

Pathways

Volume 3, No. 2
February, 1991

THE ONTARIO JOURNAL OF OUTDOOR EDUCATION



Pathways

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We ask that the product or service be:

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Publishing Schedule

Issue	Closing Date	Publication Date
Sept./Oct.	Aug. 15	Sept. 30
Nov./Dec.	Oct. 15	Nov. 30
Jan./Feb.	Dec. 15	Jan. 30
Mar./Apr.	Feb. 15	Mar. 30
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Volume 3, No. 2
February, 1991

THE ONTARIO JOURNAL OF OUTDOOR EDUCATION

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ISSN: 0840-8114

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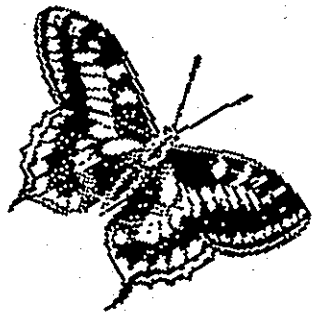
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State of the Art

Cover art is by Lynn Harrison, a regular contributor to *Pathways*.

Pathways is printed on recycled paper.





As a classroom teacher now, I am becoming very familiar with the personalities of the students in my class. Although I met many different children in outdoor education, I never got to know them the way I do now.

On January 16, my students, whom I had previously assigned little sensitivity to, proved me very wrong. If you are ten years old when a war breaks out, there is a lot to figure out. First, the majority were fairly distanced from it, discussing it as though it was the newest Nintendo game. But, one day later, I discovered I had a class of sensitive and worried children who needed to make sense of this situation somehow. And so, we wrote. And the poetry which I received to type into our classroom computer brought tears to my eyes and a lump to my throat.

And what I found then was an increased concern with environmental issues too. They look at photos of the earth from space quite differently now. It was pictures of the globe which decorated their poetry as well.

As much as I was astounded by their understanding and concern, other teachers have experienced the same. It was these teachers that Bob Henderson sought out to

collect the examples for his article on children and the environment.

To balance the "reality therapy" from the students of the province, we have tried to give this issue of *Pathways* its complement of theoretical and practical articles as well with a look at environmental education and how to use a field centre to its fullest. Any changes to an ecosystem result in an unbalance while the system adjusts itself. As long as the change is not a harmful one, the equilibrium will reset itself at new levels. So too, balance of articles may be difficult to achieve in a journal such as *Pathways*. When you make substantial changes as we did in our last issue, it takes a bit of time to regain that balance. We hope the pendulum swings are becoming less pronounced as we search for a new equilibrium. Help us to achieve that balance in YOUR journal. Send us your articles. COEO is an organization of volunteers, and we need you to volunteer your time to write an article or send us some news.

Carina van Heyst
Editor

Letters to the Editor

Dear Editor;

I am proud that *Pathways* is printed on recycled paper. The new format is clean and readable. I hope the content does not become too philosophical or a forum for "dry papers".

Many COEO members are active teachers who want to broaden their knowledge in outdoor concepts. A couple of articles in each issue dealing with teaching techniques, curriculum or

teaching units, that could be used by outdoor teachers and classroom teachers who want to use the outdoors as a teaching medium, would be welcomed.

A balance of practical and theoretical items would make *Pathways* a sought-after resource.

Jerry Jordison
Temagami

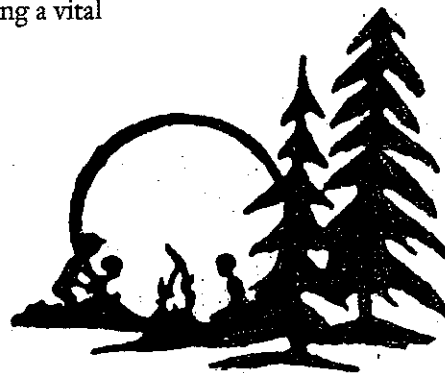
Dear Editor;

I want to congratulate you and the Pathways editorial board for the fine job done in putting together the December issue. The style and format are indeed a noteworthy improvement over past issues, and the mix of articles and other items was excellent. These changes should go a long way in gaining readership, satisfying the

membership, and establishing Pathways as a "class act" among professional journals.

I appreciate the good work that you and the board are doing, and wish you continued success in providing a vital service to the membership.

*Morris "Bud" Wiener
Oregon, Illinois*



Outlook

The Regional Executives are working diligently, to provide a variety of opportunities for COEO members. Be sure to take advantage of these opportunities during 1991.

As many of you may be aware, the Ministry of Education has embarked upon a plan of action in response to the provincial government's initiative to restructure and enhance the quality of education in Ontario. This new initiative will address both the economic potential of the province and the individual potential of residents. The Ministry of Education has begun a consultation process to facilitate discussion and collaborate opinions on a variety of education issues. Clarke Birchard (Past President) and Norm Frost (COEO's representative to the Ontario Teacher's Federation and member of the Forum) have been preparing COEO's response to the Ministry's consultation paper — The

Formative Years. One particular item which the Council will again be encouraging the Ministry to initiate is the development of a curriculum support document or resource guide dealing with outdoor and environmental education across the curriculum. The addendum to our response outlined the content and organization along with the rationale for our proposal. The Council appreciates the efforts of Clarke and Norm in developing COEO's position on this issue. Finally, the Council would like to thank Rob Heming for his interest and support of COEO during his tenure as the Government Liaison to the Board of Directors. His contributions to the Council were invaluable. We wish Rob the best of success in his new capacity within the Ministry of Tourism and Recreation.

*Kathy Reid
President*

- Jan. 5/91 — Dog Sledding at South River
- Jan. 11-13/91 — Traditional Winter Travel & Camping At the Frost Centre
- Feb. 1-3/91 — Make Peace With Winter Conference
- April 20/91 — Rock Climbing at South River
- May 3-5/91 — Spring Celebration at the Frost Centre
- May '91 — Eastern Region Spring Celebration
- Aug. '91 — Wetlands at Tiny Marsh
- Sept. '91 — 21st Annual Conference
- Oct. '92 — NAAE/COEO Joint Conference on Environmental Education

Elementary Earth Day Mural Programs

by Ralph Ingleton

In anticipation of "Earth Day 1990" two hundred and fifty elementary schools in Metro Toronto created murals centred around the theme "Endangered Spaces Create Endangered Species".

This pilot project was a co-operative effort organized by St. Joseph Printing Company, the Ontario Earth Day Committee, the World Wildlife Fund and representatives from nine Boards of Education around Toronto.

Through the program, teachers were given materials to produce the murals with their classes along with guide books from the "World Wildlife Fund. Susan Menzies, a renowned Canadian artist, gave a signed print of "Ocean Feast" featuring the sea otter, to each participating school.

Toronto advertising agencies produced murals to act as inspiration to the teachers and to offer an opportunity for their creative talents to express their hopes and concerns for the environment.

Over twelve hundred classes were involved in creating murals. Many of these were displayed in municipal offices, the Ontario Legislature, libraries, hospitals malls and at Weal and Cullen Garden centres.

This year organizers have received a ten year commitment of support from Canadian Printing Industries Association. The goal is to have students from across Canada become artistically involved in issues facing the environment. This year twelve Board of Education from the greater Toronto region will be involved. It is expected that more than 8000 classes will produce murals. The 1991 theme, "Saving Canada's Endangered Spaces", is part of the World Wildlife Fund initiative to save 350 endangered species in Canada. The artistic program will help teachers and students become more aware of the needs of the environment and what people must do to protect it.

If you would like more information regarding this program please write:

Ralph Ingleton
Forest Valley Outdoor Education
Centre
60 Blue Forest Drive
North York, Ont.
M3H 4W5
Phone No. 630-6263

SPRING MIGRATION III



WESTERN REGION

Explore Point Pelee, Kopegaron Woods, Tremblay Beach, Comber Lagoons and many other birding hot spots during this peak bird migration weekend in the deep south of Ontario.

Peter Middleton of the Bruce County Board of Education will be our expert birding guide.

Accommodation is group camping at Holiday Beach Conservation Area or "indoor camping" at a local school if desired or dictated by weather. Motel accommodation is possible for the non-camper. Call Registrar for more information.

A birding bonanza held in the Point Pelee region of Ontario

Sponsored by the Western Region of the Council of Outdoor Educators of Ontario

Date: **Friday, May 10th to Sunday, May 12, 1991**

Location: Holiday Beach Conservation Area and Malden School, Amherstburg, Ontario

Fees: \$40 — COEO members
\$50 — non-member
\$75 — regular membership & member fee
\$60 — student membership & member fee
Make cheques payable to COEO Western Region

Fee Includes:

- Campsite for Friday and Saturday
- All Saturday meals and Sunday breakfast
- Entry fees to Point Pelee National Park
- Bus transportation
- Expert Guide
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Registration Deadline: Monday, March 19, 1991

Registration Limit: 35 individuals — REGISTER EARLY!

Registrar: Ian Eastmure, 21 Carleton Place, Elora, ON N0B 1S0 (519) 846-8196 (home)

Cancellation Policy: If you call Registrar 48 hrs. in advance, your money will be refunded except \$5.00 for administration costs. If you do not call, no refund can be offered due to food and transportation plans.

Registration Form

SPRING MIGRATION III

Please fill out a separate registration form for each participant. No postdate cheques please. Please enclose your cheque and mail to: Ian Eastmure, Spring Migration III, 21 Carleton Place, Elora, ON N0B 1S0. Tel. (519) 846-8196 (home). You will receive a confirmation package with itinerary in late March or early April.

NAME _____ Membership No. _____

ADDRESS (hm) _____
(number and street or R.R.#)

_____ (city) _____ (postal code)

TELEPHONE (hm) _____ (wk) _____

ACCOMMODATION: (please check one)
 I will be outdoor camping
 I will be indoor camping
 Other

AMOUNT ENCLOSED:
 \$40.00 COEO Member
 Other _____

The Environmental Novel: Exploring the Possibilities

by Dennis Hitchmough and Bob Henderson

The novel acts as the "myth base" on which to build the classroom society.

As a teacher, you know when a lesson has worked well. The students were active and interested, nothing happened that you were unprepared for, the time seemed to fly past and you accomplished all that you set out to do. Unfortunately, these lessons do not occur as often as we would like. For one reason or another, the students are not able to become fully involved and we leave the class feeling we just missed the mark. Perhaps one reason we regularly fail to engage our students is that we do not capture the students emotions and imagination. We fall short of stimulating personal meaning and identification with the subject.

Many teachers have had more consistent success in motivating their students by incorporating integrated units into their curriculum. Integrative studies demands opening all the doors, a getting beyond the facts to a more real, richer complexity of relationships. Such a study becomes meta-disciplinary and garners speculative, challenging and values searching qualities of thinking. The teacher, in fact, welcomes the student to the real world. As Michael Ondaatje writes in *Coming Through Slaughter* (not a statement on institutional education per se), an integrated study unit ideally ends "as an open door you can't see too far out of. It can mean exactly the opposite of what you are thinking." For example, if you go out the door with one mind-set, it is more than likely you will return with a different one. This technique is strongly motivational because, while it offers "something for everyone", it is fundamentally more "real" to the students than separate isolated lessons.

One major component of an integrated study on any topic, is the novel. It connects a unit by creating an atmosphere that is common to all the students. Within this atmosphere, the students are free to bounce ideas off each other. They can explore their personal impulses and day dreams. They are free to expand the possibilities of imagining other futures. The novel fosters the emotional and imaginative responses necessary for a "good" lesson and gives a common frame of reference when discussing values. Joseph Campbell, an expert on myths and legends, once told interviewer Bill Moyers that myths give a culture a common base on which to build their society. (Moyers, 1988). The *novel* acts as the "myth-base" on which to build the classroom society.

With our increased concern for the environment, many teachers are now adding an environmental unit to their list of integrated studies. The selection of the novels for these units must be carefully done or we run the risk of fragmenting the class and, therefore, our classroom society. There are a wide range of responses to the environment portrayed in literature.

Most people concerned for the environment see environmental education as a subject matter that must be transferred to the student. To really have an effect on the environmental problems that we face today, we must shift our attention from the objects of the environment like specific habitats and attitudes, to the interactions between people and the environment. (Gough 1987)

Because of this, the viewpoint of a given author and, therefore, the protagonist, is paramount in the selection of environmental literature. Properly used, novels build a special "state of being . . . that sustains the widest possible identification of oneself with one's environment." (Devall 1985)

An environmental novel is one that deals, in some way, with the natural world. It might be an expedition journal, a science fiction epic, or a historical, romantic novel. The actual story itself is not as important as the view that it creates of man and his interactions with the natural world. Although often only realized on a subconscious level, this view develops the atmosphere within which the class will discuss environmental concerns.

Environmental novels can be loosely divided into three categories; Mankind against the environment; Mankind for the environment; Mankind with the environment. Another way of saying this could be, novels concerning nature as austere, nature as neutral and, most intriguingly, nature as both austere and benign. The boundaries between these books are not always clearly defined because the novels tend to cover only one category at a time. Few books are capable of dealing with all three areas at once. Although each of the three categories is useful in creating an atmosphere, each will have a different effect on the classroom society. Teachers must have a clearly defined objective for their integrated environmental unit before they make a choice of novels. A critical analysis of the novels effect on the students personal opinions must also be developed.

Mankind Against the Environment

These novels are characterized by the struggle for survival. The characters are often stranded in the wilderness, with few supplies and must overcome a variety of disasters that are always life threatening. Adventure books are wonderful for motivating students. Students enjoy imagining themselves in the same situation and trying to solve the problems encountered by the main characters. Modern television imitates this category with shows like "MacGyver and Quantum Leap". Margaret Atwood describes this genre in *Survival*; "our stories are likely to be tales not of those who made it but of those who made it back, from the awful experience - the north."

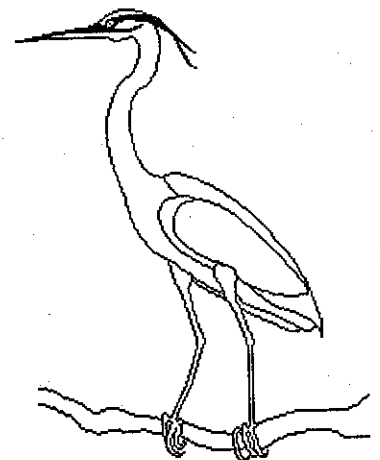
Although a lot of great literature is adventure in nature and it often deals with the outdoors, the main focus is not environmental. They perpetuate the idea that it is a human centered world. There can be little adaptation "to" nature. Rather nature is to be feared and overcome. Any environmental activity must benefit man. Nature is just a commodity, loathed though it may be. The values generated by these books are often of the "I need to save the trees because I need paper" variety. The quality of this type of novel's response to the multi-faceted aspect of nature, is perhaps limited.

Examples of this category are the wonderful books "Lost in the Barrens" by Farley Mowat and "Hatchet" by Gary Paulson.

Mankind For the Environment

This category is often characterized by the local misfit, gang or weirdo trying to find the answer to an environmental problem. Against all the odds, evil factory owners, corrupt politicians and greedy

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Although a lot of great literature is adventure in nature and it often deals with the outdoors, the main focus is not environmental.

townsfolk, our heroes will save the day. It is often young people against the system.

These novels are very motivating and help develop a positive attitude toward solving some very depressing problems. Unfortunately, it again leaves the students feeling that they are on the edge of the environment looking in. Human activities are too easily separated from nature's activities. Nature, as with the "Mankind Against" variety, remains an abstraction. But now nature is the victim to be saved. Nature is a neutral witness to a humanity that has forgotten its essential roots; its derivation from nature.

Examples of this type are "When the Stars Begin to Fall" by James Collier, "Jacob's Little Ladder" by Barbara Smucker, "Zodiac" by Neal Stephenson and even "Star Trek, the Next Generation: Power Hungry" by Howard Weinstein.

Mankind With the Environment

This group of books is both the hardest to find and the most difficult to read. One would suspect this group is also the most difficult to write. Students must be in the right frame of mind when they begin reading these books or we run the risk of having them not finish. Mankind with the environment books are characterized by strongly emotional prose. We are often asked to view some aspect of nature in a new way. We are asked to think in a poetics that is culturally unfamiliar, but somehow intriguing and prime. Similar to the romantic writers in theme, these books may have elements of adventure and problem-solving but are much more descriptive than the other categories. They are much more complex in terms of relationships as well. Students who read these books are left with

a wonder for nature and a feeling that they are part of this great and wonderful world. They come to realize that nature influences them in a multitude of alluring ways. Examples of this type are "The Island" by Gary Paulson, "Halfway Man" by Wayland Drew and "Always Coming Home" by Ursula LeGuin.

Each of the above categories have real value in the classroom. The teacher, however, must develop an understanding of the responses each category will elicit in a student before they include them in their integrated environmental units.

Annotated Bibliography

The following books, unless indicated, are intended for the Junior-Intermediate level but would have some application for older students as well.

Mankind Against the Environment

- Bell, W. *Crabbe*. General Paperbacks, Toronto, 1986 ISBN 0-7736-7232-x

Franklin Crabbe is a smart, rich, alcoholic 18 year old who does not like his own lifestyle. His parents are often too busy to talk to him and he spends a great deal of time remembering the few real talks or trips they have had as a family. One such trip was to the wood with his father. His fantasies become real when he escapes to the woods to "return to a simpler time". Unfortunately, he has no survival skills at all. After several near disasters, he befriends Mary, a wood-wise girl who teaches him how to relate to the world around him. This book has all the drama necessary for a good adventure book.

- Paulson, Gary. *Hatchet*. Puffin Books, New York, 1987. ISBN 0-14-032724-x

Brian Robinson is angry at his parents recent divorce. He spends the school year with his mother and the summers with his father in the oil fields of Alberta. Just before leaving on a small plane for his fathers home, Brian is given a hatchet by his mother. The next step is quite predictable; the plane crashes, hundreds of miles from its flight path and the pilot is killed. Brian must learn to live in the woods with little but the hatchet. Brian senses that to survive, he must live in harmony with the land. Paulson has an interesting writing style that lends itself well to this type of novel. Unfortunately, the book never moves too far from the man against the environment theme before it ends. This would be a great book to start the movement to category three; mankind with the environment.

- Patterson, R. M. *The Dangerous River*. George Allen & Unwin Ltd., London, 1967. ISBN 0-88826-041-5

(A new edition has just been released. A great book to start the movement to category three) Adult

- Mowat, Farley. *Lost in the Barrens*. Little, Brown & Co., Toronto, 1956

Mankind for the Environment

- Smucker, Barbara. *Jacob's Little Giant*. Penguin Books, Markham, Ontario, 1987. ISBN 0-14-032326-0

Jacob is the youngest member of a large farm family. He always seems to be in the way and, because of his age and size, cannot give much help to run the farm. When the Ministry of Natural Resources

approaches his father to help raise Giant Canada Geese on the farm pond, Jacob has found his niche. He proceeds to feed the goslings, chase away dogs and scare hunters off. His greatest concern, however, is for the smallest gosling. His own small stature and the fact that they often destroy "runts" on a farm, causes Jacob a lot of worry over the summer. This book is for the environment and traces Jacobs climb to respectability in his own eyes by watching Giant Canada Geese mature.

- Collier, James L. *When the Stars Begin to Fall*. Dell Publishing, New York, 1986. ISBN 0-440-20411-9

In a small town in the United States, being called trash means there are never any opportunities. Harry White is a bright, concerned student who has always taken care of himself and his sister. Both their parents are out of work and money is scarce. As Harry grows up he realizes that the local river is heavily polluted by the carpet factory. As part of a school project, he tries to gather information about the law and how the river can be cleaned up. Unfortunately, he discovers an ugly truth. The community knows that the carpet factory is creating the problem but jobs and money are more important to them than health. This book traces the steps needed to identify and prove that industry has an obligation to the community and natural world. Students reading this book will identify with Harry and his "rebellious" nature and they will marvel at his perseverance against all the odds.

- Weinstein, Howard. *StarTrek: The Next Generation, Power Hungry*. Pocket Books Publications, New York, 1989. ISBN 0-671-67714-4

...the reader is to find a different context for understanding relationships





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COEO's 21st
ANNUAL CONFERENCE!

THEME: The Great Outdoors: It's Closer Than You Think!
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WHERE: Canterbury Hills in the beautiful Dundas Valley, Ancaster, Ontario

WHEN: Thursday September 26th - Sunday September 29th, 1991

INFORMATION: COEO '91 Conference
Camp Canterbury Hills
Box 7068 Ancaster, Ontario, L9G 3L3

- Smucker, Barbara. *White Mist*. Penguin Books, Markham, Ontario, 1985. ISBN 0-14-032144-6
- Speare, Elizabeth George. *The Sign of the Beaver*. Dell Publishing, New York, 1983. ISBN 0-440-47900-2
- Lunn, Janet. *Shadow in Hawthorn Bay*. Penguin Books, Markham Ontario, 1986. ISBN 0-14-032436-4
- Tobias, Michael. *Voice of the Planet*. Bantam Books, Toronto, 1990. ISBN 0-553-28367-7 Secondary/Adult
- Stephenson, Neal. *Zodiac: An Eco-thriller*. Atlanta Monthly Press, New York, 1988 Secondary/Adult
- Kelly, M.T. *A Dream Like Mine*. Stoddart, Toronto, 1987. ISBN 0-7737-2161-4 Adult

Mankind With the Environment

- Paulson, Gary. *The Island*. Dell Publishing, New York, 1988. ISBN 0-440-20632-4

For all of his fifteen years, Wil Neuton has lived in the city. On a sudden impulse, his father accepts a job working on the high-

way near Pinewood. The move leaves Wil in the centre of a woodland with none of the old familiar corner stores, Malls and gang hang-outs. Actually, the only thing he can still do is ride his bike. On one of his early morning rides he finds an old bait boat and rows to an island. Paulson describes the changes that take place in Wil as he explores his new home and how he begins to see things differently. Wil's whole world begins to focus on his trips to the island until one day he decides not to return home. The book is a wealth of experiences viewed through Wil's senses. Writing, painting and drama are all portrayed. As the book progresses, Wil must begin to wean himself back into reality and take part in the world again; if only for the love of Susan, one of the few who understand him. This book will leave students with a wonder and an interest to "see with new eyes".

- LeGuin, Ursula. *Always Coming Home*. Harper and Row, New York, 1985. ISBN 0-553-26280-7 Secondary/Adult

This book is set 2600 years in the future in a small valley in California. The book is not a real novel but a series of accounts describing the life of the *Kesh*. It includes stories,

histories, poetry, songs, plays, ceremonies, medical practices, recipes, and so on. This develops an "archaeology of the future" and places the reader in the role of comparing their lifestyle with that of the Kesh. When Fairweather, the main character, begins to learn about orchard trees he "learns *with* the trees and his uncle, not as a transfer of knowledge from someone to another but as a relationship with the uncle and the trees". Not an easy book to read, it develops a rich world of what the future might hold if we learn to live *with the environment*.

- Hayden Taylor, Drew. *Toronto at Dreamer's Rock*. Fifth House Publishers, Saskatoon, 1990.

This play is set in the present. A Manatoulin Ojibway teen climbs Dreamer Rock to drown his sorrows with a six-pack of beer. He is met by Keesic, a teen from the 1400's and Michael, another teen, this time from the year 2050. They have quite a chat about the inspiration of nature, empowerment of peoples and the nature of their peoples traditional rite of passage; a vision quest to Dreamer's Rock overlooking the North Shore of Lake Huron.

- Grey Owl, *Sajo and The Beaver People* 1936
- Drew, Wayland. *Halfway Man*. Oberon Press, 1989 ISBN 0-88750-7417SC
- Duncan, David James *The River Why*. Bantam Books, 1984. Adult

Summary

The category of books concerning "Mankind with Environment" creates confusion and disorientation for readers. Out of this disorientation, the reader is to find a different context for understanding relationships. One is meant to be pushed out

of the present to explore options *within* the body of ideas characterized by their particular political, social and economic situation. That is of course, if we view culture as emergent and adaptable. The notion of a fundamental change or paradigm shift, is often an underlying theme to this "with" environmental category. Here the student is able to explore an ecological and emancipatory way of living.

Further Reading

The following articles and books are offered as support for the idea of a paradigm shift for our educational efforts.

- Devall, B. & G. Sessions *Deep Ecology: Living as If Nature Mattered*, Gibbs and Smith, Santa Fe, 1985.
- Gough, N. *Learning with Environments: Towards an ecological paradigm for education*. In *Environmental Education: Practice and Possibility* edited by Ian Robottom, Deakin University Press, 1987, ISBN 0-7300-0543-7
- Moyers, B. *The Power of Myth*, Doubleday, Toronto, 1988, ISBN 0-385-24773-7
- Rowe, Stan. *Home Place: Essays on Ecology*, Newest, Edmonton, 1990.
- Storm, H. *Seven Arrows*, Harper and Row, 1972



Dennis Hitchmough is a Grade 8 Team Leader and Chairman of the Pathways Editorial Board.

Bob Henderson is Professor of Outdoor Education at McMaster University, Hamilton.

Both Dennis Hitchmough and Bob Henderson are concerned with how values and attitudes affect environmental behaviour.

Kids and the Environment: Making a Difference For Their Own Future

Compiled by Bob Henderson

Ever present in our minds, the environmental challenges facing us are being fought increasingly by students. Like many of us, Bob Henderson has met many such students. In a short period of time, he found himself with a wide variety of material from students in the Hamilton and St. Catherine school systems. As you read their words, it becomes clear that they are our future . . . and we are theirs.

— The Editor

We may have heard it all before in many formats: use recycled paper, carry a mug, shop wisely, etc., BUT (and this is a big BUT), we are now hearing it from students in articulate and impassioned ways. The "educate the educator" idea holds credence now and one might easily suspect may emerge into a strong force. dare we suggest . . . a movement. Let's hope so.

— Bob Henderson

St. Catherines students join the Environmental Youth Alliance Conference in Ottawa

By Cheryl Paterson

Since Jeff Gibbs founded the Environmental Youth Alliance in Vancouver, he has become a role model for students across the country. The students of Burleigh Hill School in St. Catherines have been members of the E.Y.A. for over a year. This fall we went to hear Jeff speak in Hamilton where he encouraged us to attend the national E.Y.A. conference in Ottawa, held on November 2, 3, and 4. With the financial support of the Parents Teachers Association, who share our concern about the environment, we were able to cover the conference cost of \$25.00 per participant plus travelling expenses. We were also able to stay with a friend of mine in Ottawa which kept our costs down.

We held a short essay contest in order to select students from grade 6 to 8 who were interested in attending the conference. The essays included why they wanted to attend and what they hoped to bring back to our Environmental Club at school when they returned home. Six students were selected, and with the van packed with our own food, we headed north.

The conference proved to be an educational and enriching experience for both the students and myself. The message that I kept hearing from the keynote speakers as well as the students involved was that we must, "Educate Our Educators". In this way, the theme of the conference, "In Our Hands" took on a powerful relevance through the active involvement and commitment of the students themselves. My students, although younger than most of the E.Y.A. participants, share the same sense of commitment as the following summary demonstrates.

Cheryl Paterson is a third-year teacher. It is her second year with Burleigh Hill School. She attended Dalhousie and the University of British Columbia and is currently in a M.Ed. program at Brock University.

The Environment Means a Lot

Our trip to Ottawa was educational and I guess you could say fun, awesome! I learned that every little thing you do for the environment means a lot to the world. Like we went to the candlelight vigil, it was fun. We sang songs and held up big signs like "Teach Our Parents Well", "Make Trees not Firewood", and "We March Together For the Environment".

We danced to music by Raffi. Also Mutang, a man from the Penan tribe in Borneo, got up and danced, he was good I guess. The next day, we went to David Suzuki's speech. It was excellent. He said something I will always remember. He said if you "spit on Mother Earth, you spit on yourself" because you are Mother Earth's future and hope. After that, we went inside to have dinner but there wasn't much left to eat. Then David Suzuki walked by. Danny shook his hand and said "Hi, Mr. David Suzuki." I walked by and said, "Hey, Dave" and shook his hand. Don't ask me why.

The last day we went to a dinner get-together at a church. That's when we met Holly Arntzen. She is a singer. She is good. I got her autograph. She wrote, "I hope deep in my heart it doesn't have to be this way" which made me feel how much this earth really is in danger. And I hope I can come to Ottawa again, and protest in front of the Parliament Buildings.

— Lesya Malesyk, Grade 6

Issues to Rap About

This is a rap which a group of grade 8 students made up. The eight members in the group all go to Burleigh Hill School. They have been asked to do the rap at a few schools and been videotaped at a local high school studio.

Recycle Rap

Kids in schools, give us a hand
Help recycle and save our land

Some kids might not think it's rad
Of course it is the latest fad.

The environment is important to us
That's why we are making such a fuss.

C'mon you now, we're not just kidding
The ozone layer is slowly thinning

So remember your white and blue box

The one you put on your sidewalk
Take care and save our air
'Cause some day it won't be there

When the earth is gone so are we
Reduce, reuse it like 1, 2, 3.

Mr. Blue is waiting for you
With your cans and paper and bottles too

The world would be a better place
If you would just get up and face
That recycling is the only way to make
tomorrow a better day.

1, 2, 3... RECYCLE

The following rap was first performed with boom box back-up in a university course as part of an outdoor education creative project. Rob Mitchell and Ron Andrews both performed this rap and made a demo tape with access to recording equipment. Both Rob and Ron are now teaching in Ontario. Thanks to Myra Stephen, then a classmate of Rob and Ron, who has kept this rap alive through his active role at Bark Lake and COEO conferences talent shows.

We're the Eco-Rappers

I'm Rob, I'm Ron and we're here to say
There's a problem going on in the world today
People running around, abusing the earth
You wouldn't kill the woman that gave you birth

A man's just a man, part of God's creation
But his only concern is the state of the nation
Wondering what his stocks will do
While the northern green turns Windex blue

Chorus: Make love; bear children; no war
Think deep deep deep ecology

Man's riging along up a oneway street
Technology in the driver's seat
One thing on his mind, that's a way to find
Ways to improve the assembly line

Well, there's nuclear power, in the ivory tower
Driving the computers hour by hour
People working hard to bear the rising inflation





Intelligence confused with education

Chorus

22 years for a formal education
Practicing the art of regurgitation
Never taking time to know my neighbour
Only doing things that are in my favour

Children sitting down learning fact after fact
Never taking time to interact
No wonder the earth's in the shape it's in
And the ozone layer is so damn thin

Chorus

I'm glad to know where I can find
A place to go to find peace of mind
Caught up with the rats trying to be the best
Gotta think about things in the wilderness

I think back to the loon and its haunting cry
It's sad to think that his home has died
We're making big bucks in the industrial scene
But what right do we have to kill the green

Chorus

Well, I've been taught that you've got to have money
If you're gonna get along in this land of milk and honey
But it's what you can't buy that will make you cry
When you realize your likfe is one big lie

Don't wanna be another negative Joe
Anthropocentrism has to go
When you think about the earth then use your heart
And when you believe in something then do your part

Chorus

High Schools with High Ideals: The Environmental Movement in Secondary School

Teacher Kelly Grafton and a number of enthusiastic students started an environmental club at Sir John A. Macdonald High School in down-

town Hamilton in September 1990. Here is their first newsletter.

The students, as part of their activities, organized an evening for presenter Jeff Gibbs of the Vancouver-based Environmental Youth Alliance. The evening gathered students from grades five to university. Many parents also attended.

Environmental Club Newsletter #1

Let Us Introduce Ourselves

Why the club?

- We're concerned about the state of the environment AND want to do something about it.

What do we do?

- Study and discuss environmental issues
- Collect up-to-date information about the issues
- Plan and work on activities and projects

Goals?

- Phase out of hazardous products from Macdonald's
- Macdonald's recycling program
- Increased awareness of environmental issues
- Network of school-based environmental groups
- Change unsafe habits — our own first
- City-wide student conference
- A safer, cleaner environment for all

Future Plans:

- New displays — check the display case on the first floor
- More blue boxes — get your class involved
- Student awareness announcements
- Community clean-up day
- Macdonald's Ecology Park; compost display
- Video about Macdonald's efforts to help the environment

- Student conference
 - Lunch hour movies about our environment
 - Bake sales
 - Letter-writing campaign
- and much more . . . your ideas and help will be welcome.

Something to think about: Chief Seattle of the Dwamish Nation warned: "Whatever befalls the earth befalls the sons of the Earth. Man did not weave the web of life; he is merely a strand in it. Whatever he does to the web, he does to himself." We are friends of the earth.

The following is a school bulletin from the Environmental Club of Parkside High School in Dundas, Ontario. Its author, Chris Henschel, is one of the student organizers of the . . . "Because We Love Our Planet" Conference taking place at McMaster University on April 30 (see Tracking).

Environment News — People Have Power

By Chris Henschel

We can make a difference — but we need you.

I was asked to write a positive, upbeat article about the environment, and Parkside's involvement in environmental concerns. It's hard to do. The problems we are faced with are so overwhelming: ozone depletion, run-away waste production, over-population, pollution of our air and waters, global warming, global deforestation and acid rain. These are the man-made products which threaten the very co-existence of animal and human life here on Earth. There is a great urgency to correct our ways, but the sad truth is that not many

of us are actually taking any steps toward that end. It's amazing how many people truly don't seem to care.

Good News

The good news is that there are a few who do care and who are trying to make a difference. At Parkside, these efforts can be seen in the successes and campaigns of the Environment Club. Our goal is a lofty one: to save the planet. Impossible for such a small group? Perhaps. But we do have the power to make a difference, and that difference combined with all the other small differences made by similar groups all around the world will add up to a big difference.

You Can Help

If you are a concerned individual who would like to help us in our struggle for survival, you are always welcome; we can never have too many people or new ideas. Our focus is both on local and global concerns. We want more waste-management, and the cleansing and safe-guarding of our atmosphere, air and water. Currently, we are working on reducing the use of styrofoam cups in the cafeteria by selling light-weight portable mugs made of 100% recycled plastic.

In the near future, we'll have several more campaigns. We'll be protesting the use of chlorine-bleached paper and introducing a fine paper recycling program into the school. We'll also be pressuring the polluters of Hamilton Harbour.

I hope that this article has been informative and enlightening (if not positive and upbeat). The ideas I've presented entail a degree of sacrifice for all of us, but without it, there can be no gain. It's important that you have a happy holiday, but it is more important that you don't forget yourself -- think of your survival. You have power.



Field Trips and How to Get the Most Out of Them

By David Hawke

...there are some real problems aligning the attitudes of students, teachers, principals and site staff.



Everybody likes field trips. The kids like them because it's a day off school, the teachers like them because they don't have to do anything, the site staff like them because of increased gate revenues. Oh, what's that, you say, field trips aren't like that?

So, I'm being a bit sarcastic. But there are some real problems aligning the attitudes of students, teachers, principals and site staff. In twelve years of doing natural history interpretation, I've found that there are four basic types of classes.

Type One are the teachers who call and/or visit the site ahead of time to discuss program details. The students work on projects relating to themes of the site, and come with a prepared quiz or question sheets.

Type Two are the classes which have been briefed that they will be going on a field trip, and that they will probably learn something new and exciting. The teacher has promised them that they will be going dip-netting, completing a discovery hike, playing the Predator Game and will have time to buy special souvenirs.

Type Three have been told by the principal that they will be going to a field centre, so they had better get ready. The school secretary makes the reservation. The class has no idea why they are there, where they are or what to expect.

Type Four are the bus-fillers. Mrs. Brown's class of 34 Grade 5 students has reserved a day at a field centre to complement her in-class teachings. Then Mr. Green's Special Education class of 15 students in Grades 4 through 8 is either

added by the principal, or begs to tag along to "fill the bus".

Type One is rare. The other three are an even split on common.

Please, to make the most of your day in the field, to give the students a fair chance at grasping ecological concepts, to reward yourself with pride in your class' responses, and to allow the site staff to perform at their best, take the time to properly research and prepare for the trip!

Here are a few simple, easy, well laid-out steps to follow to create a field trip of lasting importance:

1. Talk to the site staff prior to the visit (not at the front door while the bus unloads). Determine the day's schedule, what topics will be discussed, what time frames must be dealt with, and any special needs that must be dealt with (e.g. wheelchairs, hearing impaired).

2. While not always possible, try to visit the site sometime before your visit. Meet the staff who will be assisting your class. Make notes from the displays. If a visit is impossible, ask for literature about the program and the specifics that it will cover.

3. Introduce the topics to the students prior to the visit (not while en route). Let them research a related topic, or request that they keep notes while on site. Remember, many site staff are resource people, not professional teachers; not everyone is capable of introducing a new topic. Use resource people to back up and enhance the basics that you have already taught.

4. Be honest about class size. Many sites have maximum numbers that can be handled, and those maximums are there for a reason: number of chairs in the theatre, number of available staff, size of site, and so on. If 55 is the maximum, then 55 is what the limit is, including teachers, teacher's aides, parents, bus driver and students. Don't push the limit, the value of the outing decreases with each extra body.

5. Enforce discipline. If students haven't earned the privilege of an outing, then leave them behind. It can be done, it has been done, and the rest of the class benefits because of it. If behaviour problems occur on site, do something about it — the site staff are busy trying to educate those who want to be there. Don't use the bluff "do that again and you'll sit on the bus", unless you mean to escort said violator back to the bus and accompany him or her for the duration.

6. Bring enough teachers. Most sites will require that the group split into two or more sub-groups. Find out before arriving how many sub-groups will be required. Pre-divide the students before entering the site. Keep in mind that EACH sub-group MUST have a designated school official with them. Parent-helpers, and especially student-helpers, are not legal. Check with your board as to proper procedure, but you are legally responsible for all students, even those who are in another sub-group.

7. Lunchtime is the wild card in the deck. If one hour is allotted for lunch, then be prepared to conduct a half-hour activity. If thirty minutes is the limit for lunch break, don't bring hot dogs to barbecue for 48 students. Speaking of barbecues, keep in mind that it takes about an hour for the coals to reach cooking temperatures. Have

a parent-helper start the fire at 11:00 am.

Avoid sugar-laced soft drinks, chocolate bars and sugar cookies with lunch. It's a very nice gesture to provide lunch, or part of lunch, for your class, but do so sensibly. The afternoon sessions usually fall apart because the kids are on a "sugar high".

8. Try to meet with the parent-helpers to inform them that rules for smoking, language and behaviour apply to them too. Let them know their role for the day, that they are part of the team, not just tag-along hand-holders.

9. If you are apprehensive about snakes, spiders, bears, rain, poison ivy, ticks, rabies, wolves, alligators, bog creatures and swamp gas, then you are a typical visitor to an outdoor education site. . . but do not let your irrational emotions become evident to the students. Let the site staff cover the information and let the students discover for themselves that nature is wonderful, complex and, at times, needs respect. Staff will not lead you through groves of poison ivy just to test your powers of observation (but sometimes we're tempted).

In summary, you and the site staff should be familiar with each other before the field trip. A checklist that is shared between you should include: date of visit; time of arrival and departure; grade level(s); special needs; group size; program choice; contact people; and telephone number and mailing address.

As a teacher, you know that life is a hectic pace, but realize that without some structure to your field trip, the day runs the risk of being wasted. It is a day when the students are still students, teachers are still teachers, but a magic catalyst is there, in the form of the resource person, to make it a special and worthwhile trip, for all involved.



A previous contributor to Pathways, David Hawke has worked at both Wye Marsh and Tiny Marsh.

Current Perspective of Outdoor Education and Environmental Education

by Ralph Ingleton

...we now are faced with the knowledge that everything is connected to everything else.



The differences between Outdoor Education and Environmental Education stem from their roots in the early 1930's. The depression years created social and environmental catastrophes. The degradation of soils by improper farming practices and the lowering of the water table forced thousands into towns and cities. The social havoc created by overcrowding and poor living conditions became a blight on North American life. The deterioration of the land was particularly unacceptable because people needed food and water.

Outdoor education has its foundations in the recognition that youth living in crowded and unhealthy conditions need fresh air, good food and a feel for the land. Hence youth camps became a reality across North America.

Environmental education grew out of the soil and water conservation societies that were formed to help bring life back to the land. In Ontario for instance, millions of pine seedlings were planted in the unstable soils of the sand ridge which stretches from Lake Huron in the west to Kingston and Ottawa in the east. The work was done by the unemployed and by school children.

While outdoor education aimed at improving the life of youth, the conservation movement sought to improve the quality of the land. The differences between the two movements still remain except that our view of the world is now much different than views of the 1930's. Our provincial and national concerns relative to people and the land are diminished by the recognition that planetary

degradation is creating havoc with all forms of life. Where outdoor education in the past focussed on the health and character of our youth, and environmental education the improvement of the land, we now are faced with the knowledge that everything is connected to everything else. This is an inescapable principle which provides impetus to examine the way we live, work, learn and worship.

Outdoor Education or Environmental Education — What's the difference?

Before exploring other differences between outdoor education and environmental education let us try to get a perspective of where we are and where we are going in education.

Present Imperatives

The physical health and the mental well being of all living things on this earth depend on the quality of the relationships each enjoys. Our space program has taught us that by looking outward we must look inward. The space program triggered the knowledge that our planet is becoming a less than healthy place for living things. We now know that connections between air, water, soil and life forms are becoming fragile.

In this context, education takes on new meaning.

People from all disciplines are integrating their knowledge and skills because they value the "life space" of our earth. The old barriers of the knowledge disciplines are breaking down as the struggle to

understand events and trends within the global system continues.

The concept of McLuhan's "global village" may no longer be appropriate as we recognize he was talking only in human terms, not as earth on which people share space with millions of living species. Yes, we are electronically connected by media and in that sense the "global village" is a reality. But still we will continue to have racial, linguistic, and ecological problems as long as we continue the notion that people must dominate and subjugate the earth's resources for themselves.

A New World View

Our world view must change in the face of the knowledge that present human behaviour is very destructive. The materialistic, nationalistic and aggressive influences of the past three hundred years have finally reached a natural conclusion. Past decades of development have polluted the planet and with it we've become more power-oriented and competitive. Our alienation from the earth and from each other is resulting in economic, political and environmental degradation. We are now in position to take stock, but our traditional values and cultural systems will be difficult to overcome in this process.

What is the role of education in the new world view?

1) Important Qualities

Education must begin to value qualities such as knowledge integration, holistic thinking, synthesis, empathy, co-operation, receptiveness, nurturing and emotion. Education must begin by examining its goals, the methods of teaching and learning, and how the behavior of people impacts the earth and its living inhabitants.

2) Symbiosis

Educational philosophy must change from knowledge of disciplines to the concept that everything is connected to everything else. School, work places and homes are not separate but part of a system that impacts the planet's ecology. People are not in charge of the earth but are partners in its growth.

3) The Bio-centric Curriculum

Education must demonstrate the understanding that we are part of nature and that all species have intrinsic value. The space in which living things grow must maintain a healthy balance of interconnections in order for survival to take place.

4) Environmental and Social Responsibility

Being "environmentally friendly" is no longer good enough. We must be more serious in our relationship to our earth. Education must foster values that make people environmentally responsible with a respect for diversity in the earth's natural and social systems. It means thinking about one's space in relation to all the living and non-living elements that allow one to enjoy life.

5) Left Brain/Right Brain

Education must move away from its reliance on left brain thinking characterized by the disciplines of education and move the curriculum toward more right brain thinking. This curriculum would emphasize synthesis (seeing the whole rather than the parts), detecting meaning in patterns and relationships, personalizing knowledge and information, expressing empathy and drawing upon intuition.

6) Teaching and Learning Styles

Education must encourage a wider variety

Continued on page 22

Our alienation from the earth and from each other is resulting in economic, political and environmental degradation.

Focus on Forests

Introduction

History and Purpose

Focus on Forests is a forest and forest management education program for students from Kindergarten to Grade 12. Developed by the Ontario Ministry of Natural Resources and funded by the Canada-Ontario Forest Resource Development Agreement, Focus on Forests consists of two resource guides for teachers: one for the Primary/Junior division and one for the Intermediate/Senior division.

Focus on Forests is a vital component of the Provincial Forest Awareness Program, whose overall objective is to create a better understanding and appreciation for forests and forest management in Ontario. One way to achieve this objective and ensure a lifelong interest in the wise use of forest resources is through education initiatives. Focus on Forests fosters awareness of and sensitivity to forest resources among Ontario's youth.



Curriculum Connections

The Primary/Junior activity guide is based on an inter-disciplinary approach to learning, allowing forest studies to be easily integrated into existing curriculum. It is not meant to be a sequential unit, rather, each activity stands alone.

The activities also correlate to the Ontario Ministry of Education's Policy Statement for Science in the primary/Junior Division, *Science is Happening Here* (Toronto: Ministry of Education, Ontario, 1988).

The Intermediate/Senior resource manual has been designed to complement the Ontario Ministry of Education's Ontario Schools, Intermediate and Senior Divisions (Grades 7 - 12/OACs): Program and diploma Requirements.

Keeping in with current pedagogy, the discovery method is the learning style used in this resource. This student-centred approach emphasizes experimenting, problem-solving, decision-making, role-playing, and

the use of simulations and first-hand experiences.

Lead Relay

Objective

To give students an opportunity to identify trees according to leaf characteristics.

Activity Information

Grade Level: Primary/Junior
Subject: environmental science, physical education

Learning Opportunities: PL03, PL04, JL03, JL04
Skills: using senses, comparing, classifying, communicating (visual, movement, manipulation), evaluating/assessing, synthesizing/concluding, applying conclusions

Duration: 15 to 30 minutes
Group Size: class
Setting: indoors
Vocabulary: names of trees native to your area

Related Activities: Leaf Clue, p. 64, Leafy Games, p. 70

Materials

One set of four to six types of leaves for each team of four or five students, a shallow box or tray for each set of leaves, overhead projector and screen, sheet of acetate.

Activity

1. Collect several sets of common tree leaves. Be sure to include both deciduous leaves and evergreen leaves in your samples.
2. Divide the class into teams of four or five students. Line the teams up behind a starting line and place one set of leaves in a box or tray in front of each team. Make sure the leaves in each tray are the same for all the teams.

*Backpocket is a resource
column edited by
Dennis Hitchmough*

3. Put one leaf on an overhead projector so that it can be seen on the screen (a clean sheet of acetate on top of the leaf helps keep it flat) and call out the name of the tree from which the leaf comes. On the starting signal, have the first student of each team run to their leaf collection, find a matching leaf, and hold it up while calling out the name of the tree. The student should then replace the leaf and go to the end of the line.
4. Repeat with each of the players in line until every student has had at least one turn.
5. When students are able to match the leaf shapes and correctly identify the tree names, repeat the relay just calling out the name of the tree.

Have I Got a Deal For You

Objective

To give students an opportunity to understand that plants and animals have specific environmental requirements necessary for survival.

Activity Information

Grade Level: Junior
Subject: environmental science,
language arts, dramatic arts

Learning Opportunities: JL08, JL011
Skills: communicating (oral, visual, making representations), making plans, collecting and organizing information, recording, reporting

Duration: 1 to 2 hours
Group Size: individual, small group
Setting: indoors
Vocabulary: habitat, advertisement

Materials

Examples of a variety of ads (cut out from magazines and newspapers or on slides), poster paper, paints/crayons/markers, tape recorder, video camera and slide projector (optional)

Activity

1. Ask your students what makes an effective advertisement (e.g., catchy songs, slogans, colour, humour). Have them examine various advertisements and ask them what appeals to them personally (e.g., sports, humour, music).
2. Discuss the concept of animal habitat (food, water, shelter, space) and the environmental requirement of plants. Have your students make a list of the things that forests have to offer plants and animals, or have your students gather this information prior to the activity.
3. Ask your students to imagine they have been hired by a forest. The forest wants to attract plants and animals to live in it and needs the students' help to advertise. Individually or in small groups, have students create an advertisement directed at a particular plant or animal with the intent of attracting it to the "ideal" environment or habitat. Encourage students to create posters or commercials, using their drawing and creative writing skills, drama, music (taped or live), and dance.
4. Have each group present their commercial to the class. Hold a follow-up discussion and evaluate the effect of the commercials on others by asking questions such as: Do you know what plant/animal they are trying to attract? Does the advertisement have impact or humour? Evaluate each commercial to see if all the habitat requirements were met for the plant/animal chosen.

How to get Focus on Forests:

Anyone interested in participating in Focus on Forests can call their nearest Ministry of Natural Resources district office, and ask about attending a workshop. There is no registration fee for the workshop and free guides are in either French or English, but you must attend a workshop to obtain one. Payment for travel, meals and accommodation while attending the workshop is the responsibility of the participant.



We are all caught in a web of life that demands we pay attention to all strands if the planet is to survive.



of teaching and learning styles. Besides individual and co-operative group styles, teachers would employ experiential activities, outdoor education, simulations, role playing, action learning outside the classroom, guided fantasy, imagining, and creative dramatics. A democratic system of operating schools would give students a responsible role in the decision-making of school life. Freedom and spontaneity would be fostered in a framework of responsible behaviour.

7) *Processing Knowledge*

Education would view knowledge as a process rather than an end. Being knowledgeable is more beneficial than simply having knowledge. Personal participation and experience develops the knowledge process. Teachers who use a variety of methods to personalize knowledge allows the student to draw upon values, senses, intuition, imagination and their consciences. Knowledge becomes connected to one's own self not as a series of still pictures but as a continuous moving loop of film based on one's own reality.

8) *Learning — the life long process*

All aspects of society must develop the view that education is a process that never ends. We are all caught in a web of life that demands we pay attention to all strands if the planet is to survive.

9) *The Teacher*

Teachers must model the new world view in their own behaviour. The teacher will be a catalyst — a person that builds on the interests and knowledge of their students by democratic processes. The learning environment invites the student to participate, negotiate and evaluate experiences. Learning outcomes will be based on social and intellectual imperatives that honour the

needs of earth as well as society.

The Role of Outdoor Education in Education

The original goals of outdoor education and environmental education were different. Outdoor education developed around a "people" focus in contrast with environmental education which stressed protection of natural resources.

The difference in focus between outdoor education and environmental education have led to philosophical differences between natural resource institutions and outdoor educators. Natural resource institutions want people to understand how to manage and protect the land whereas outdoor educators want students to value the outdoors as a great place to learn, play and be healthy. The goals of outdoor education stress the development of human potential. The Ontario Camp Leadership Centre at Bark Lake models this view whereas the Frost Centre models for the most part the concept of managing natural resources.

Conservation based institutions tend to take a discipline approach to learning. The content for environmental education is drawn mainly from the various physical sciences and geography and applied to the environment.

Outdoor education is viewed as a method of learning in which all curricular areas can be related. The key difference here between outdoor education and environmental education is that environmental education takes place primarily in the classroom to achieve its goals, whereas in outdoor education the outdoors is the primary setting for learning. Peggy Miller in the *Ericss Newsletter* (vol.6 No.4 1971) states:

"The curriculum of outdoor education is never a constant; it becomes whatever specific

learning experiences in one or more subject matter areas are being provided in the outdoor setting at a particular time."

Miller goes on to illustrate that the impetus for environmental education came from outside the educational profession, through government agencies, professors, and politicians. Outdoor education came from within education and grew from the camping movement and adapted into the existing framework of school programs. Miller states that the movement is "characterized by the collaborative and co-operative involvement of teachers, administrators and professors of education who best know the learning needs and interests of children and youth." Outdoor education is centred more on the process of learning and less on the content of any one discipline.

If outdoor education is taken to its fullest, it provides the richest learning environment. Students are exposed to real places and real things, they process information they obtain through direct experience, they work co-operatively in pairs or small groups and move in an open, free and informal atmosphere. The method helps remove the content consumerism prevalent in many classrooms. Students are given more control over the learning process. The teacher sets up the topics, provides the focus and assists by guiding the students' thinking by offering clues, presenting models, reinforcing positive learning behaviours and asking direct questions. Understanding of important concepts can emerge for the learner through these intellectual processes and result in a personal experience not often duplicated in traditional classrooms.

The Role of Environmental Education

Basic concepts in environmental education deal with the quality of all life. They are as specific as caring for one's home or as

sophisticated as caring about global warming. Environmental education deals concretely with the problems of people and the environment.

In environmental education content is drawn from information provided by scientists, government agencies and organizations linked to the environmental movement. Teachers are expected to infuse the appropriate information into the curriculum framework provided by various subject disciplines. Creative teachers develop cross-curricular themes and make environmental education more dynamic. The expectation is that by making students knowledgeable about the state of the environment they will in turn construct a view of their world and respond by changing values, attitudes and behaviour. If students internalize information and accept it as part of their world view they can become active in issues that may affect the survival of the planet. This appears to be happening at a tremendous pace, particularly with younger children who know that if they are going to survive in the 21st Century, the way of the world must change. In environmental education the needs of people and the planet are now highly focussed.

In the September '89 issue of *Connect* (vol. XIV No.3 Sept. '89) the following excerpt gives some context for environmental education generally:

"Curricula are the core of education no less so of environmental education. It is not enough to tell pupils about ecology or make them aware of environmental concerns. An effective curriculum takes them beyond these levels to that of interacting with the environment themselves and assessing their impact. Further, it helps them develop investigative, evaluative, and action skills in the interdisciplinary, problem-solving, decision making process... Environmental education trains learners to become

Continued on page 27

Outdoor education came from within education and grew from the camping movement and adapted into the existing framework of school programs.



PROFESSIONAL DEVELOPMENT GRADUATE COURSES IN OUTDOOR EDUCATION

CIOE 590

COMPUTER APPLICATIONS IN OUTDOOR- ENVIRONMENTAL EDUCATION

INSTRUCTOR - Dr. BORA SIMMONS

Saturday & Sunday, March 23-24, 1991, 9:00 - 4:00
Saturday & Sunday, April 13-14, 9:00 - 4:00
Saturday & Sunday, May 4-5 9:00 - 4:00
Saturday & Sunday, June 1-2 9:00 - 4:00

Toronto area (location to be announced)
Fee: \$325.00

Bytes, ROM, RAM, interactive video, CPU ... Are you intrigued by the possibilities of working with computers? Whether you consider yourself computer illiterate or use computers regularly for work and recreation, "Computer Applications in Outdoor-Environmental Education" has something in it for you. This course is designed to provide teachers with hands-on experiences with computers and computer-assisted technologies. In this workshop, we will:

- critically evaluate existing software
- run computer simulations
- examine how computers can be integrated into outdoor-environmental education curricula
- design activities that allow students to analyze environmental data they have collected in the field
- see how your programme can be connected to other programmes across Canada or around the world through computer conferences
- critique the use of computers in an outdoor-environmental education setting

Through hands-on experience, field work, demonstrations, lectures and discussion, the participants in this course will become familiar with a variety of computer applications including: educational software, databases, spreadsheets, desk-top publishing, graphics, interactive videos, telecommunications, and environmental simulations. The course is designed to balance direct experience with computers with a critical examination of their utilization in an outdoor-environmental education setting. No previous experience with computers is needed.

CIOE 520

ENVIRONMENTAL QUALITY EDUCATION

INSTRUCTOR - Dr. ROBERT VOGL

Saturday & Sunday, March 23-24, 1991, 9:00 - 4:00
Saturday & Sunday, April 6-7, 9:00 - 4:00
Saturday & Sunday, April 20-21, 9:00 - 4:00
Saturday & Sunday, May 4-5 or 11-12, 9:00 - 4:00

Ottawa area (location to be announced)
Fee: \$325.00

WHAT MUST WE DO TO MAINTAIN A LIVABLE EARTH?

Have you thought about your responsibility to the global environment lately? Have your students thought about theirs? Maintaining a livable environment will be the major global concern of the 1990's. Global warming, acid rain, and holes in the ozone layer are forcing industrial nations to re-examine their environmental policies. Immediate action is needed to reduce these problems and to maintain research projects to clearly understand what we are doing to the global environment. Our lifestyles must change: we must become more responsible environmental managers. We have good options to lessen our impact on the environment. We will not have to freeze in the dark or sweat in the sun.

Course content:

- environmental education
- the nature of environmental problems
- environmental impacts
- historic preservation
- urban trees and landscaping
- energy
- transportation
- solid wastes and toxic wastes
- water and water pollution
- air and water pollution
- food production and consumption
- urbanization and urban diversity
- community assets / liabilities and amenities
- international aspects of environmental problems
- environmental action: individual and organizational
- environmental legislation and governmental responsibilities
- environment and economics

Enrolment Form

Northern Illinois University 

PROFESSIONAL DEVELOPMENT GRADUATE COURSES IN OUTDOOR EDUCATION



In order to receive graduate credit, students must have been accepted by the Graduate School as either graduate students or students-at-large. Plan to attend all sessions. Please be sure the weekend dates are open and that you have no conflicts before you register.

Please enroll me in:

COURSE CIOE 590: COMPUTER APPLICATIONS IN
OUTDOOR-ENVIRONMENTAL EDUCATION

OR

COURSE CIOE 520: ENVIRONMENTAL QUALITY EDUCATION

I enclose a deposit of \$50. (made out to 'COEO') to reserve a place.

NAME: _____

ADDRESS: _____

_____ POSTAL CODE: _____

TEL.: (H.) _____ (W.) _____

Please return to: Mark Whitcombe, 34 Blind Line, Orangeville, L9W 3A5
H. (519) 941-9966 Messages (416) 465-4631 (for Toronto course)

or to: Rod Ferguson, MacSkimming Science School, RR#2,
3625 Highway 17, Cumberland, Ontario, K0A 1S0
(613) 833-2080 (for Ottawa course)

"The Ministry of Colleges and Universities does not endorse this programme of studies or certify that it meets Ontario University standards. The programme of study being offered in Ontario is equivalent to the programme being offered by the institution in its home jurisdiction. In addition, the Ministry of Colleges and Universities cannot guarantee that the degree will be recognized by Ontario Universities and employers."

You are advised that the NIU programme is deemed "an approved Master's Degree in Education" for QECO Evaluation Programmes 3 and 4, and it is evaluated by QECO as "no less favourable but no more favourable than degrees taken from recognized Ontario Universities."

Further you are advised that students from this programme have found Ontario Universities willing to accept equivalency when credits are being transferred to the Ontario University. Some Ontario Universities will only accept credits which they consider appropriate for the programme of studies undertaken at the Ontario University."



The Green Earth Club

This year, TVOntario has a new series for children and the environment. The Green Earth Club presents environmental issues to children in the Junior grades, with a strong emphasis on student participation and action. If you teach in a junior classroom, don't miss an episode. They air Thursdays at 10:45 and Mondays at 2:15. If you are planning an environmental event, then let The Green Earth Club know about it at (416) 484-2600, ext. 2185.

A New Environmental Education Centre

The Tiffin Centre for Conservation has announced that it will be building a new Environmental Education Centre called the John L. Jose Environmental Learning Centre. Many organizations have helped to fund this new centre. For more information, contact the Nottawasaga Valley Conservation Authority at (705) 424-1479.

Environmental Education Lecture Series

The University of Toronto is presenting lectures in environmental education through the School of Continuing Studies this winter. In February, Global Environmental Change, a six-part lecture series, will examine a number of issues facing us as we try to save the planet. Other series include Are You Ready to Go Green and Understanding the Greenhouse Effect. For more information, call the University of Toronto at 978-2400.

Kids Making a Difference '91

It's Up to Me, It's Up to You

The Kids Making a Difference Club from Trenton invites all environment clubs and

concerned families, teachers and kids between the ages of 2 and 102 to join with them on April 19 - 21, 1991 for the second annual KMD Conference. This year's theme "It's Up to Me, It's Up to You" will expand upon last year's Think Global/Act Local theme.

Participants will enjoy a variety of speakers, how-to workshops, tours of local industries making a difference, and the opportunity to participate in the Trees for Trenton rehabilitation project. There will be special programs for children. Keynote speakers for the conference will include Minnesota songwriter Douglas Wood, Cliff Sunflower from Bear Honey Farms in Pennsylvania, and Skid Crease of North York's Periwinkle Project. There will be workshops on the World Wildlife Fund, Canadian Wildlife Federation, Ministry of Natural Resources, Ministry of the Environment, Habitat 2000, Trees for Trenton, Wildlife Flower Gardens, Waste Management — the Three Rs, Setting up Environment Clubs, Making a Difference in Your School, and more.

For more information on K.M.D. '91, send a self-addressed, legal-sized stamped envelope to:

Eileen (Sam) Conroy
159 West Street
Trenton, Ontario K8V 2M8

Earth Whispers . . . Are You Listening?

On February 15, 1991, at Meadowvale Secondary School in Mississauga the Peel Outdoor and Environmental Educators' Association presents their first conference to clarify issues and challenges concerning our environment. Delegates will focus on improving environmental literacy among students and staff of the Peel Board of Education. Speakers include will Chuck

Hopkins and Bill Hammond, with a broad range of workshop leaders. For more information, contact

David Spencer
North Park Secondary School
#10 North Park Drive
Brampton, Ontario
L6S 3M1
(416) 456-1906, ext. 224

Outdoor Education Centres in Ontario Boards of Education

This Occasional Paper No. 17 of the University of Waterloo presents information on all board of education-offered outdoor education centres. It was written by Michelle Richardson and Dr. P.F.J. Eagles and costs \$20.00. If you are interested in obtaining a copy, contact:

E. Barnett
Department of Recreation and Leisure Studies
University of Waterloo
Waterloo, Ontario N2L 3G1
(519) 885-1221, ext. 6350

...Because We Love Our Planet A Hamilton Region Student Conference on the Environment

200 students who are environmental leaders in the high schools of Wentworth, Hamilton and Hamilton Wentworth Separate School Boards will be attending a conference on the environment at McMaster University on April 30 of this year. The conference will focus on taking action, through networking and action plans, to tackle local environmental issues. Topics such as acid rain, the Conserver Society, environmental activism and recycling will be included. Registration forms will be available in March.

For further information contact:

Heritage 1993: A Progress Report

(reprinted in part from the *Wildland News*, Vol. 22, No. 4, Winter 1990)

By Kevin Kavanagh

The Wildlands League is very pleased to report that there has been excellent progress on the Heritage 1993 project. This major educational project involves the production of a book and audiovisual presentation to coincide with the centenary of Ontario's parks system in 1993. With the leadership of League directors Lori Labatt and Bruce Littlejohn, the Heritage 1993 project is going forward on schedule.

The response to fundraising efforts has been extremely encouraging and the substantial sum of 57,000 has been donated to the League for this specific work. Fine essays have already been written, and others are already being written. The enthusiastic response of many outstanding photographers has been enormously gratifying. We are also fortunate in having the support and endorsement of leading individuals and organizations in the environmental field.

The result of this will be the most comprehensive, thought-provoking, informative, and aesthetically powerful treatment of Ontario's parks and natural heritage ever produced. Both the book and the audiovisual presentation will be valuable educational tools that will encourage environmental awareness and an attitude of responsible stewardship toward parks and nature in general.

The Wildlands League is looking for essays of approximately 1000 words, possibly accompanied by photographs, about some of Ontario's smaller parks which are mainly designed for day-use or car-camping as these can provide happy and valuable outdoor recreation and an introduction to the natural world. There will also be a special section for writing from people aged 8 to 18. They are looking for fresh and interesting responses to nature (short prose pieces, poetry, and so on). Where older students are involved, critical pieces will certainly be considered. Student writers will be fully credited and small honoraria will be offered.

If you know of interesting writing by young people, or you wish to learn more, please contact the project leaders Lori Labatt or Bruce Littlejohn at Wildlands League, 517 College Street, Suite 406, Toronto, Ontario M6G 4A7 (416) 324-9760.



Wentworth

Ray Varey
Parkside High School
Parkside Avenue
Dundas, Ontario L9H 2S8
(416) 628-6339

Hamilton

Jeff Nichol
Board of Education
100 Main Street West
Hamilton, Ontario L8N 3L1
(416) 5277-5092, ext. 474

Hamilton Wentworth Separate

Lino Fuciarelli
Blessed Sacrament School
315 East 37th Street
Hamilton, Ontario L8V 4B5
(416) 525-2930, ext. 257

A Primer On Water: Questions and Answers

This book from Environment Canada provides detailed answers to a wide range of questions about water. It is directed at a Canadian audience and provides many fascinating facts. To obtain a free copy and/or a list of publications from Environment Canada, write: Editorial and Publications Division, Inlands Water Directorate, Environment Canada, Ottawa, Ontario, K1A 0H3, Tel (819) 997-2601, Fax (819) 997-8701.

Environmental Ethics: The Professional's Responsibility

The Ontario Professional Foresters Association will be holding their annual conference on February 20 to 23, 1991 at the Westbury Hotel in Toronto. The theme of the conference is Environmental Ethics. For further information contact the Association at (416) 764-2921.

Wildlife Art Exhibit

The Royal Ontario Museum's major fall exhibition, *Wildlife: Images in Painting and Sculpture* is open until March 24, 1991. With over 150 paintings, sketches and sculptures by George McLean, Ken Bunn and Bob Kuhn, a visit to the museum is sure to be rewarding. The Sportman's Show has also opened a birds exhibit in the Hall of Flight. For group information contact: Cecil P. Beckford, (416) 586-5572.

Sustainable Future

The Harmony Foundation of Canada has developed, in cooperation with Guideposts for a Sustainable Future, a kit that focuses on creating a sustainable future for Canadians through group consensus. The kit consists of a discussion format that allows students of different backgrounds to find common ground and includes a 23 minute video, a 170 page book, and many other resources. The cost is \$50. For further information contact: Guideposts for a Sustainable Future, P.O. Box 374, Merrickville, Ontario, Canada, K0G 1N0.

Nature Conservancy of Canada Purchases Furbish's Lousewort Site

The Nature Conservancy of Canada is pleased to announce that they have just purchased a site that holds 50% of all of the Furbish's Lousewort in Canada. This cousin of a Scottish Lousewort is only found on the St. John's River in New Brunswick. They have also just completed the purchase of a 32 hectare site in Manitoba that houses the rare Western Prairie Fringed Orchid, a member of the endangered space called the Tall Grass Prairie. Unfortunately this site accounts for only 1% of all the Tall Grass area in Canada. COEO is a member and active supporter of the Nature Conservancy

of Canada. For more information about the Conservancy and its projects write: Nature Conservancy of Canada, 794A Broadview Avenue, Toronto, Ontario, M4K 2P7, (416) 469-1701, Fax (416) 469-1493.

Tree Planting

Canadian Art magazine has announced its commitment to plant two trees for every

tree it uses in the production of its magazine. To further draw our attention to the need for environmental concern, it will be producing an entire issue on environmental art by Canadian artists. The Winter 1990 issue of *Canadian Art* will be a collector's edition. For further information contact: Wendy Ingram at Canadian Art (416) 360-0044.

Current Perspective... (Continued)

environmentally literate citizens and to contribute to their country's environmentally sound, sustainable development."

Education for a Better Environment

The old concept of outdoor education meeting people's needs becomes somewhat diminished in the face of the new global realities. While outdoor education is a powerful method to influence behaviour and the students' view of the world, this is no time to be arguing the differences between outdoor education and environmental education. This is the "turn around decade". Our students know it and are voicing their concerns to elders who find it difficult to change in the face of global decline. The children want to teach us well because they feel everyone must make changes if life on earth is to survive. They also recognize that to remain "people centred" without taking the needs of all living systems into account, is nothing short of suicide.

It is time for educators to recognize the differences between outdoor education and environmental education and to maximize both for their greatest impact on learners. In this context outdoor education and environmental education must pervade all aspects of school curricula. Outdoor education is viewed as a method to build on

existing curricula, give students first-hand opportunities and to engage investigative and problem solving approaches.

Environmental education is outgrowing its relationships to particular disciplines. Modern communications and space satellite technologies monitor the earth every second. Instant information which is perceived as part of reality and internalized has changed the vision of environmental education. As educators we are now struggling with the processing of instant information. As new information transforms old concepts the spread of change challenges the validity of subject disciplines which are based on a framework of knowledge.

What we need at this moment are procedures to integrate new information and to develop better educational programs directed toward changing "people behaviour" toward the environment. If outdoor education is a means toward creating environmental solutions, let's use it. If environmental education infused into traditional disciplines will create a more knowledgeable public, let's do it. The greatest challenge to environmental and outdoor educators is to develop the means to assist teachers in using environmental education and outdoor education approaches to deliver the best curricula to our students. The planet deserves no less than this. We can do it!

*The children
want to teach us
well because they
feel everyone
must make
changes if life
on earth is to
survive.*

*Ralph Ingleton is an
Associate Editor of
Pathways.*

The Minn-A-Kee Program: Experiential Education in a Secondary School

by Bruce Nickel

Pathways plans to run a feature concerning the Minn-A-Kee program with representative insights from students, parents, teachers and administrators. Watch for this near the end of the school year.

Each morning as opening announcements begin, twenty students from Collingwood Collegiate Institute are being bussed to a small cabin situated on a 100-acre parcel of land nestled beneath a cliff face on the Niagara Escarpment.

Why would these students forsake the comforts of normal school? Because they are the 1990 enrichment class of the "Minn-A-Kee Outdoor Education Project", C.C.I.'s Outdoor Education Program.

These Grade 11 students are enrolled in a four subject, four credit curriculum that involved an experiential, hands-on approach in all of their curricula.

These subjects range from the very academic courses of Environmental Biology and Physical Geography which emphasize scientific field work and lab studies in such areas as ecology, wildlife biology, soils, weather, cartography, and forestry, to outdoor physical education with a curriculum of orienteering, cross-country skiing, campcraft, canoeing, hiking and snowshoeing. However, a prime focus of the program is the credit in Leadership. In this course, the Minn-A-Kee high school students apply their learning by teaching outdoor education to local elementary school children. Last year, 1300 elementary students from Kindergarten to Grade 8 took part in the six programs offered to them.

The high school students are trained to lead them in theme days such as insect studies, interactions of living things, orienteering, trees and leaf studies, nature rambles, and adventure hiking. All of these are targeted at specific age groupings and grade levels.

Since a semester in high school is approximately 20 weeks long, this leadership segment of four weeks near the end of the program is a culmination of the skills and knowledge absorbed during the time spent in the course. A typical day in February would have the student training on cross-country skis first thing in the morning, followed by a session on communication skills as applied to leadership. In the afternoon, they would snowshoe out to the sites where they are working on an ongoing scientific snow study. A typical day after the snow has gone could consist of learning how to survey the landscape in the morning and the afternoon might be spent practice teaching initiative tasks.

The general concept for all activities is that they must be a hands-on experience first, which then is the basis for any follow-up story. Students are evaluated academically with tests, assignments, projects, labs and exams as much as possible; with some subjective evaluation in physical education and leadership. A bonus for the students taking the course are several overnight trips: winter camping, cross-country skiing, hiking and canoeing.

Students involved in the program develop many skills beyond those found in the regular classroom, independent learning skills, leadership, social skills, a tremendous loyalty to each other and a love of the outdoors.

Bruce Nickel is the C.C.I. Science and Physical Education teacher who both developed the curriculum and runs the program, now in its third year of operation.

Girls and Science

by Bert Horwood

The Science Council of Canada in the 1980's formally recognized a situation which most teachers already knew; girls and science don't mix. Years ago, it was supposed that the fault was with the girls. Now we know that we had it backwards. The fault lies with our ideas of science and our narrow stereotypes of female capabilities. Recent research shows that girls and science do mix. It also shows that change is slow in coming, as for example, in persistent sex discrimination in high school science texts as documented by Judith Bazler and Doris Simonis.

William Peltz has written a comprehensive summary of literature on girls and science from around the world. First, he paid attention to research on the unique perspectives and experiences which girls, as girls, bring to science. One error is that girls are thought to have less experience than boys in manipulating materials. What this really means is that the materials girls manipulate are not valued, and neither are the girls' experiences in interacting with the world. It makes sense, then, that girls fare better in science when they are not in classes with boys, probably because their experiences are valued without inappropriate comparisons.

It will interest outdoor educators to learn that there are much smaller differences between girls and boys in their experiences with the natural world. This research finding is contrary to David Suzuki's well-known description of the revulsion displayed by his daughter's girlfriends towards caterpillars.

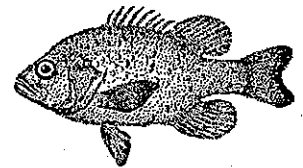
Perhaps the most important finding is

that girls tend to put a higher value on personal friendship and social relationships than on other aspects of schooling. This means that scientific emphasis on competition and individual accomplishment acts to exclude girls from full and enthusiastic participation in science.

Clearly, these are issues which go well beyond the classroom and the field centre. Such factors as home life, culture, ethnicity and individual differences play large parts. But teachers can make a difference by recognizing that all students tend to perform exactly to the level of their teacher's expectations. It is critical that teachers have equally high expectations for girls as for boys in all activities and that those expectations are genuine.

The evidence of girls' preferences for socially rich structures indicates that science work in class or field should be done in groups with cooperative emphasis. Research on talk in classrooms shows that males tend to interrupt and dominate much more than females. Teachers tend to look at boys more, question them more, and notice girls' requests to speak less. This is a statistical finding that may not be true of any one given teacher, but each one of us would have to check out our own teaching habits to know for sure whether or not we are part of the problem.

Peltz reports finding that girls, more than boys, dislike oral quizzes requiring quick, correct answers. A preferred teaching strategy is to ask more provocative questions and allow plenty of time for thoughtful answers to be expressed. In this type of teaching dialogue, there will likely be



several different answers to the same question, each of which calls for further consideration. The research indicates that class talk which includes respectful attention to well-considered ideas is likely to make many more girls (and probably some boys as well) feel more included than otherwise.

The research also shows that, the sooner girls have positive experience with science, the better. The primary grades are not too early. Appropriate science at this stage is playful tinkering with things, messing about, exploring and responding. Responses should be expressive, using spoken and written language, song, dance and graphic arts. Outdoor education can contribute to turning girls, as well as boys, on to science.

There is a feeling that female teachers have strong influence as role models. The research does not confirm that view. Female teachers were found to favour boys' talk over girls' talk as much as male teachers, for example. Male and female teachers alike have the ability to turn girls on to science. Teachers, regardless of gender, tend to feel threatened and hostile when told that, as a group, they both actively exclude girls from science and fail to respond sensitively to their needs. Somehow, as teachers, we need to be willing to examine our own practices and programs with a view to increasing inclusion for every pupil.

Sources

Peltz, W., (1990). *Can girls + science - stereotypes = success?* *The Science Teacher*, 57 (9), 44-49.

Bazler, J. & Simonis, D., (1990). *Are women out of the picture?* *The Science Teacher*, 57 (9), 24-26.

Bert Horwood is a professor at the Faculty of Education, Queen's University, where feminists are teaching him many things.

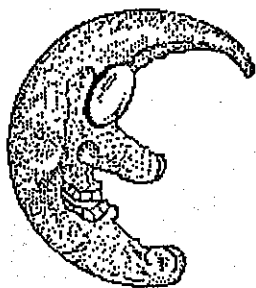


Stars by Pamphlet, Book and Computer

by Mark Whitcombe

"We should remember that genuine enthusiasm and understanding must be a part of that instrument behind the eyes which is more important than any you can put in front of them!"

— Fred Schaaf, *The Starry Room*, (1988)



I just came in from walking my dog in the fields on outskirts of town. The brightest showing of stars for the whole year was sparkling in the sky: red Betelgeuse and Aldebaran, blue Rigel, yellow Capella, and dazzling Sirius — stars stunning in their brilliance, and further set off by the fierce ruddiness of Mars and the piercing yellowness of Jupiter. A fleeting glimpse of a meteor and a great horned owl calling in the distance emphasized the "nowness", the reality, the presence of this glorious spectacle.

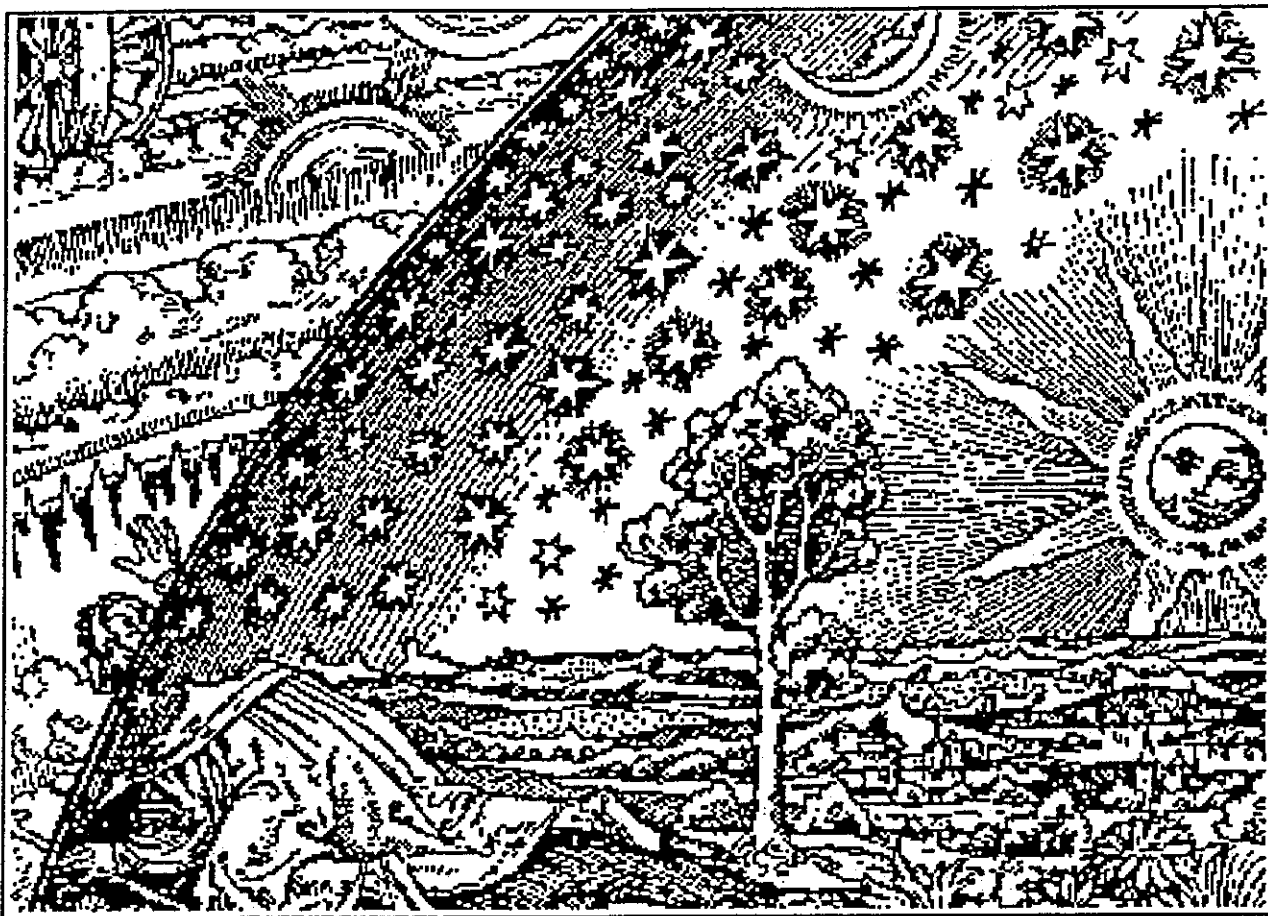
I'd like to compare several resources that I use to better understand what I marvel at on my nightly excursions. Two are computer programmes, one is a book, and the others are simple resources readily available.

I receive an excellent pamphlet called *Sky News*, available free (!) from the National Museum of Science and Technology in Ottawa. It comes out four times year. Each seasonal issue includes three simple maps outlining the skies for each month of the particular season, a couple of one page essays on appropriate topics, as well as some shorter notes of interest. *Sky News* is well-done, and worth reading and supporting. Another very useful source of astronomical information is *Sky Calendar*, reprinted in *Science and Children*, the excellent elementary science magazine produced by the National Science Teachers of America. This two-page-per-month

calendar is available for an annual subscription of \$6 American from Abrams Planetarium, in Michigan. Excellent little thumbnail sketches illustrate daily what is interesting in the night sky.

Terry Dickinson's *NightWatch* has been one of the best of the introductory astronomy books since it was published in 1983. The 1989 revision is worth owning, even if you already own the original. The substitution of amateur photographs for the professional ones of the first edition is a real plus, with some really spectacular pictures being included. While the book is too big to carry in a pack while out on a trip, it is deliberately designed so as to be useful in the back-yard. Big clear maps, gorgeous photographs, and well written text make this book an essential for the stargazer.

This column is really a review of two astronomy programmes for computers. I use these programmes for a number of purposes. I use them to anticipate what is going to be visible at some point in the future, such as preparing for astronomy workshops. I use these programmes for reviewing what I have already seen. I use them to help in positioning — finding the precise location of celestial objects, particularly planets. For instance, I was able to spot Mercury in the twilight glow earlier this evening using the knowledge gained from my computer screen. I use these programmes for studying celestial mechanics. After reading in *NightWatch* about how



Christopher Columbus used his knowledge of a predicted lunar eclipse to very probably save his life, I reviewed the progress of that eclipse on the computer. This latter use opens many doors for advanced study.

In the early days of the Commodore 64 computer, an astronomy programme called *Sky Travel* was written. It was such an excellent example of the power of the machine, that, for a while, Commodore actually “bundled” the programme — gave it away free with the purchase of a computer. *Sky Travel* (C64) realistically darkened the sky with the onset of twilight, thus very clearly showing how soon objects would be visible; *Sky Travel* (C64) allowed you to easily speed up the clock, to watch the night’s events happen at up to 60 times actual speed, thus making it great for eclipses and other dynamic events. When I bought my Macintosh, I raced out to buy

the Mac version. I was disappointed. *Sky Travel* (Mac) is expensive. It does not follow the Macintosh interface very closely, meaning that it doesn’t take advantage of the ease of using the Macintosh. For instance, it is not possible to resize windows. Thus, the control windows are always cluttering up the screen, significantly reducing the available space for actually seeing the sky. *Sky Travel* (C64) is a marvellous programme for a limited computer. The Macintosh is a much more powerful computer, and I am disappointed that *Sky Travel* (Mac) actually seems to do less than the C64 version. *Sky Travel* is also available in DOS format, though I have not tried it in that format. My suspicion is that it would be as disappointing as the Mac version, in that when the programme was “ported over” to the Mac, it was not extensively rewritten.

Voyager, by Carina Software, is a much better example of the appropriate use of the power of the Macintosh. *Voyager* has enough bells and whistles to keep both computer freaks and astronomy junkies enthralled for a long time. *Voyager* gives the user the ability to set the minimum magnitudes shown on the screen. You have the very powerful ability to compute conjunctions and eclipses. You can view the sky from anywhere, including from any position out in space. I used *Voyager* to set up a view of the solar system from Pluto at its furthest distance from the Sun. Seeing the insignificance of the Earth from that astronomically close position is personally somewhat comparable to the first pictures from space — humbling! *Voyager* does a very good job of tracking planetary motions, creating marvellous maps that showed me details of celestial mechanics more clearly than any written description. But I have some problems with *Voyager*. It is very expensive. Why is it not possible to speed up time to watch the normal celestial action occur at faster than real time? Nonetheless, I am going to replace *Sky Travel* with *Voyager* on my hard drive as soon as I can afford the latter.

Computer Programs and Publications

Sky News, National Museum of Science and Technology, PO Box 9724, Ottawa Terminal, Ottawa, K1G 5A3. (donations welcome)

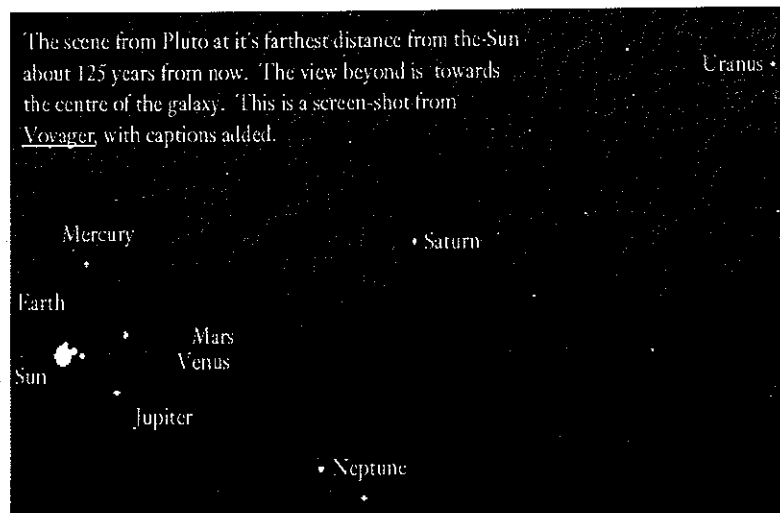
Sky Calendar, Abrams Planetarium, Michigan State University, East Lansing, Michigan 48824 (\$6 American)

NightWatch, Terry Dickinson, (1989), Camden House Publishing (approx. \$24.95)

Sky Travel, MicroIllusions / Deltron, 17408 Chatsworth St. Granada Hills, California, Canada 91344 (approx. \$90.)

Voyager, Carina Software, 830 Williams St., San Leandro, California, Canada 94577 (415) 352-7328 (approx. \$125.)

The scene from Pluto at it's farthest distance from the Sun about 125 years from now. The view beyond is towards the centre of the galaxy. This is a screen-shot from *Voyager*, with captions added.



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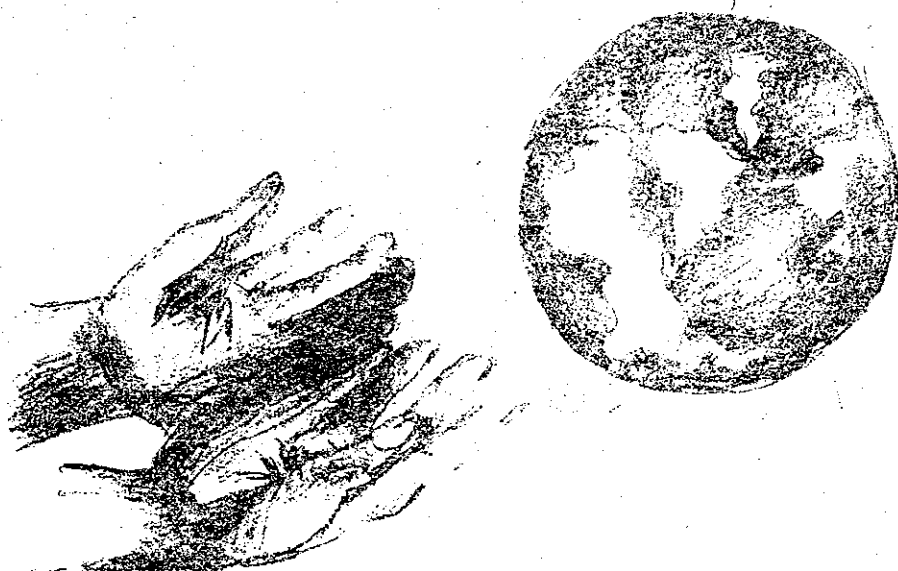
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