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Résumé de l'article

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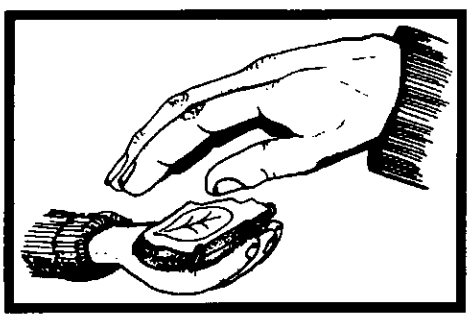

Earth Science Education 3.

Evolution of the Calgary Science Network: An Unabashed Tale of Speciation, Extinction and Diversity

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SUMMARY

Activities undertaken by the Calgary Science Network to promote the public awareness of science over more than a decade are described in an evolutionary paradigm. The Network is a charitable volunteer organization that has an impressive history of accomplishment. The many different projects and programs of the Network are described in an evolutionary framework that has two fundamental generic roots: one in the Science Hotline, the other in the now-defunct National Science and Technology Week. The strong multidisciplinary background of the organization is cited as a key to its success.

GSC Contribution No. 1999237

RÉSUMÉ

Les dix années d'efforts déployés par le *Réseau scientifique de Calgary* sont présentés selon une vision évolutive. Les bénévoles de cet organisme sans but lucratif ont à leur crédit une suite de réalisations fort impressionnantes. On trouvera ci-dessous une description de l'évolution des nombreux projets et programmes du Réseau basée sur ses deux piliers principaux, l'un étant la *Science au téléphone* et l'autre, activité abandonnée depuis, la *Semaine nationale de la science et de la technologie*. On verra que c'est l'importante pluridisciplinarité de ses membres qui est la cause principale de ses succès.

INTRODUCTION

This is the story of a multidisciplinary endeavour in science awareness that has a strong emphasis on the needs of elementary and junior high school children. It was initiated by geoscientists, some of whom remain as part of its core group, but from its beginnings it has involved a wide range of disciplines working together to open the public mind to the sciences. We tell the story in the framework of an evolutionary paradigm.

The Calgary Science Network's creed is probably best expressed by an early member of the group, oil patch worker Bill Haskett, who stated: "My degree is in geology, but I still feel I know more about the other sciences than teachers who have never had a single college course in science. So I feel that I can help out in several fields." Bill used a hands-on approach sprinkled with humour that delighted and enlightened kids and their teachers.

The Network's past includes some glorious successes and not a few failures and, like the Earth and its biota, the future has always been uncertain. We, the authors, hope this brief account of its history and activities may guide the evolution of science awareness programs in other hubs of the Canadian universe. Also, as we have both been associated with the Network from its very beginnings and have discussed and agreed upon its strengths and weaknesses with its core group, we feel that we can safely use the first person, especially the royal "we," to reflect the views of the group. We have taken this liberty throughout the ensuing text.

THE BEGINNINGS

The Calgary Science Network (CSN) emerged upon the local scene after a decision taken at a meeting of scientists and others in April 1989. However, it was not created magically out of the blue anymore than was the "Cambrian Explosion of Life." As shown in Figure 1, a chart reflecting our evolution, a variety of gatherings and activities underway at the time created the ideal environment for a blossoming of public communication of science.

Possibly most significant was an attempt in the late 1980s by the Geological Survey of Canada (GSC), which has a history of public awareness of science endeavours dating back to the 1840s, to co-ordinate the efforts of its volunteer scientists in the Calgary schools. At about the same time, the Royal Society of Canada (RSC) brought together representatives of Canada's major science and engineering societies in two workshop sessions (Neale, 1988; Spurgeon, 1990). Resource people from the media, museums, education and federal government scientific agencies completed the mix at these sessions. Many Calgarians were present as leaders and participants. One was Edna Einseidel, who organized her

own inspiring multidisciplinary conference in 1988 in Calgary and who published the first science literacy study of Canadians (Einseidel, 1990). There were also many other outreach activities underway in the city through associations and agencies. The kindred souls who met in these exciting times agreed on two points: 1) that national societies were effective in career promotion but not at delivering public awareness of science programs at the community level; 2) that science illiteracy should be nipped in the bud by concentrating efforts at the elementary and junior high school levels.

Certainly the time was ripe for the formal establishment of the Calgary Science Network in 1990 as a non-profit society of volunteers, ready and waiting for tax deductible donations.

Also notable was the simultaneous development of the Science Alberta Foundation under the leadership of public-spirited oil tycoon, Jim Grey. Its goal was to raise money and supply ideas for grass-roots, hands-on public awareness of science projects throughout the province. It was to be a science centre without walls. For several years our Network and the Foundation meshed well: the Network provided a model for other communities, and the Foundation supported our efforts with cash and ideas.

EARLY EXPERIMENTS: EXTINCTIONS AND SPECIATION

Even before it had a name for itself, the formative group that met on an irregular basis was embarking on a series of trial projects. This continued into and beyond the first year of Network activities. It wasn't until we found projects to bind us together that we began to focus ourselves and to stabilize experimentation.

Most of the early projects were short lived before extinction (Fig. 1) but not all could be judged as failures. Although several joint projects in conjunction with the Alberta Science Centre and with the local chapter of Sigma Xi failed, other initiatives were successful. For example, we were originally keen on workshops instructing scientists on how to write for and talk to the media. Although not long continued, these led to contacts with local media people which have borne much fruit over the years. A film on extinction undertaken in 1989 jointly with the local Rogers Cablevision (and spearheaded by Terry Poulton of GSC, Calgary) was a smash hit and won an award from the Canadian Cable Television Association in 1991. Unfortunately, we never followed up on this successful TV debut.

The two projects that brought us safely through the hit-and-miss approach of the first years were our participation in National Science and Technology Week (NSTW) and the formation of our Science Hotline. Most of the successful species of the next decade grew out of these two generic roots, as seen in Figure 1. Some of them are described below, together with an oddball species, The Science Fun Guide, that had its origins in another geographical domain.

THE NSTW GENUS

The Network's first involvement with National Science and Technology Week, in 1990, consisted of selling the concept through personal, one-on-one approaches to civic, corporate and academic institutions. The selling was very successfully accomplished and resulted in an opening ceremony by the mayor, a banner over city hall, manned displays of scientific

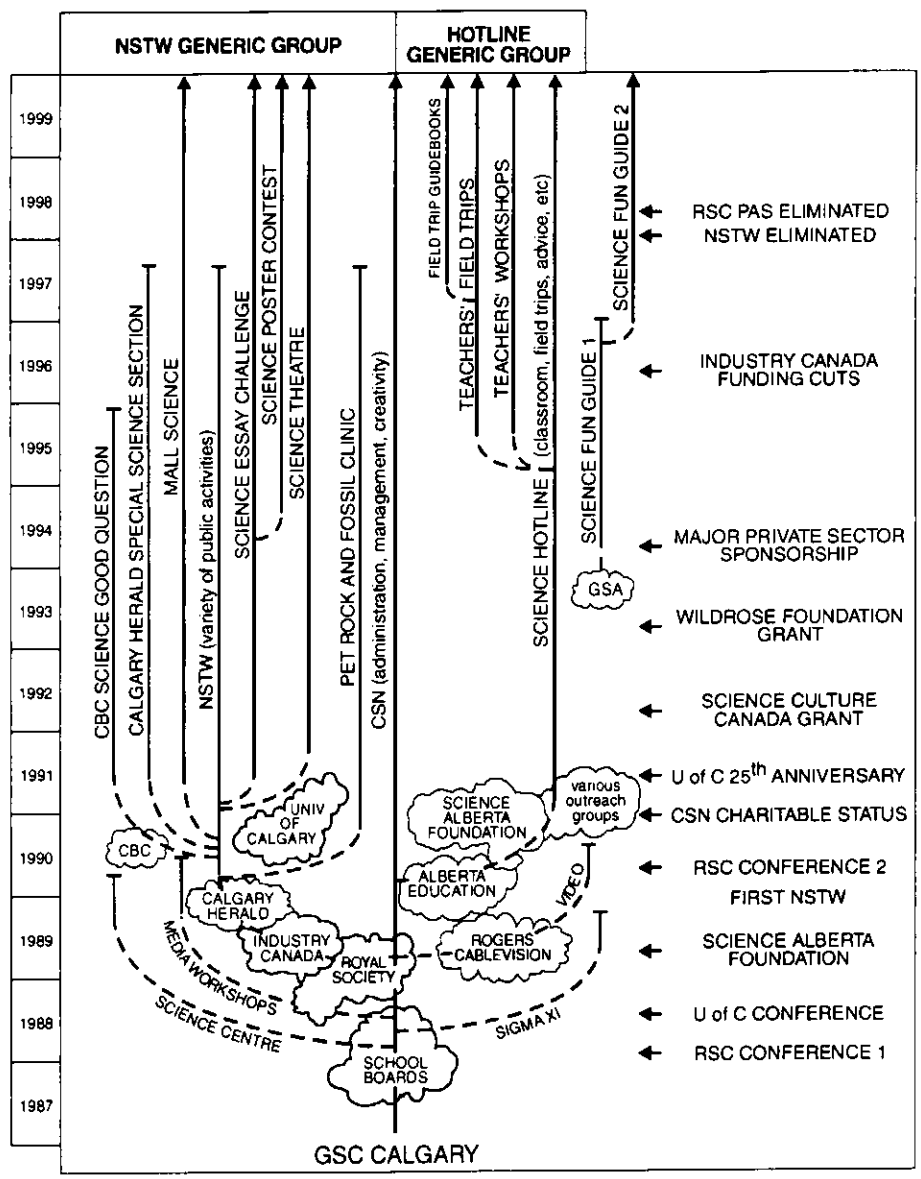

Figure 1 Evolutionary chart of the activities of the Calgary Science Network from its misty origins in 1987 to the present. NSTW = National Science and technology Week; RSC = Royal Society of Canada; RSC PAS = RSC Public Awareness of Science Program.

equipment and services, science strolls down city streets, and downtown public lectures over most of the noon hours and some of the week nights. It was somewhat in vain because public participation was low relative to the effort and the expense. The one notable exception was the Pet Rock and Fossil Clinic described below. The second year, 1991, was more successful because we teamed up with the University of Calgary, which was celebrating its 25th anniversary, and thus attracted a larger audience and a gallery of celebrities.

But, gradually, we realized that we weren't going to capture the attention of the Calgary masses at noon hour or in the evenings. We had to go where they were, namely the malls, the schools, and other community groups. We continued to have a single, public Kickoff Event at the beginning of NSTW. For example, one year we staged a weight-lifting contest between husky footballers and geeky science students (aided by pulleys!). In another year, members of the Young Scientists' Club battled at City Hall with local media people to solve scientific "puzzles." Our co-operative mayor and other dignitaries were always present and participated in eye-catching scientific antics which often made for good press. We initially tried to snag newsworthy federal and provincial politicians to aid our cause but finally realized that prominence is short lived in politics (*e.g.*, in 1991 we had Michael Wilson, Minister of Industry: remember him?). Finally, we realized that the ephemeral support of politicians was not worth the candle. Most of our effort then went into science theatre shows, a science essay challenge, poster contests, science questions on CBC (part of the "Good Question" series locally in Calgary), and similar activities, many of which have outlived the NSTW core that finally became extinct in 1997. Let's look at some of the longer-lived successes on our evolutionary chart (Fig. 1).

Science Theatre

In 1990 we saw a couple of talented park interpreters hold a group of parents and teachers enthralled with a musical skit involving the winter habits of bears, squirrels and the like. The next year, we hired them and others to entertain and educate groups of up to1200 students, who were bussed to central points. However, such large groups proved to present logistical difficulties, so we opted, in later years, to send performing groups to elementary and junior high schools to perform to groups of 200-300 students at individual schools chosen in an annual lottery. One group uses park-style family entertainment to convey its message (Fig. 2), another group uses puppetry, and still another illustrates basic laws of science though cryogenics. All accepted our criticisms and modified their programs to suit our needs. Senior science educators have mixed feelings about these shows and some feel the entertainment component far exceeds the educational. However, teachers eagerly enter the annual lotteries and report that students show an increased interest in science following a show. Science theatre has proved to be a long-lived, adaptable species that is now presented throughout the school year. Currently, we obtain donations from corporations that sponsor month-long blocks of performances.

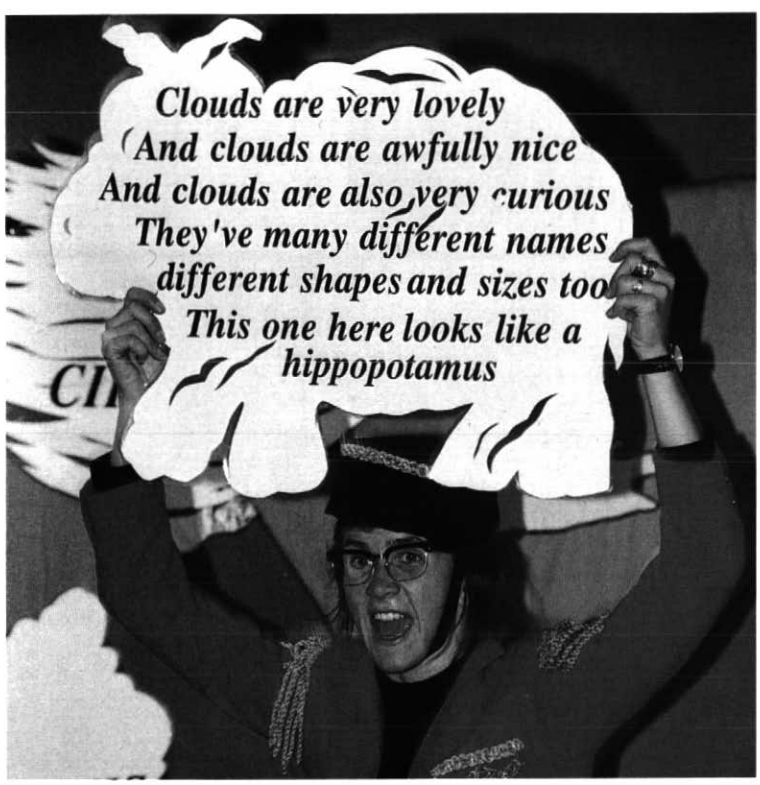

Figure 2 Evergreen Theatre performer belts out a tune on clouds for elementary students.

The Science Essay Challenge

This is another activity where art meets science. A first science essay contest, open to children in grades 5 to 8 inclusive, was organized in 1991 and was an instant success. Soon after, the name was changed to "challenge"; contests imply competition, a word that is anathema to some educators. Catchy topic titles such as "A Jog in A Bog" or "Patent Place" were, and still are, a key to success. A short explanatory paragraph is supplied for each of the four annual topics and this serves to focus the students' efforts. Rules are carefully spelled out, *e.g.*, a maximum of two typewritten pages of text, two pages of illustrations, *etc.* Teachers are asked to submit only the best three essays from each classroom. We have received an average of 130 essays each year from an average of 32 schools. The most recent "challenge," in late 1999, attracted 277 essays from 69 schools. About 10 schools have participated almost every year from the beginning, while others fluctuate as interested teachers come and go. We estimate that well over 1200 essays are written each year, probably 1500 in 1999. Final judging is in the hands of a distinguished panel that has included science writers, engineers, science administrators (*e.g.*, the Director of GSC Calgary) and even the editor of *Geoscience Canada*!

Generous cash prizes are offered at

each grade level. Initially they depended on a grant from the Royal Society, but later Petro-Canada discovered us and now takes care of prizes and a splendid awards ceremony. Special prizes are offered for engineering from the University of Calgary and for astronomical excellence from the Royal Astronomical Society of Canada. From its onset, the winning essays, in abbreviated form, have been published on the Science Page of the *Calgary Herald* and the event is now known as The Calgary Herald/Petro-Canada Science Essay Challenge.

Teachers have written that the Essay Challenge has inspired students to go on to careers in science, medicine, engineering and science writing. There have been heart-warming stories of some students' overall achievement levels being greatly enhanced following recognition with an award from the Essay Challenge. It is another long-lived species from the NSTW generic stock.

Science Poster Contest

This could probably be classified as a subspecies of the Essay Challenge. Starting as a National Chemistry Week event, it has become an annual fixture of the local branch of the Chemical Institute of Canada (CIC), in which some of our Network members have played key roles. Winning posters, illustrating the importance of science in everyday life, are displayed at an annual Mall Science event. For several years the poster contest has shared the Essay Challenge's awards ceremony.

Mall Science

The Network first experimented with presenting science in shopping malls as part of NSTW opening-day events. Early efforts were rather pedantic, multi-disciplinary displays that were only moderately successful relative to the amount of volunteer effort. This led our Network's chemists to take up the cudgels and provide more interactive activities. They first involved their university department colleagues and students and then the local CIC in a visual extravaganza that also concentrated on hands-on activities. These involve attention grabbers involving colour changes, "slime monsters," cryogenics and the like. Over the years, the Network joined the chemists and other science and engineering societies in these one-day demonstrations that take place annually on a fall Saturday (Fig. 3). In 1999, we also joined with the University of Calgary Geology and Geophysics Department in a mall science hands-on activity. Listening to the questions and answers at these events leaves no doubt that children and parents are learning while they enjoy. Mall Science is heartily welcomed back by mall managers each year, and observers often note parents halting their Saturday shopping to rush home for the kids. This is another long-lived species of the NSTW generic root.

The Pet Rock and Fossil Clinic

This was a great success story of the early NSTW years. Hundreds of collectors of all ages came with their store of rocks and fossils found during summer strolls and vacations. It was held in the GSC building on a Saturday in October with GSC scientists acting as "rock docs." The clients, aged 3 to 83, were told something of the composition, age and history of their pets and, more important, shown the simple tests that would enable them to name and classify their treasures. The strength of this type of event is that the scientific discussion is based on an object of considerable mutual interest (Fig. 4).

Attendance peaked in 1995 at more than 800 and then, mysteriously, fell off. The clinic became extinct after 1997 when attendance was barely more than 100. Currently there are calls for a post-mortem and possible resurrection or metamorphism.

The *Calgary Herald* Science Supplement

Prompted by the Network, the *Calgary Herald* produced a science supplement during NSTW 1991. It consisted of a host of science articles, many generated by Network members, and tasteful advertising by science-based local companies. Two years later, the *Herald* won a prestigious provincial award for this special annual supplement. Alas, it later withered due to lack of sufficient advertising and became extinct when government support ended in 1997 and NSTW faded off most maps. However, the contacts established still lead to Network members being called upon to comment upon *Herald* science news stories in the making.

THE HOTLINE GENUS

When the Network was formally founded in 1990, there was already a scientist-in-the-classroom program underway, organized by volunteers at the GSC. This was a modest operation through which

Figure 3 A Calgary Science Network booth during Mall Science.

GSC scientists made presentations in classrooms, mainly on geology, but also on hobbies such as music or astronomy. We soon found that many from other disciplines who attended Network meetings came from institutions or associations that had similar outreach programs. Most of these programs were informal, and each advertised itself independently to the teaching community. It seemed obvious to the Network's newly formed Education Committee that a joint effort and a single, salaried co-ordinator would be much more efficient. And so it came to pass.

Grants from the Science Alberta Foundation (SAF) and the federal Innovators-in-the-Schools Program of Industry Canada led to formal establishment of the Science Hotline in July 1991. A steering committee of the Network hired the first full-time co-ordinator (an exceptional person!) and by September of that year operations were full steam ahead. Headquarters were originally in our staff person's home, later in an office provided by the SAF (who eventually stole our person!). In recent years, Hotline premises have been rented from the Calgary Board of Education for $1 per year.

Teachers can call the Hotline with science questions, to arrange for classroom talks or demonstrations, field trips, career counseling, science club advising, science fair judging, and to access many more resources. Most calls come from elementary and junior high schools, but there are some inquiries from senior high schools. The Hotline's slogan "bringing teachers and scientists together" says it all.

The number of volunteers has fluctuated little from the 254 who were in place when it first took flight, but the range of disciplines represented has expanded greatly as we realized the breadth of our clients' needs. Student/scientist contacts increased from 9415 in 1991-1992 to a maximum of 18,060 in 1997-1998, falling off to 14,563 in 1998-1999 (Fig. 5) due to a year of teacher unrest and work-to-rule. In eight years of operation, 112,661 students have had contact with volunteer scientists, 4620 classrooms have been visited, and 7000 scientist hours donated (Figs. 5, 6). Of course, the Network has reached tens of thousands more through activities other than the Hotline, *e.g.*, science theatre and other events.

The Hotline has been the Network's flagship from its beginning. When a teacher calls, the Co-ordinator swings into action, first trying to match the appropriate scientist to the request and often guiding the teacher to choice of topic or type of help needed. The Co-ordinator also does extensive follow-up to ensure program quality. Classroom volunteers are trained to present suitable material at the appropriate grade level and are carefully screened to avoid unfortunate classroom situations. Over the years. we have purchased $7000 worth of materials for classroom use in order to provide volunteers with appropriate hands-on activities.

The Network now contracts one full-time and one part-time person to handle a growing variety of tasks. These people over the years also have helped schedule science theatre shows, fielded questions about the essay contest, and found the scientists who could answer the CBC's "Science Good Question " of the day. Our Hotline is now one of five in Alberta that are united under a single organization, the Alberta Science Literacy Association (ASLA), which presently receives significant provincial funding through the Alberta Science and Research Authority (ASRA). It currently plans to present a united, province-wide fund-raising effort in the corporate sector, also co-ordinated with the Science Alberta Foundation.

Figure 4 View overlooking a Pet Rock and Fossil Clinic at GSC Calgary.

Teacher Workshops: Making Connections

Our success in presenting science to primary and secondary school students made it logical to extend more direct help to their teachers. Both a new elementary science curriculum in Alberta, introduced a few years ago, and the assignment of more time to science acted as catalysts. Teacher workshops were an obvious evolutionary development and represent a most successful species of the Hotline Genus (Fig. 1). We entitled our series of teacher workshops "Making Connections" because we attempted to draw together common threads in the curriculum. Initially, there were two series of 4-day workshops, one each for Division 1 (grades 1-3) and Division 2 (grades 4-6). The first three days included six sessions. Each session covered a theme that could be traced from grades 1- 4 or from 3- 6, an intentional overlap of grade levels, so that Division 1 teachers would know what their students might face in the future and Division 2 teachers would know something of their students' science backgrounds. The fourth day was devoted to field trips, *e.g.*, a murder scene to demonstrate forensic evidence (staged by the RCMP and the Medical Examiner's Office), a trip to a weather station, and a flight in a small plane. We knew we were on the right track when the first workshop in July 1995 (prime vacation time) was quickly oversubscribed. The 120 teachers who attended and paid their own expenses were loud in their praise.

Workshops are led jointly by scientists and teachers, ensuring presentation of both good science and methods of teaching it at the appropriate grade level. Currently, workshops are presented in topic-specific segments rather than as major symposia. An individual workshop may run for two hours up to a full day. We now concentrate on the physical sciences, as other agencies tend to deal with the biological sciences. Workshops on earth sciences have proved very popular, making use of grants from the Canadian Geoscience Education Network's EdGEO Workshop Program to supply materials for the participants.

The latest challenge for the Making Connections workshops is the pending introduction of a new curriculum for junior high schools. Teams are currently gearing up to develop workshops to assist with the piloting of the program in 2000 and its full implementation in 2001.

The Making Connections program is co-ordinated by a part-time contractor who also has responsibility for publicity and our web page at **www.cadvision.com/calg_sci_net/.**

Field Trips

Stand-alone field trips are also part of the Making Connections menu, and teachers are guided by experts on junkets to which they may later return with their students. A favourite is Nose Hill Park, a huge remnant of high prairie in northwest Calgary: a prime area for studying geology, wildlife and wildflowers. More recently, with the introduction of engineering structures into the curriculum, there has been a demand for studies of the variety of civic structures, including bridges. The latter prompted the production of a teacher resource and field trip guide entitled *Calgary Bridges,* published jointly by our Network and the Calgary Board of Education (1999). This elegant book and accompanying CD Rom gives details of bridges in all four quadrants of Calgary, providing readable material about bridge design, and classroom

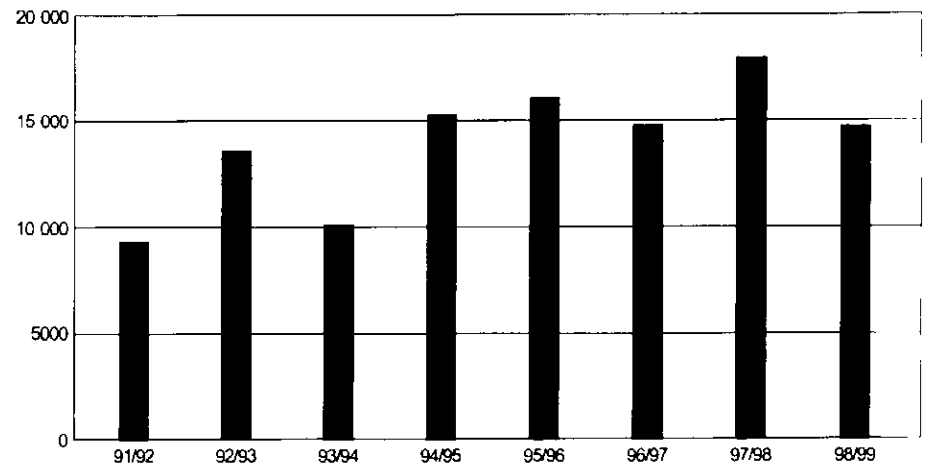

Figure 5 Number of students visited in their classrooms by Science Hotline volunteers from 1991-92 to 1998-99 school years.

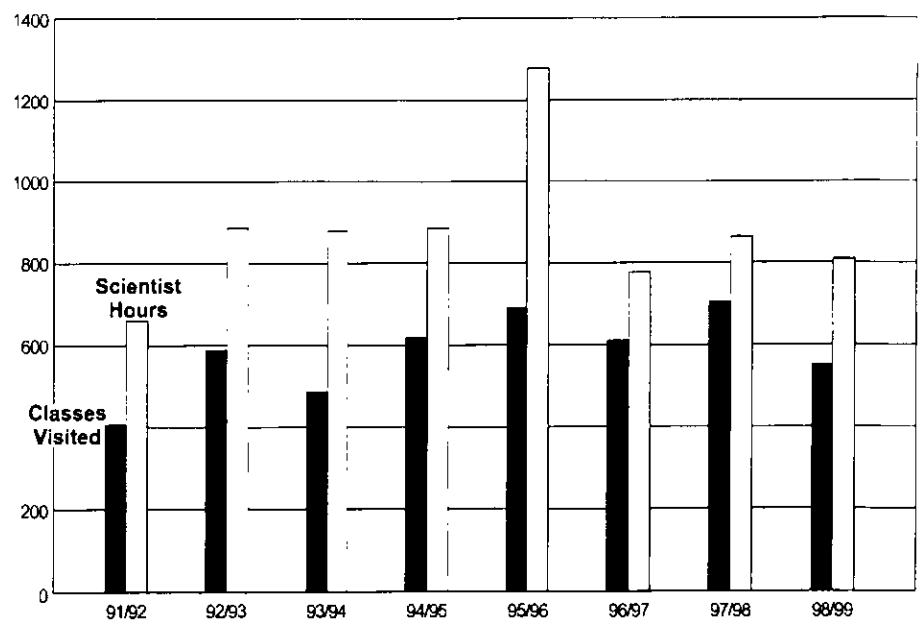

Figure 6 Number of classes visited and number of hours spent by Science Hotline volunteers in the classroom from 1991-92 to 1998-99 school years.

exercises in bridge-building.

Adopt-a-student Course

Following discussions between the Hotline co-ordinator and faculty members of the University of Calgary Biology Department, a new optional credit course was established on a pilot basis in 1997 that brought third and fourth year Biology majors into elementary classrooms for a full-term of assisting teachers with their science course. The students are examined by the Hotline co-ordinator and their Biology supervisor and graded on their own report of the experience and on the teacher's evaluation of their contribution. The pilot year, with four participants, was an overwhelming success and the course is now offered every second year. It is hoped that other science departments will follow Biology's lead. Geology was poised for a beginning but lost the faculty member who had volunteered to supervise the students.

A UNIQUE SCIENCE FUN GUIDE

We conclude this partial recital of our activities by describing one that was not directly related to NSTW or Science Hotline generic roots. It is a species of an immigrant genus in our evolutionary system (Fig. 1). The first Calgary Science Fun Guide was inspired by a booklet produced by a group in Austin, Texas (and encountered at a GSA committee meeting) that listed all the science-based activities available in that city. One of our members, who ran a desk-top natural history publishing business from her home, seized on the idea, and the first Calgary Science Fun Guide was produced in 1994 in time for Christmas sales. Our's was a great improvement over the Texas version because opposite each listing of a science-based organization was the recipe for a hands-on kitchen science activity, *e.g.,* Spell-binding Spaghetti, Mountain-building, or Mysterious Mold. Incidentally, the Texans followed our lead with their next edition. With all 4000 copies sold, we brought out a second expanded edition in 1997 (Calgary Science Network, 1997), which won the Alberta Book Awards "Best Children's Book of the Year" award for 1998. Sold in local bookstores, it is also distributed by Network members when they demonstrate and explain some of its 62 kitchen experiments at Mall Science extravaganzas, teachers' conventions, and similar gatherings.

ADMINISTRATION AND BUREAUCRACY

Early meetings of the Network were at the call of a self-appointed chair, and activities were organized by ad hoc committees. With the application for charitable status in late 1990 came the need for more formality, and an executive committee was appointed. Since then, three earth scientists have served as president (two for 2-year terms) and three chemists (two for 2-year terms). An elementary school science teacher has served as secretary for the past 5 years, and a retired senior science administrator from the private sector as treasurer.

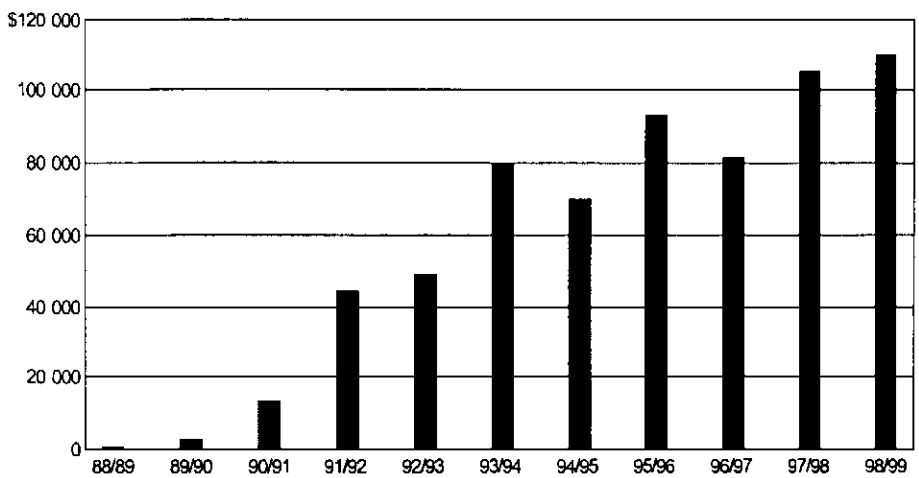

Figure 7 Approximate value of the Calgary Science Network expenditures on an annual basis from 1988-89 to 1998-99.

These people and a few others have served as a core group almost from the beginning, present at most or all of the monthly meetings held in the GSC Calgary boardroom. Known activists are invited to these meetings and still others hear about us and ask to come. Attendance ranges from 15 to 30. All are invited to join us if they wish. Some newcomers stay with us and play important roles for several years, others depart after a few meetings. Most of our activities (*e.g.,* the Essay Challenge and Science Theatre) are organized by standing committees who may call upon our corps of volunteers or outsiders to help. The overseeing of our salaried staff is assigned to the committees responsible for our major projects: the Hotline and Making Connections. Committee chairs and staff report regularly to Network members at monthly meetings.

WHERE DO THE BUCKS COME FROM?

The Calgary Science Network has done a lot on a little. But it has always been a scramble finding that little! In the early years, we relied on the Royal Society of Canada for starter grants, *e.g.,* to advertise NSTW and later to supply prizes for the Essay Challenge. With the advent of salaried staff, we turned to the federal government's Science Culture Canada program and to provincial funds channeled through the Science Alberta Foundation and the Wild Rose Foundation. Later, as governmental support dried up, we turned to charitable foundations and, eventually, directly to industry. The latter presents problems: it takes a great deal of time and effort to claw a few bucks from corporations and, often, they wish prominent public acknowledgment in return for funds. Thus, the donors who support our Essay Challenge and our Science Fun Guide have their names and logos on these projects. But we drew the line when a company offered big bucks but wanted its name on our flagship activity, the Science Hotline. Should we have succumbed? It was tempting! However, a poll of some of our key volunteers, who come from many sectors, suggested that they would not be keen to volunteer for a Hotline named after a particular company.

In recent years, our annual budget

has run around $80,000 (Fig. 7). Donations in kind are substantial: the Calgary Board of Education supplies work space and some services for our Hotline; the GSC has provided meeting rooms and an office and amenities since day one. However, at the time of writing (and not for the first time in our history) we have about a year's cash and promises on hand before we fold our tent. This means a scramble by the core group, *i.e.*, the burned-out executive people, past and present, to make the corporate rounds with caps in hand. And it probably also means more long discussions about whether or not we are desperate enough to sell our good name.

KUDOS

Our Network's achievements have been recognized by a provincial ASTech Award and by a national Michael Smith Award (named for the Nobel laureate). Individual members have also been singled out for honours, including the McNeil Medal of the Royal Society of Canada, the supreme national award for public awareness of science. However, our greatest tribute has been imitation. Similar Networks, with Science Hotlines, have sprung up in several other Alberta centres. Also, people from other provinces have consulted us, marvelling at our casual, simply structured, grassroots style of operation and our many low-budget accomplishments. We feel we have reason to be proud of those accomplishments.

WHAT OF THE FUTURE?

We are not as sanguine as we might be about the future. Reference has already been made to the financial problems but, in addition, the Network presently suffers from a lack of enthusiastic candidates for leadership roles and a dearth of bright ideas for new departures. Some of the old hands feel that our star is burning out. We, the authors, disagree, and believe that we are in a down-cycle at least partly of our own making. If so, it can be turned around.

At the recent insistence of one of our sponsors (a foundation), we have been reluctantly subjected to an organizational review and analysis. The reviewers were impressed with our accomplishments but, not surprisingly, shocked by our informality and lack of structure. We explained to them that this operational style had been one of the keys to early successes. However, they did point to a major weakness: we have done a poor job of marketing our name and our products. We are aware of another weakness: although our approximately 300 volunteers represent the gamut of scientific and engineering disciplines, our governing Network has become dominated by geoscientists and chemists. Although a few engineers, biologists, and others have played important roles, we lack, for example, anyone with high-tech and computer science backgrounds (hot items, even in elementary school). Our major, most potentially destructive failure, however, has been lack of forethought about leadership. In recent years, we haven't purposefully recruited potential leaders and then quickly assigned them to challenging tasks to maintain their interest. That is why our core group now finds itself with a paucity of replacements.

All of these failings can and must be remedied. Our evolutionary chart (Fig. 1) shows that we have survived impacts by small meteorites in the form of government funding cuts and the termination of NSTW. The potential leadership void threatens an even larger impact and it must and will be diverted from landing.

FINALLY ...

The Calgary Science Network is completing a very successful decade of public awareness of science activities with concentration on the needs of elementary and junior high school students. A key to the evolution and diversity of the Network and its programs has been its multidisciplinary approach. Most of its activities stem from two generic rootstocks: the Science Hotline and the now-defunct National Science and Technology Week. It has served as a model for similar Networks elsewhere in Alberta and Canada and we hope that this account of our evolution might inspire multidisciplinary volunteer enterprises in those centres that presently lack them.

Our Network was founded by geoscientists, they still make up a sizeable proportion of the volunteer force, and the GSC building, by common consent, is still the hub of many of our activities. But, all of us agree, we and the schools have profited and prospered from the beginning by being multidisciplinary. Each of us has learned from the others and schoolchildren, teachers and the general public have appreciated some of the common threads of science as they have seen us work together.

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