason for membership is a shared belief in the purpose and goals of the Society, as stated in its bylaws. In a real sense, dues represent a contribution, not a fee for services received. In effect, dues are not much different than contributions to the Memorial Funds except that the moneys are used for different purposes.

The goals of the Colorado Scientific Society as defined by the founders in 1882 continue to guide the Society today. The program of scientific talks at monthly meetings and our annual Spring and Fall field trips are the most visible activities of the Society, but they are only part of the story. Less visible are the activities that support student research and attendance at scientific meetings, and that provide assistance to other scientific organizations. For example, over the past 12 years, the Society's Memorial Fund program has awarded 76 grants, totaling \$51,140, to support student research (see Memorial Funds Treasurer's Report in this newsletter for more details). Another more modest effort to support student research was made in April of this year when the Council decided to make as much as \$1500, not to exceed \$100 per applicant, available to area geology students to participate in field trips at the annual meeting of the Geological Society of America. In addition, the Council moved to re-establish Student Night and to award cash prizes to the students presenting the best papers; three cash awards were made in 1996. Support to other scientific organizations is another activity of the Colorado Scientific Society that is not widely publicized. In the past two years, the Society awarded small grants and donations to three Colorado-based scientific projects. Grants were made in 1995 and 1996 to the Western Interior Paleontological Society to provide logistical support for volunteers and field work at Porcupine Cave in southern South Park, Colorado. Also, donations were made to the Colorado Avalanche Center and to the Friends of the Florissant Fossil Beds, a nonprofit organization that assists the National Park Service in securing resources to preserve fossils and provide support for scientific and educational activities at the monument.

Probably the least visible of the Society's activities is the work of committees. For example, the Science Fair Committee judges and awards prizes at the annual Colorado Science and Engineering Fair. This year, the committee judged the exhibits of 230 finalists representing junior and senior high schools from across the State. The committee awarded cash prizes and marble paper weights bearing the Colorado Scientific Society logo to four students. Two cash awards (\$100, first prize; \$75, second prize) went to students from the senior high division and two awards (\$75, first prize; \$50, second prize) went to students from the junior high division. For more details about the 1996 Science Fair, see the article by Bonnie Crysdale, Committee Chair, in the October Newsletter.

Finally, each year the Society sponsors two special lectures, the Emmons Lecture and the Family Night Lecture. The Emmons Lecture, named in honor of Society founder S.F. Emmons, features speakers who are recognized nationally or internationally as being at the forefront of

research in some important facet of Earth Science. The Family Night Lecture is held in conjunction with the annual banquet, and features speakers who offer stimulating talks on topics of general interest to a diverse audience that includes spouses and other family members, guests, and visitors.

The accomplishments described in the preceding paragraphs are possible because of the continued support of a majority members who believe that their participation is measured best in terms of what is given rather than received. I say this because only a small percentage of the membership attends monthly meetings or field trips at any given time, and many members rarely attend either meetings or field trips. Moreover, many of our members contribute time, energy, and(or) money, and ask for nothing in the way of recognition or reimbursement. The Society needs the continued support of a steady, if not expanded, membership base, to carry out its mission and the plans developed in recent years to further its 114-year-long mission. The Society's monthly meetings and field trips are important benefits and selling points for prospective new members, but the other activities that support science in Colorado are also important.

Family Night 1996

In spite of inclement weather on Friday evening, November 15, Family Night was a great success. Snow and icy roads were a barrier to some who had long distances to travel, but still, more than 70 members and guests attended the annual dinner, which preceded the Family Night lecture. The dinner was held in the Geology Museum in Berthoud Hall on the Colorado School of Mines campus, and featured a delicious pasta buffet that offered great variety and in such abundance that numerous repeat helpings could not exhaust the supply. The dinner was preceded by a pleasant social hour that was energized by good conversation over wine, beer, and soft drinks. Those who attended the dinner were joined by a nearly equal number of members and guests for the lecture in the Green Center. Except for some empty seats in the first row or two, Petroleum Hall was full as Dr. Joe Romig provided an excellent lecture entitled "An evening in our incredible universe". He guided the audience through our solar system, briefly highlighting aspects of tectonics, erosion, and surface ages of various planets and moons as he went. He then discussed our galaxy, other galaxies, the origin and evolution of the solar system, the birth and death of other stars and stellar systems, black holes, neutron stars, and white dwarf stars. The dinner and lecture made Family Night 1996 a truly enjoyable evening in our part of the universe.

New Honorary Members

Each year, the Council of the Colorado Scientific Society, which consists of five officers and six councilors, considers nominations for Honorary Membership. Honorary membership is an honor bestowed on members who have made significant contributions to science in the Rocky Mountain area and(or) have contributed significantly to the Society and its goals. The Council is pleased to announce that at its autumn meeting three nominees were selected for Honorary Membership. The three new Honorary Members are **Frank Adler, Greg Holden, and Susan Landon**. The three nominees were made Honorary Members in a brief ceremony at the Green Center prior to the Family Night Lecture.

1996 Winner of the Past Presidents' Award

The Society's Best Paper Award Committee is pleased to announce that the award for the best paper presented in 1996, formally known as the Past Presidents' Award, goes to **John T. Turk** for his presentation: "Risk in the Rockies: The Mt. Zirkel Wilderness Area Story". The award committee for 1996 consisted of Steve Sonnenberg (Chair), Bruce Bryant, Bob Fleming, Susan Landon, Rich Madole, and Barney Poole. The Past Presidents' Award consists of two parts: (1) a silver bowl on which is inscribed the name of the award, the year of the award, and the name of the recipient, and (2) a plaque that bears the names of all recipients of the Past Presidents' Award and the year in which they received the award. The silver bowl remains with the recipient, but the plaque is passed from recipient to recipient. Traditionally, the Past Presidents' Award is presented at the December meeting of the Society.

Black Blizzards and the Next Great Drought: Historic and Prehistoric Records of Climatic Change on the Great Plains

During historic time, inhabitants of the Great Plains have experienced a succession of climatically driven cycles of economic boom and bust as intervals of above average annual precipitation alternated with intervals of drought. Geological data and tree-ring studies show that a similar pattern of climatic oscillation has prevailed for many centuries, if not many millennia. Thus, there is reason to believe that this pattern will continue and that droughts lasting as long as 3-10 years or more will recur on the Great Plains in the 21st Century. The instrumental record, which in most of the region spans 100-150 years, combined with estimates of annual precipitation based on tree-ring studies indicate that severe droughts have occurred here 3-5 times per century for much of the past millennium. For at least the past few centuries, droughts equal to or greater in severity than that of the 1930s have occurred about twice per century.

Wind erosion in the western Great Plains is more extensive and severe than anywhere else on the continent. Massive wind erosion of soil during the "dirty thirties", the 1930s drought, gave rise to the term Dust Bowl for a region that encompasses more than 100 million acres in eastern Colorado, western Kansas, easternmost New Mexico, and the panhandles of Texas and Oklahoma. As might be expected, deposits of windblown sediment are as widespread in the Dust Bowl as wind-eroded landscapes. For example, 60% of eastern Colorado is mantled by windblown sediment, of which about 30% is sand and 70% is loess. Several different ages of windblown deposits are present. The deposits span more than 10,000 years and show that episodic mobilization of sediment by wind is not a recent phenomenon in this region. However, the most recent episode of regional mobilization of sand and the formation of dune fields occurred within the present millennium, sometime after 1150 A.D. (800 yr BP) but before establishment of permanent settlements in the mid-19th Century. It should be noted that none of the historic droughts were severe or prolonged enough to cause widespread formation of dune fields, which is to say that droughts more severe than any in the instrumental record are possible under the present climate.