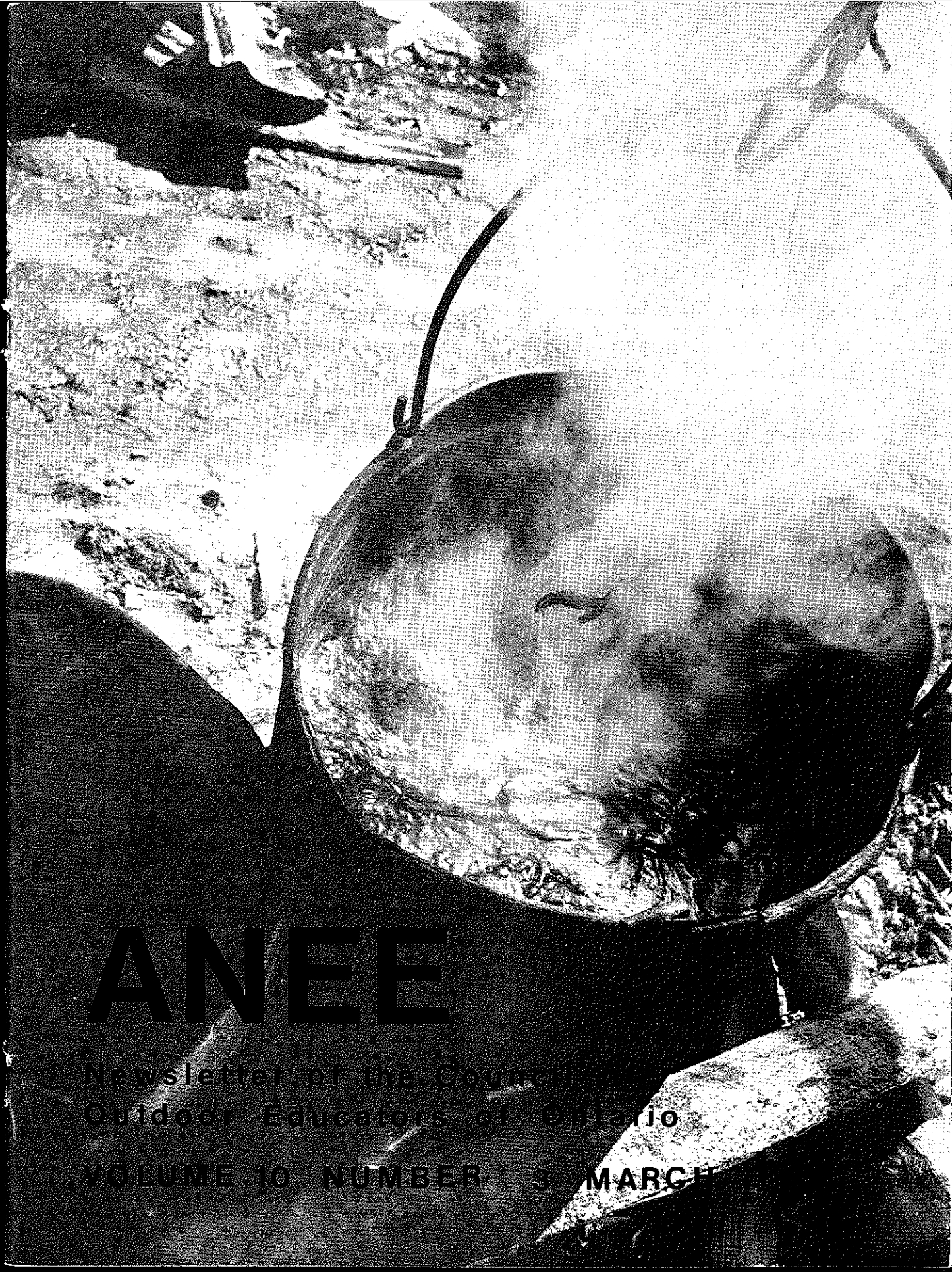

ANEE

Newsletter of the Council of
Outdoor Educators of Ontario

VOLUME 10 NUMBER 3 MARCH

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Cover photo:
Courtesy of Min.of Tourism

ANEE, the newsletter of the Council of Outdoor Educators of Ontario is published seven times each school year. The publication is mailed to C.O.E.O. members only. Membership can be arranged through the membership secretary whose address appears opposite.

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ANEE (AH-NEE) IS AN OJIBWAY WORD USED AS A GREETING OF FRIENDSHIP, IT IS USED AS A CORDIAL SALUTATION AMOND FRIENDS MEETING INFORMALLY. OUTDOOR EDUCATION IS A DISCIPLINE WHICH HAS AS ITS FOUNDATION A DESIRE TO LIVE IN HARMONY WITH THE ENVIRONMENT; THE TRADITIONAL WAY OF LIFE OF OUR NATIVE PEOPLE CHERISHED THIS ATTITUDE. ANEE IS A MEANS OF COMMUNICATING AMONG OUR MEMBERS WHO ARE SCATTERED ACROSS A LARGE PROVINCE. IT IS HOPED THE GREETING -ANEE- IS FELT THROUGH THESE PAGES.

****

Printed on de-inked recycled paper.

FROM THE EDITOR'S DESK

1981 has been declared the International Year of Disabled Persons, and across the province, educators and interest groups are taking a long look at the theme - "Full participation - full equality" - and finding ways to put it into practice.

As an outdoor educator, and particularly as a new Special Education teacher, I feel excited about this year, especially with responsibility legislation for education of special students (Bill 82, or more properly, An Act to Amend the Education Act) newly on the books. In my short Special Ed career I have seen an indisputable need to involve these exceptional kids in a wide range of outdoor activities, and with that in mind, let me recommend to you a fine and valuable publication. Exploring the Environment with the Handicapped was published by the Ministry of the Environment as a project for the International Year of the Child, but I think it is particularly useful now. Oh, it's true, the book would definitely have benefited from a professional editing, and to those of you who have been involved in outdoor education for years, there may not seem to be much that's new. However, if you take the time to read it, particularly the Tips on Dealing with the Handicapped, you may find it an invaluable handbook. It's available from the Government Bookstore, at a very nominal cost - I think about $3.00 or $4.00. It's worth it.

Sheila *

Sheila Mudge,

Editor, Anee.

Strategies and Ideas for Organizing Outdoor Activities in the Playground

Presented to

PACT - PAPT Convention

by

B.L. Richardson

I am delighted to be invited to share in your PACT - PAPT convention particularly because of its timely theme "Teachers Challenging the 80's.

We in Ontario are also being challenged in the '80's. We too are concerned about tight budgets, loss of credibility about the value of education, declining and shifting enrollment, school closings, split classes, redundant teachers, province-wide curriculum and evaluation systems, the needs for "special" education, changes in students' attitudes, and, hence, effect you and me.

Our professional organizations have reacted as best they can, funding research and counter-research projects, promoting teachers' views and education generally. Contracts at the local levels are getting tighter and more difficult to attain; protection clauses take more time to resolve than monetary issues. There are several new ideas to relieve anxieties and resolve problems. Some boards reduce staffs and save money by offering lump sum retirement incentives. Many have adopted "4 and 1 schemes" whereby if a teacher works for four years at 80% of his pay, then he can take the fifth year off with no commitments to the board, again with 80% of his pay. I am sure we will see many such schemes as we strive together to solve this, a common problem.

Most of us, however, don't have the time or energy of expertise to fight effectively against these threatening outside forces on both our personal and professional lives.

We are, after all, here to teach. What is most important in all of this jungle of bureaucracy and politics is what is happening to our young student, Johnny. The person at the interface between the jungle and Johnny is me. The sole person that can make today's learning experience appropriate or inappropriate, good or bad, meaningful or trivial, stimulating or stifling is me. What happens once I close my classroom door is up to me. What happens when you close your classroom door is up to you.

What I would like to share with you today are some of the good things that have happened to Johnny and me, after I closed the door on politics and bureaucracy. I can also tell you that many of the best things have

happened after I opened another door; the door to the out-of-doors. Indeed most of my "teachable moments" have occured outside the classroom - away from the rigidity of the rows and the confines of the walls - away from the inhibiting, sometimes ludicrous role-playing of "me-teacher, you-student; me-teach, you-learn" - closer to the reality where, as two intelligent, understanding human beings, Johnny and I have shared an experience together, and together we have <u>both</u> learned.

Some of the best moments for Johnny and me have come while sitting exhausted but exhilerated on top of a mountain, sharing the awe, the splendor, the peace of the valley below. Some the the most emphatic lessons have been learned with a burst of tears, a unique mixture of relief and triumph, at the end of some particularly challenging moments while tied to the end of a climbing rope or at the end of swampy, bug-infested seemingly impossible portage. Some of our warmest, most meaningful moments have come while huddled in the pitch dark, sound-absorbing sanctuary of a snow cave while temperatures outside plumented to 30 below.

But we didn't start out with a trek in the Adirondacks or on a paddle through Killarney. We started out by simply opening the classroom door, then the door to the school yard and then the school yard gate. After stretching our legs and learning about the local woodlot or creek, we walked even further to learn about the local fire department or museum or manufacturer or conservation area.

With our new found confidence and mutual respect, we then started travelling further afield and accepting new challenges. We would go to local conservation areas and learn about the environment, and about each other and if the truth be known, about ourselves as well. And somehow a day was simply not enough and so we'd go to a place where we could stay over, a Boy Scout Camp, or a Junior Ranger Camp perhaps. When we found that even that was confining, we started to carry our shelters with us and later on we learned that we could make our own shelters. We soon started to learn other skills which would allow us to survive and we studied how other things survived. We learned we could survive better if we work together, but we also learned that we could survive on our own.

We grew together, Johnny and I, as together we grew.

But I don't see Johnny very often any more. He does call about important things such as his getting married or getting a new job. Or else he's just returned from a trip and he calls to say that he had a great time and he remembered the time that we had shared a similar experience and he thought about me and he just wanted to call and say "Hi" and that he hadn't forgotten.

The self-confidence he has acquired has opened many avenues for him to explore and with that "quest for zest" he's developed, he wants to follow each and every one of them. Ane he is not travelling alone, Johnny, for he's learned the joy of sharing and giving and caring. So he's got

his friends, and his family, and in some cases even students of his own with him. He is teaching and learning, as I did, through sharing experiences with others. He is still teaching and learning about the world around him, of how beautiful, yet how awesome it is, of how forgiving and yet how unforgiving it can be. About how he influences it and how it influenced him. Yet he is still learning more about himself and growing and changing with each new experience. And all this started because we opened the door: the door to the out-of-doors.

I've learned a lot, being Johnny's teacher.

****

Today I've been asked to share with you some ideas about that area of the out-of-doors where our first faltering footsteps fall; that area we call the play yard.

I'd like to start by sharing with you some of the ideas, principles, or concepts which I have observed and which have been helpful in guiding me as I continue to plan learning experiences out-of-doors, whether it be in the play yard, in a local park, or on an extended canoe trip into the north. I simply offer these for you to think about as you plan. I find that they function much as the rigid form of a particular style of poem does, in that they challenge me, put demands on me, force me beyond the level that I would normally achieve, accept and be happy with, and consequently I end up creating something much better, much fuller, much more useful and beneficial. I hope perhaps they'll do the same for you.

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see appendix

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One easy and sound way to step outside into the playground or beyond is to take the current curriculum and check off those topics which could be taught outside and then go through that list and underline the ones which would be best taught outside. Is it not common sense "that which is best taught out-of-doors should be taught out-of-doors?"

Having done that with each course outline, it is then a matter of establishing a setting and planning for an experience or "happening" which will serve to integrate as many of these goals as possible. In this way, for example, a canoe trip or a walk in the local woodlot can be looked at, developed, and followed up from a variety of perspectives. It is a language arts experience, an art experience, a mathematics experience, a geography experience, a physical education experience all rolled into one. Let's look at the play yard as our setting from each of these perspectives.

Take mathematics. How are you going to use the play yard to teach mathematics? Here are some suggestions:

1. Blind walk an attempted straight line dropping coloured objects and then measure and plot and draw to scale the path traced out.
2. Mapping: scales, ratios, measuring, metric, etc.
3. Shapes in the school yard and in the building: measure, calculate the area of, calculate the volume of, etc.
4. Counting cars in the parking lot: number of cylinders or types of cars, present data in graph form.
5. Toboggan slide: time over a set course with a variety of people on the toboggan and with varieties of types of toboggans, plot or graph results.
6. Using people plot the outline of a Boeing 747 on the playing field and inside plot to scale the Wright Brothers aircraft.
7. Stand students in a line in proportion to the distance that each of the planets are from the sun and gain a better feeling for the significance of the differences.

Take Science. How could we teach Science out-of-doors?

1. Soils: making soil micromonoliths, identifying horizons, acidity, moisture content, etc.
2. Soil absorption: screw a tin into soil at various locations and time how long it takes a cup of water to be absorbed. Discuss results.
3. Climatology: temperatures at various heights at various times of the day. Explain.
4. Weather.
5. Ecosystems: drop a coat hanger stretched to form a square onto various locations and count the number of species within as an index of the "healthiness" of an ecosystem.
6. Relationships: parasitic, saprophytic, symbiotic (gulls, fungi, lichen.)
7. Insects (paint a mixture of dried fruit, beer and sugar which has been allowed to ferment in various locations in order to attract.)
8. Chains and webs: give each student a label of an element in an ecosystem and place them in a circle connected by a string to all those other things to which they are either prey or predator and this will reveal the web effect. Pull one of the elements out and see what happens; I play the predator-prey tag game.
9. Energy: solar cookers, solar panels, sun dials, other hands-on projects for students are good here.

How would we teach art out-of-doors?

1. Use black and white or polaroid photography in order to teach composition of pictures. Limit the number of shots allowed per student per day.
2. Use of 35 mm. cardboard slide binder in order to reduce a panorama to a copable composition to be reproduced by the student.

3. Art from natural materials; watch for environmental impact here; the ingredients may have to be brought in from outside areas.
4. Teaching perspective, shapes, colour, texture, hues, composition, etc. from the school building or elements within the school yard.
5. Creation of murals as a group project either being presented with themes and/or materials.
6. Creation of a diorama; a miniature environment within a shoe box.

Language Art . How can we teach this out-of-doors?

1. After each experience prepare a vocabulary of all the new words learned and used that day.
2. There are a variety of word games available to be played out-of-doors during or as a result of an outdoor experience. Such games include crosswords, riddles, select-a-word, etc.
3. Creative writing: get the students to write a short story from the point of view of an element of the environment such as a chipmunk, a stump, etc.
4. Set up a Language arts trail: orienteer from point to point and at each point fulfill the requirements of your language arts program such as writing alliterations, synonyms, homonyms, limericks, Haiku, etc.
5. Keeping a diary, log, writing letters of enquiry and thank you's, etc.

How can we teach physical education in the school yard?

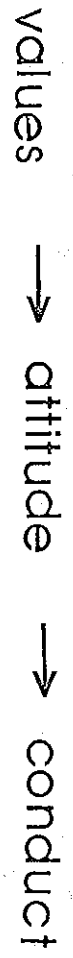
1. Initiative tasks
2. New games
3. Co-operative sports
4. See a book entitled "Cows Tails and Cobras"
5. Orienteering of various forms
6. Compass games
7. Snowshoeing and skiing
8. Survival skills
9. Bicycling
10. Ropes courses
11. Roller canoes (made up like large skate boards and using sawed-off paddles
12. Inuit games
13. Games of other Countries (student produced?)

After so much goings on in the play yard you will find that the yard itself again is too confining; its time to grow and to go to another setting for yet another set of experiences. Such settings might be developed into thematic units wherein the student, after a day in class spends three days in the field and then another day back in class to finish his studies along a particular theme. Such themes might be: Cemetary Studies, Energy Studies, Urban Studies, Woodlog Studies, Pond and Stream Studies, Snow and Ice Studies, Etc.

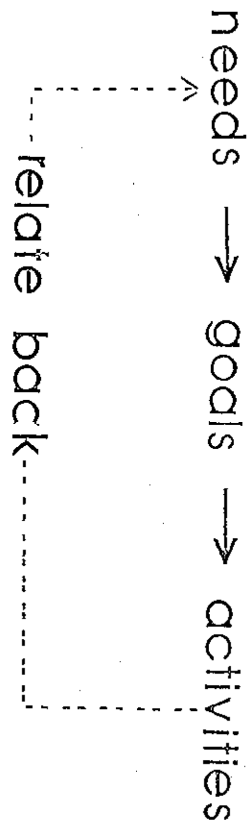
The out-of-doors, including the play yard, is an excellent place to introduce students to leisure sports; sports which they will participate in long after they have left the school scene. Such sports include snowshoeing, cross country skiing, bowling, roller skating, racket sports and such traditional outdoor education leisure activities as backpacking, kayaking, canoeing, rock climbing and cycling. The use of films, speakers, demonstrations and student productions can facilitate many of these presentations. Don't forget to use the many community resources available. Parents, senior high school students, other teachers, other agencies and commercial outlets are often more than willing to help.

The possibilities are limitless! All you have to do to start is to open that door; the door to the out-of-doors!

APPENDIX

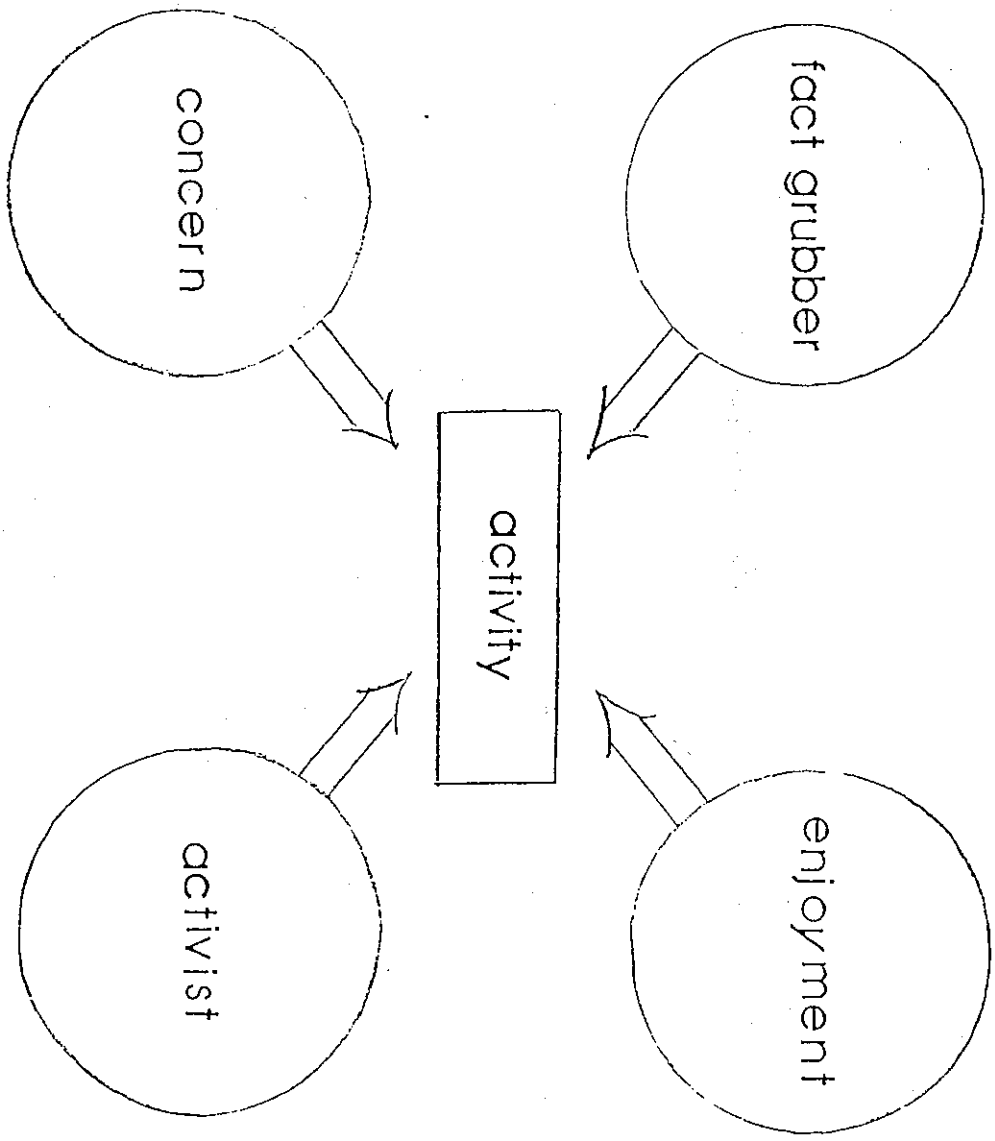


"In order to make lasting, meaningful changes in conduct we must plan experiences which cause students to re-evaluate their values."
B.L.R.

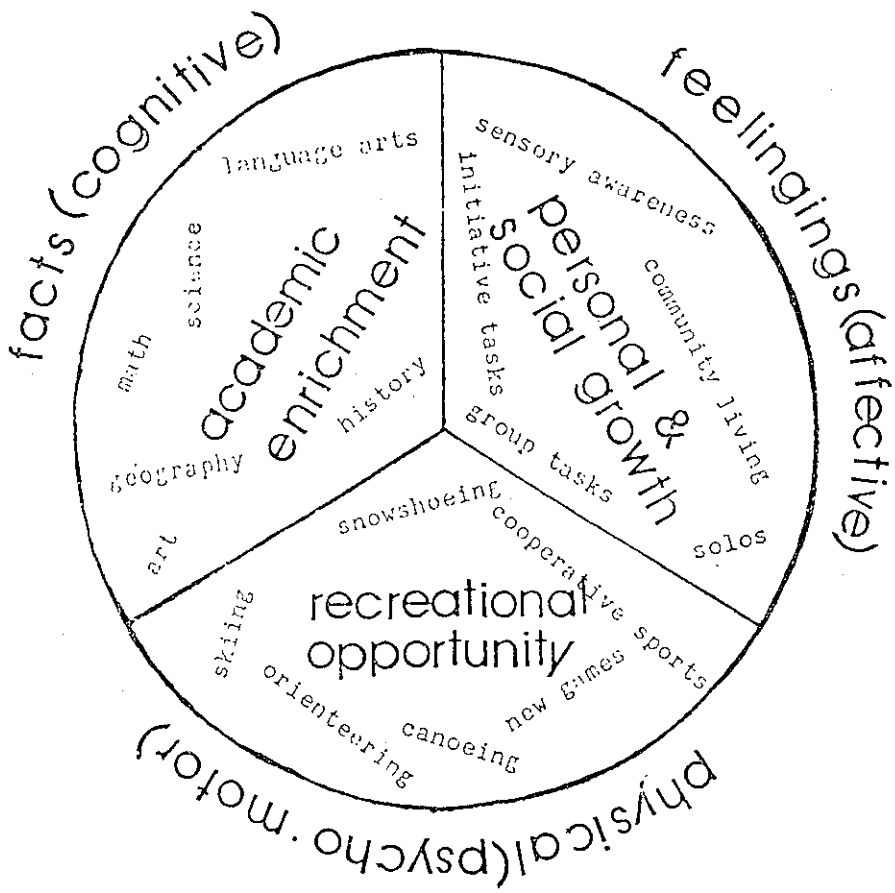


" Before selecting activities for their students, teachers must first determine their student's needs, then determine their teaching goals, and then design or select appropriate activities. In order to be meaningful, the students must see that their activity is somehow related to fullfilling their needs."

B.L.R.



"Teachers must appreciates that regardless of their designed intentions, that students will approach an activity from their own personal perspective. Experience has shown me that there are four basic student perspectives to an activity, as illustrated. The role of the teacher is, accepting their initial perspective , to make student aware ofand later users of, the other perspectives." B.L.R.



"The best planned, most rewarding outdoor learning experience are those which contain a balance between three areas as indicated."

-B.L.R.

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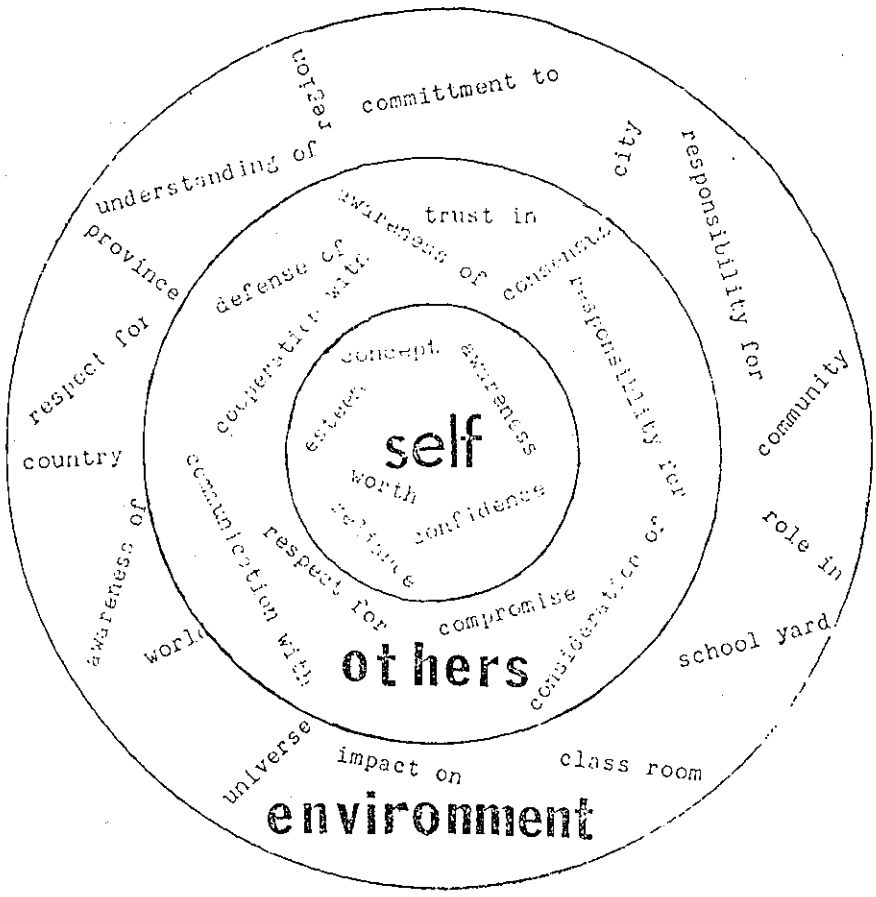


"The targets, or objectives for the better planned outdoor learning experiences would seem to be:a) Increased personal awareness b) Increased interpersonal effectiveness and c) Increased awareness of the environment around you."

B.L.R.

DATEBOOK

THE ONTARIO
CAMPING ASSOCIATION

1981 CONFERENCE

"FULL PARTICIPATION AND EQUALITY"

THE TORONTO HILTON HARBOUR CASTLE
Toronto
March 5, 6 & 7
1981

ONTARIO CAMPING ASSOCIATION ANNUAL CONFERENCE
Thursday, March 5 to Saturday, March 7, 1981
THE TORONTO HILTON HARBOUR CASTLE

F E E S

FULL CONFERENCE
(Includes Reception Thursday, Friday & Saturday lunches and Banquet)
Member.....$66.50
Non-Member.....$78.50
Student.....$54.50
Special.....$48.50

The conference fee is reduced for any delegates over three per camp. It is the regular fee for each of the first 3 delegates and $48.50 for each additional delegate. All delegates must be registered at one time before Jan. 31, 1981 to qualify for this reduction. The Conference Digest is included in the Full Conference fee only for registrations completed prior to January 31, 1981.

SINGLE DAY
(Includes lunch but does not include Banquet or Digest)
Member.....$24.00
Non-Member.....$30.00
Student.....$15.00
NOTE: If not attending Banquet purchase Single Day tickets.

BANQUET TICKETS $18.50

FRIDAY FUN NIGHT AT CAPTAIN JOHN'S
(Includes Reception, Dinner and Entertainment).....$16.50

CONFERENCE DIGESTS.....$ 5.00
(Included in Full Conference fee if registered prior to January 31, 1981).

MEMBERS
To qualify for Members' fees you must be a paid member of the O.C.A. or be sponsored by a member camp. Members of Provincial Associations of C.C.A. or the American Camping Association also qualify.

STUDENTS are defined as those attending College or University on a full-time basis. Persons wishing to register as a student must either:
1. Produce their Student Identification card, or
2. Be registered in advance by their Camp Director.

REFUNDS
Delegates who are unable to attend will receive a refund of fees paid if cancellation notice is received before February 27, 1981. No refunds will be made after this date.

Additional delegate registration forms and hotel registration forms available on request from the O.C.A. office. Please return this registration to:

ONTARIO CAMPING ASSOCIATION, 1806 AVENUE ROAD, SUITE 2, TORONTO M5M 3Z1

REGISTRATION FORM *(USE ONE FORM PER PERSON)*

NAME _____ CAMP _____

ADDRESS *(For mailing of confirmation and Digest)*

_____

_____ ARE YOU A CONFERENCE SPEAKER? _____

PHONE _____ No. OF PAST CONFERENCES ATTENDED _____

FULL CONFERENCE.....$_____

SINGLE DAY - SPECIFIC DAY _____ .....$_____

FRIDAY FUN NIGHT AT CAPTAIN JOHN'S @ $16.50 per person.....$_____

ADDITIONAL BANQUET TICKETS @ $18.50 per person .....$_____

ADDITIONAL CONFERENCE DIGESTS @ $5.00 each.....$_____

TOTAL *(CHEQUE MUST ACCOMPANY THIS FORM - PLEASE MAKE PAYABLE TO THE ONTARIO CAMPING ASSOCIATION* .....$_____

1981

"Taking the Next Step"

Cedar Glen, Bolton, Ontario
September 24, 25, 26, 27, 1981

pre-conference conference

international year of the disabled

Dr. Ernie Coons
R.I.D.E. C.N.I.B.

a few highlights.....
Cold Creek shooting sports
horseback riding
energy education
en plein air
Mc Michael Gallery
bog walk

SPECIAL EVENTS

campfire hayride prize draws
steak BBQ square-dancing
hot and cold buffet
wine and cheese cash bar

Watch for registration forms in future editions of Anée.

Contact J. MacEachern (Area 416 859-0220) for information now.

POT POURRI

ERIC/CRESS: Your Outdoor Education Resource Center

Looking for outdoor education curriculum guides, program evaluations, projects, people resources? ERIC/CRESS (Educational Resource Information Center/Clearinghouse on Rural Education and Small Schools) can help you. CRESS puts you in contact with people with outdoor education interests. CRESS keeps tabs on outdoor education conferences and workshops and announces them in the CRESS quarterly news bulletin. CRESS identifies outstanding outdoor education literature as it goes into the ERIC data base. CRESS conducts meetings on outdoor education and keeps in touch with leaders throughout the country working in outdoor education. CRESS publishes mini bibliographies, synthesis papers, monographs, state-of-the art papers, and reference sheets on outdoor education. CRESS solicits papers on outdoor education and makes them available to the public through the ERIC data base. CRESS works with outdoor education special interest and professional groups helping them use the ERIC system to keep abreast of trends and issues in outdoor education. CRESS provides lists of the addresses and contact persons for ERIC microfiche collections in each state in the U.S.

CRESS takes the outdoor education papers you submit and processes them for input into RESOURCES IN EDUCATION (RIE,) a monthly journal which contains abstracts and indexes announcing over 1,000 items each month, a portion of which are outdoor education oriented. RIE is one of the two ERIC monthly publications. CURRENT INDEX TO JOURNALS IN EDUCATION (CIJE) is the second. CIJE provides detailed indexing by subject and author for articles appearing in over 700 educational and education-related journals.

ERIC/CRESS, one of 16 clearinghouses within the ERIC system, is a national and international information resource data base designed to acquire and disseminate information relative to education. ERIC/CRESS is the clearinghouse within the national ERIC network that covers outdoor education. For more information on the ERIC system in general and ERIC/CRESS in particular, contact: ERIC/CRESS; New Mexico State University; Box 3AP; Las Cruces, New Mexico 88003.

Judi Conrad,
Information Specialist
for Rural, Small School
and Outdoor Education.

POT POURRI

THE N.I.U. - C.O.E.O. CONTRACT: A STATUS REPORT
DECEMBER, 1980
Prepared by Dr. Morris Wiener

Introduction

Northern Illinois University is currently engaged in a fourth contractual agreement with the Council of Outdoor Educators of Ontario to conduct outdoor teacher education courses in the Toronto area. The background work for establishing a relationship between these two parties took place in 1976-1977 and resulted in signing an initial contract for two courses offered in the spring of 1979. Six additional courses were contracted, two in each school year for 1978-79, 1979-1980 and 1980-1981, with the last one to be offered in the coming spring semester.

Dr. Morris Wiener, Professor of Outdoor Teacher Education, has been serving as a liason between N.I.U.'s International and Special Programs Office and C.O.E.O.'s Professional Development Committee in determining course offerings, logistics, and delivery which would be feasible and meet the needs of Ontario outdoor educators. Through Dr. Orville Jones, administrative and contractual arrangements have been developed over the past four years to the satisfaction of both parties.

The inception of a program offering outdoor education courses in Ontario came from a recognized need to provide graduate courses for professional improvements of Ontario practictioners. No Ontario instution of higher education was fulfilling that expressed need. Also, such courses could at the same time partially meet course requirements for those persons desiring a masters degree in Outdoor Teacher Education.

The following summary outline provides a comprehensive overview of results to date.

COURSES AND ENROLLMENTS

Courses Offered	Term	Enrollment
CIOE 590 Workshop in Outdoor Education	Spring, 1978	26
CIOE 597 Independent Study in Outdoor Education	Spring, 1978	27
CIOE 410 Foundations of Outdoor Education	Fall, 1978	28
CIOE 417 Arts and Crafts in Outdoor Education	Spring, 1979	26
CIOE 592 Special Topics in Outdoor Education	Fall, 1979	26
CIOE 520 Teaching Towards Environmental Quality	Spring, 1980	21
CIOE 410 Foundations of Outdoor Education	Fall, 1980	20
CIOE 530 Media Implications for Curriculum Development in Outdoor Education	Spring, 1981	- *

* This course will begin in February, 1981. There are presently 22 persons pre-enrolled.

Dr. Wiener has been the instructor for all courses except CIOE 520 which was taught by Dr. Robert Vogl.

Student Data

Item	Number
*Students taking only one course	22
Students taking two courses	15
Students taking three courses	4
Students taking four courses	16
Students taking five courses	9
Total students enrolled in all courses	66
Students accepted as majors in OTE	21
Graduates with H.S. Ed (of the 21 majors)	5
Students currently applying for admission	4
Students taking courses only	45
Students who have taken courses in summer session at Taft Campus	13

* Ten of these students were enrolled in their first course, CIOE 410, this semester.

Note that CIOE 410 has been offered twice and is a prerequisite to some courses in CIOE. Several students enrolled in Fall, 1980 will be taking CIOE 580 next semester.

Student Population Characteristics

Thus far, practically all of the sixty-six persons enrolled in courses have been members of C.O.E.O. These persons have included elementary, secondary and special education teachers: outdoor center staff teachers, school board outdoor education coordinators and consultants, environmental specialists, and resident center directors and staff members. While the majority of participants live in the Metropolitan Toronto area, there have been persons who commuted from Hamilton, London, Sarnia, Waterloo, Kitchener, Cornwall and the Haliburton region. Some of these locations are over 100 miles from Toronto.

Several persons hold, or have held executive board positions in the Council of Outdoor Educators, including three chairpersons. Some of the coordinators, consultants and teachers are employees of some of the largest school boards, not only in Ontario, but in all of Canada.

The caliber of persons enrolled in courses, without exception, has been of the highest quality. They have been enthusiastic and highly motivated, and their academic performance and outcomes have been very strong. Class and individual projects and reports: participation in discussion and activities: and outside research and study have shown them to be thorough and serious students. Attendance for course sessions, which involved several Friday evenings and all day Saturdays and Sundays, has been almost perfect. Those Ontarians who have come to summer sessions at Taft Campus have made an equally good impression on faculty and peers in terms of personal character, cooperativeness, and academic ability. The average GRE score for the twenty-one majors in the degree program is 1067.

Conclusions and Recommendations

It appears that the contractual agreements between N.I.U. and C.O.E.O. have attained a high degree of success. For N.I.U., in a period of enrollment decline the C.O.E.O. pool of potential students has shown that

the enrollments over four years can adequately meet the financial obligations of the contracts entered into by C.O.E.O. In addition, new majors have been enrolled in the degree program, and visibility has been gained that further enhances N.I.U.'s international role. The infusion of Ontario outdoor educators into the CIOE Taft programs has added new dimensions of professional understanding and broader perspectives of current practices for faculty and fellow students here in Illinois.

The assistance of C.O.E.O. personnel and its Professional Development Committee in cooperatively carrying out the logistics of course delivery has been outstanding. In particular, working relationships between N.I.U. faculty and Mr. Ralph Ingleton, Ms. Nancy Henderson, Mrs. Lynda Ellis, and Mr. Charles Hopkins has been excellent.

For outdoor education in Ontario, and persons involved therein, the N.I.U. courses seemed to have provided a tailored approach to professional improvement that could not be gained elsewhere within the province. The N.I.U. "brand of outdoor teacher education" seems to have fit well with what C.O.E.O. members needed and wanted. The respect and notoriety gained by N.I.U. has been evident in personal conversations, letters of appreciation and inquiry, proclamations and endorsements.

At the present time the Professional Development Committee is preparing a proposal to be considered for a fifth contract for 1981-1982. Dr. Wiener has been contacted and liason work will be continued early in 1981 and preliminary contract arrangements will be ready to submit to Dr. Orville Jones for expediting.

It seems reasonable to project that:

1. C.O.E.O. members enrolled in previous courses will continue to take additional courses offered in the Toronto area, and some will seek admission to the Graduate School with a major in OTE.
2. Publicity and word-of-mouth will continue to attract new enrollments, including persons who will become members of C.O.E.O. because of the courses.
3. There are many non-C.O.E.O. persons aware of the previous courses who might enroll in future courses. (This past fall over forty inquiries were received by the C.O.E.O. registrar because of publicity in a Provincial Teacher Federation Newsletter.)
4. Colleges and universities in Ontario will not be prepared to duplicate such offerings in the next few years.
5. There are potential locations outside the Toronto area where courses could be developed and offered through C.O.E.O. sponsorship.

In conclusion, it would seem beneficial for both N.I.U. and C.O.E.O. to continue the relationship established through contractual agreements for outdoor teacher education courses. Such an arrangement is a logical extension of other personal and professional involvements. Ontario educators and CIOE faculty members have developed relationships over many years and they continue to exist in the spirit of mutual respect and productivity.

Regional News

WESTERN REGION

Western Region is presently working on several projects. One is a resource list similar to Central's. To date we have received 14 forms back.

A second project is our local gatherin's which are aimed at increasing membership in specific areas and helping the people in Western Region get to know each other better.

Some upcoming events include a Bruce-Gray Gatherin' on Arctic Travel on Wed., Feb. 18. Others will follow in London, Waterloo and hopefully Down South.

Canoe trips are planned for the Saugeen River on May 17 and the Rankin River the beginning of June.

A joint F.O.N. & C.O.E.O. workshop at Long Point is a possibility for April and a Point Pelee weekend in October.

Our newsletter is now on the move and Bruce's should be in the mail January 30. Waterloo is doing it in March. We are still looking for a locality for May.

Help Wanted

Sheila Mudge has notified the Advisory Board that she intends to resign as Anee editor, effective at the annual meeting, 1981. We are, therefore, actively searching for a new editor.

If you are interested in assuming this vital role in C.O.E.O., now is the time to start learning the ropes. Please contact:

Sheila Mudge,
92 Aylesworth Ave.,
Scarborough, Ontario.
M1N 2J6
(416) 690-2269

MOVING?

If you are moving, John Aikman needs your new address in order to keep Anee coming to you. Please send your name, your previous address, your new address and your moving date to:

John Aikman,
47 Rama Court,
Hamilton, Ont.
L8W 2B3

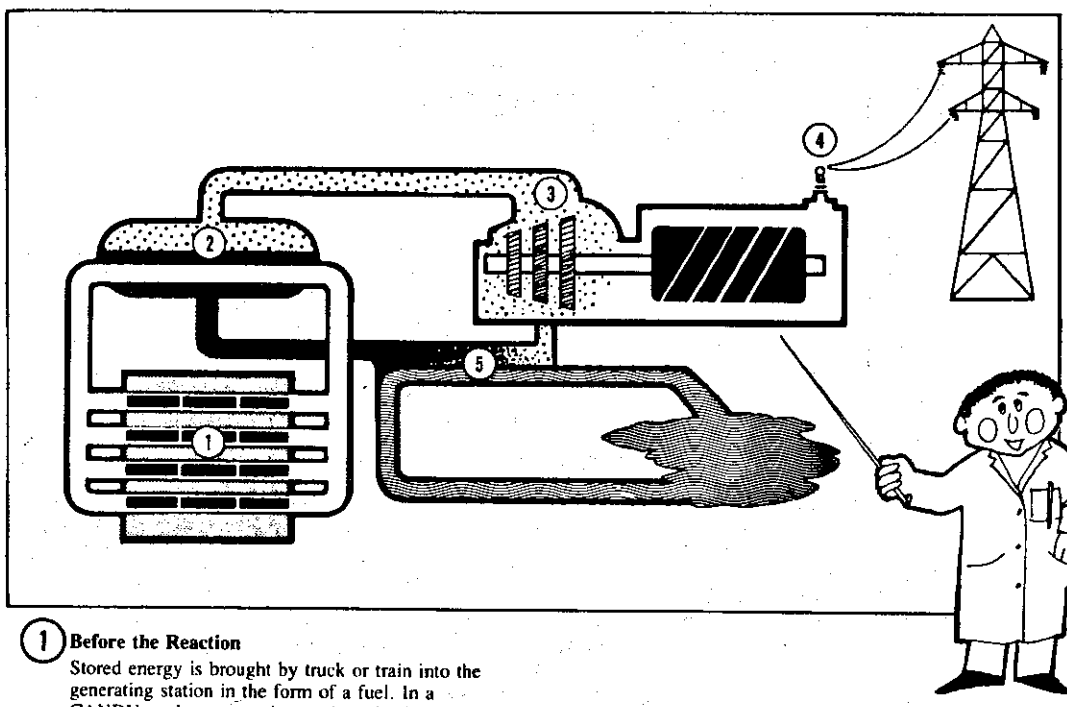
Do not send change of address information to the newsletter editor, please. This will just slow things down.

NUCLEAR ENERGY

a first look

— How the CANDU reactor works —

A CANDU nuclear reactor generates electricity by transferring energy (moving it) and by transforming energy (changing its form).



1 Before the Reaction

Stored energy is brought by truck or train into the generating station in the form of a fuel. In a CANDU nuclear generating station, the fuel is uranium. When it is put to use, the uranium is placed in the section of the reactor called the calandria. Here, through the process of nuclear fission, some of the energy stored in the uranium is transformed into heat.

2 After the Reaction

Some of the energy originally stored in the uranium fuel has been transformed by the process of fission into heat. This heats up the uranium fuel bundles, which in turn heat up the heavy water coolant which flows over them. This hot coolant flows to the heat exchangers. Here, some of the heat is transferred to a separate flow of ordinary water, boiling it and transforming it into steam.

3 Before Generation

In the heat exchangers, some of the energy released from the uranium fuel has been transformed into steam. In this form, it flows from the heat exchangers to the blades of the turbines. Because this transfer causes the turbines to rotate, we can say that the energy has now been changed into the form of motion.

4 After Generation

Some of the energy released from the uranium fuel has been transformed into motion in the turbines. Once again, it is transferred; this time, along the shafts which connect the turbines to the generators. In each generator, this energy is transformed yet another time; the energy of the motion is changed into electrical energy. At this point, then, some of the energy which was originally stored in the uranium fuel can be transferred from the generating station to our homes, factories and offices along wires, in the form of electricity.

5 Afterwards

Not all of the energy from the uranium fuel is finally transformed into electricity. Some of this energy stays in the steam, passing the turbine blades. Then it is divided. Some of it returns to the heat exchangers in the form of preheated steam. Here it reduces the reactor's own energy consumption by helping to maintain the steam cycle. The remainder is transferred one more time; it heats another flow of ordinary water which discharges into the lake or river beside the generating station. □

Fission:
The mystery of the missing mass

When uranium is fissioned in a CANDU reactor, it is transformed. The transformation results in a number of "fission products" including, for example, elements such as barium and krypton. It also results in two very useful surpluses, a surplus of neutrons and a surplus of energy. We'll start with the surplus of energy.

"The secret, my dear Watson, is to explain the missing mass. Let us take this chunk of butter, which has a mass of 500 grams. Using an ordinary kitchen knife, I'll cut it into two pieces. There, it's done. Now, on weighing them, we observe that the smaller piece has a mass of 200 grams, and the larger piece a mass of 298 grams. That, if I am not mistaken, Watson, makes a total of 498 grams. 498 – not the 500 we originally had. What has happened to the missing mass? It was here a moment ago. Inspector Lestrade: don't let anyone leave this room."

Understanding the energy surplus which results from nuclear fission begins with the same sort of discovery: that there is a difference in mass between the uranium before the fission reaction and its products afterwards. Using barium (Ba) and krypton (Kr) as fission products, let's induce a fission reaction in 500 grams of uranium (U) and find out how much mass "goes missing". *(See table below)*

Clearly, there is a difference in total mass after the fission reaction, 0.38 grams less than there was before the reaction. Where has the missing mass gone? In fact, it has actually ceased to exist as mass; it has been converted to energy, in this case, energy in the form of the rapid motion of the nuclear particles (protons and neutrons) in the fission products.

Heavy water is the moderator substance in a CANDU reactor. Its function is to slow neutrons down to thermal speed, to enable their capture by U-235, thereby inducing fission.

Stage	Element	Mass In Grams	
Before fission	Uranium (U)		500.0
After fission	Barium (Ba)	298.49	
After fission	Krypton (Kr)	194.72	
After fission	Surplus neutrons (n)	6.41	
After fission	Total mass		499.62
Before/after difference			0.38

Einstein's famous equation, $E = mc^2$, gives us the relation between the missing mass and the created energy. E stands for the energy in joules, m the mass in kilograms, and c the speed of light in a vacuum. In the reaction we induced as an example, the missing mass, 0.38 grams, was converted to 3.42×10^{20} joules of energy.

The Principle Of The Reactor

How can a uranium nucleus be split to create this energy surplus? It is too small to be cut with a knife. The initiating event is the capture of one of those surplus neutrons, thus:

$$\text{U-235} + 1\text{ n}$$

This induces the reaction of fissioning which, in our example, works out this way:

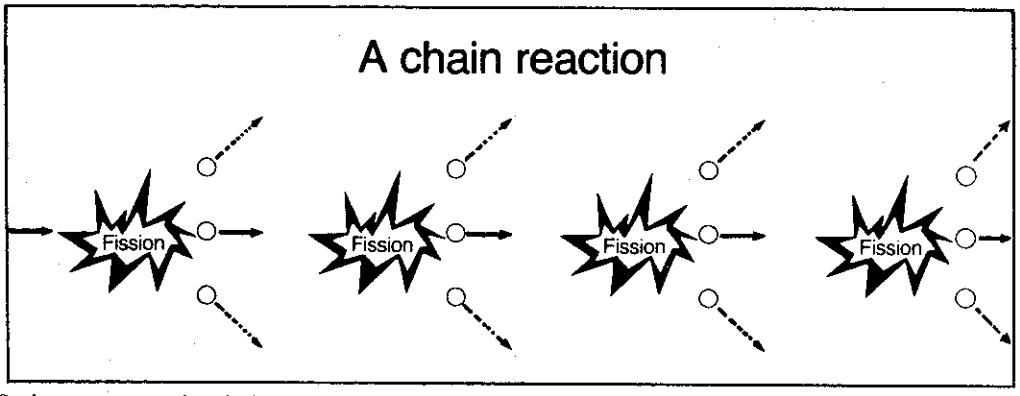
$$\text{U-235} + 1\text{ n} \longrightarrow \text{Ba-141} + \text{Kr-92} + 3\text{ n}$$

Function Of The Moderator

The surplus neutrons (3 n) emitted as a result of each U-235 reaction are available for capture by other U-235 nuclei. However, at the moment of emission they're travelling too fast (up to 42 000 km/s). To initiate fission, they must be slowed down (to approximately 3 km/s). This slowing down is accomplished by a "moderator" substance. In the case of CANDU reactors, the moderator is a rare form of water, called heavy water.

The Chain Reaction

On the average, approximately three surplus neutrons (3 n) are released for every one of the millions of nuclear fissions which occur. Two of them are absorbed and make no contribution to



On the average, approximately three surplus neutrons (3 n) are released for every one of the millions of nuclear fissions which occur. Only one induces a new fission reaction.

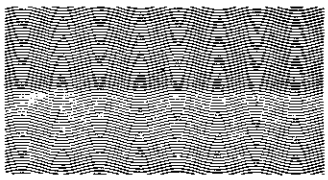
fissioning. One of them, however, suitably slowed down by the heavy water moderator, is captured by an unfissioned U-235 nucleus. This capture induces a fission reaction, during which approximately three more surplus neutrons are emitted. As in the previous instance, one of these is captured by another U-235 nucleus, inducing another fission reaction, with the release of more neutrons, and so on, indefinitely, as long as the reactions are permitted to continue. This continuous process of reaction after reaction after reaction is called a chain reaction.

The amount of energy released by chain reactions is staggeringly large. The total energy output from the whole chain of reactions of one single 22 kg fuel bundle during its time in a CANDU reactor is sufficient to provide for all of the electrical energy needs of the average Canadian home for more than 100 years.

Did you know this?
CANDU is an acronym based on the words Canadian Deuterium Uranium.

Control Of The Chain Reaction

Ordinarily, the rate of energy output from a CANDU reactor is decreased or increased by raising or lowering the levels of water in its "liquid zone control units". There are 14 of these units in place amongst the fuel channels in the calandria. They contain ordinary water, an excellent absorber of neutrons. If the level of water in one of these control units is raised, there is an increase in the number of surplus neutrons absorbed in that zone of the calandria. This



Light water is used in the 14 "liquid zone control units" in a CANDU reactor. Its function is to absorb neutrons, to prevent their capture by U-235, thereby preventing fission.

prevents them from being captured by U-235 nuclei in the fuel, and the result is a slowing of the chain reactions in that zone of the calandria. If the level of water in all of these units is raised, the result is a slowing of chain reactions in all 14 zones of the calandria.

To stop energy output altogether, the levels of ordinary water in all 14 liquid zone control units must be raised until chain reactions stop everywhere in the calandria. The reverse situation is also true, of course; lowering the levels of water in these control units will decrease the absorption of surplus neutrons, thereby increasing the number of neutrons captured by U-235 nuclei, the number of fission reactions induced, and the total energy output.

For extraordinary uses, there are two other types of control units in a CANDU reactor: 4 "control absorber units", which are used mainly for large, rapid reductions of energy output; and "control adjuster units" which are used only after a total shutdown, to help the reactor start fissioning again.

"And there, Inspector Lestrade, is the mystery in its entirety, its secrets revealed for all to see. Perhaps 'see' is an improper word. I did not 'find' the missing mass, because it had ceased to be, but I did account for it in the form of the energy released. As for the surplus neutrons — well, now that you know of their habits, I'm sure you'll be able to control them. — Ah, yes, the butter. That reminds me that it's past 4 o'clock. Lestrade, shall I give you this knife? Good! Now you may let everyone go. Watson, fetch us a cab and let's be off home; it's time for tea. I wonder if Mrs. Hudson has baked fresh bread today. With one or two grams of this creamy butter..." □

For and

THE CASE FOR NUCLEAR POWER

1

The arguments for nuclear power rest on the assumption that the demand for electrical energy will continue to experience growth in the foreseeable future. Energy conservation and alternative, renewable energy technologies (solar, biomass, wind, etc.) will have a marginal and uncertain impact on this demand by the year 2000. An assured and reliable supply of electricity provides substantial economic and social benefits which would be at risk if shortfalls are allowed to develop in the supply of electrical energy.

2

Oil and natural gas, which are not resources indigenous to Ontario, have important uses (chemical feed-stocks, liquid transport fuels) for which they should be increasingly reserved as their price escalates and supply depletes by substituting electricity wherever possible.

3

Coal, with which Ontario is not well endowed, is the principal alternative to nuclear-generated electricity but has escalated rapidly in price and carries with it heavy environmental and health costs.

4

Uranium is indigenous to Ontario and is available in significant quantities elsewhere in Canada, thereby minimizing the province's dependence on uncertain and increasingly expensive imports and maximizing our potential for self-reliance.

5

The CANDU reactor technology developed independently by Canada over the past twenty-five years represents an unparallelled achievement in an extremely competitive high technology field. It is a proven technology which is available now.

6

The CANDU reactor burns natural uranium which not only is available from within our own frontiers but obviates the problems associated with the acquisition of uranium enrichment services, a costly, complex and sensitive (from a proliferation point of view) technology available to few countries today yet necessary for all current generation non-CANDU light water reactors. Furthermore, CANDU reactors consume uranium more efficiently than any other first generation reactor available and therefore help to conserve this nonrenewable resource.

7

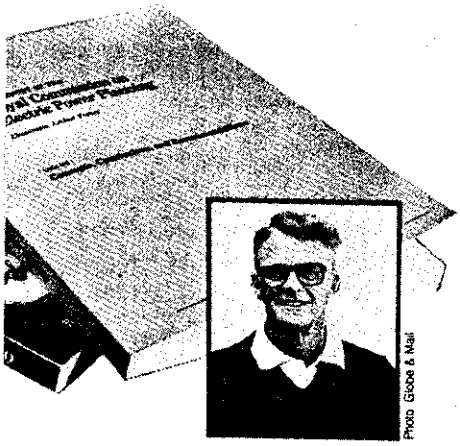
All human undertakings inevitably involve some risk to individuals and society as a whole. The safety of CANDU, and indeed nuclear power stations of all types, has been demonstrated. The safety standards and record of the nuclear industry are unequalled and provide a model for other industries. Nuclear power, therefore, represents a risk to society which is vanishingly small, particularly when compared to the risks to which we are already, often voluntarily, subjected.

The Royal Commission on Electric Power Planning was established by the Government of Ontario in July, 1975. Under the Chairmanship of Dr. Arthur Porter, it was empowered "to examine fully the concepts and programme of Ontario Hydro in relation to technical, socioeconomic, and environmental factors for the period from 1983 to 1993 and beyond", and "to direct its efforts towards establishing a framework for the further development of the electric power

8

Nuclear power is environmentally more benign when compared with currently available alternatives, especially coal. Radioactive emissions from nuclear plants during routine operations are negligible when compared to natural background radiation to which we are all subjected or to the radiation dose which the average person receives from medical X-rays. Although the wastes created by nuclear-generated electricity are highly radioactive for very long periods of time, they are much smaller in volume and can be

Against



system in the best interests of the people of Ontario".

In December, 1977 the Commission was requested by the Government "to complete the examination of issues relating to nuclear power and to prepare an interim report on its opinions and conclusions". In September, 1978 this interim report was issued under the title *A Race Against Time*. The bulk of this article is a complete quotation of the sections detailing the cases for and against nuclear power.

THE CASE AGAINST NUCLEAR POWER

1

The critics of nuclear power are confident that an effective programme of energy conservation and efficiency improvement is possible and could significantly reduce the growth rate for electricity without altering existing lifestyles and living standards, thereby making nuclear power unnecessary. They argue that an energy conservation programme would be cheaper, faster and less environmentally disruptive while creating more jobs, where they are needed, than by bringing nuclear generating capacity into being. Such an approach would buy time to re-evaluate energy supply strategies leading in the long run to a sustainable, resilient energy system based on indigenous, renewable energy technologies (solar, biomass, wind, etc.) which can be more appropriately and efficiently matched to the end-uses for which energy is needed.

2

The safety of nuclear power stations, especially CANDU stations with their limited operational experience on a commercial scale, has not been proven beyond reasonable doubt. The health and environmental consequences of a major accident at a nuclear plant could be both long-lived and catastrophic. The probability of such events is higher than the low risk levels which the nuclear industry has publicized.

3

Public health and the health of workers across the entire nuclear fuel cycle – mining, milling, refining, fuel fabrication, plant operations, spent fuel management, and decommissioning – may be at risk due to chronic exposure to low-level radiation, the aggregated effects of which may not be detectable for many years.

4

The mining and milling of uranium ore produces very large volumes of long-lived, low-level radioactive tailings which have leached into waterways in the vicinity of Elliot Lake, Ontario, thereby posing serious health and environmental problems which have yet to be adequately addressed.

5

No method for the safe and permanent disposal of toxic and long-lived high-level radioactive nuclear wastes has been demonstrated. These wastes must be isolated from the environment and people for periods of time longer than the recorded history of human civilization and may therefore present a threat to future generations who will not have received any of the benefits of nuclear-generated electricity.

6

The current cost figures for nuclear-generated electricity do not reflect the true costs because of various forms of government subsidization and hidden or externalized costs which society as a whole will pay. Nuclear power is also extremely capital-intensive, a situation which will result in fewer jobs per dollar invested than any alternative. Therefore, a heavy commitment to nuclear power will limit the availability of capital both for other social uses and for the development of alternative energy systems whose costs and benefits seem more sensible and sustainable.

7

Nuclear power is a centralized, highly capital-intensive and complex technology which few people understand. It is a "hard" technology requiring very long lead-times, highly sophisticated controls, extensive planning and regulation and unending vigilance to ensure safety. It is therefore a technology which demands and tends to increase further the centralization of society, thereby eroding further our potential for diversity, resilience, self-reliance and adaptivity.

FOR NUCLEAR POWER cont...

more easily contained and isolated from the environment than the by-products of coal-fired generation.

9

CANDU generated electricity has proven to be highly reliable and is independent of uncontrollable factors such as weather.

10

Based on life-cycle costs, nuclear generated electricity is significantly less expensive than currently available alternatives such as coal. The nuclear industry anticipates that the cost advantage which nuclear energy now enjoys will tend to increase with time.

11

A Canadian nuclear industry, based largely in Ontario, with the capability to fabricate and supply 80 per cent of the equipment and material required for CANDU plants, has been put in place over the past two decades. This industry employs 30 000 people, many of them highly skilled professionals and technicians. If an orderly domestic market of sufficient volume for CANDU plants is forthcoming, the future employment and investment potential offered by nuclear power is impressive.

12

Although there is no economic incentive to recycle and reprocess spent fuel from current, highly efficient, once-through natural uranium burning CANDU reactors, CANDU can be adapted to other fuel cycles based on plutonium or thorium. This flexibility could greatly extend the life and viability of both the CANDU system and finite uranium supplies, thereby providing a Canadian alternative to the fast breeder reactor. □

AGAINST NUCLEAR POWER cont...

8

Nuclear power is based on an uncritical and unimaginative extrapolation of historical trends into the future. The lengthy lead-times required to deploy nuclear stations provide little flexibility to cope with future social, economic and political uncertainties.

9

If a major commitment is made to expand nuclear power in Ontario, the reprocessing of spent fuel to extract plutonium and the deployment of second-generation advanced fuel cycle technologies will become inevitable because of the finite nature of uranium resources. The massive human and financial resources which will have been committed over the next two or three decades will provide an added and perhaps irresistible momentum. These second-generation nuclear technologies will dramatically escalate the safety, environmental and proliferation risks associated with nuclear power.

10

Nuclear power will lead to greater local and international tension and instability by making the raw materials and basic technology required for nuclear weapons more widely available, by providing further potential targets to terrorists, the inevitable response to which will negatively affect our civil liberties, and by forcing competition for an increasingly strategic but finite raw material – this time uranium rather than oil.

11

Nuclear power should be considered a technology of last resort and the option of phasing out of this technology before it becomes irreversibly established should be preserved. A temporary moratorium on further expansion of nuclear energy should be immediately adopted while an extensive education programme is undertaken to better inform the public as to the full range of implications which would accompany a large future commitment to nuclear power in Ontario. Measures to ensure the continued viability of the nuclear industry during a temporary moratorium should be developed. The moratorium should be accompanied by serious programmes of energy conservation and renewable energy development. □

The following is a quotation from the February, 1980 report of the commission, entitled *Volume 1: Concepts, Conclusions and Recommendations.*

"Because of the safety record of Ontario's nuclear power stations – more than 60 reactor-years of operating experience, during which no member of the public has been killed or injured as a result of a nuclear accident – and because of the more than 1,600 reactor-years of experience, on a world-wide basis, during which there has been no major release of radioactivity, we reaffirm our earlier finding to the effect that CANDU reactors are safe within reasonable limits. However, in view of the additional information made available to the Commission since publication of the Interim Report, especially relating to the TMI accident, we cannot overemphasize the importance of continued vigilance. The fundamental consideration in connection with nuclear safety is attitude. The only attitude that will maintain public confidence is one that openly recognizes that nuclear plants are by their very nature potentially dangerous, and therefore recognizes the necessity of continually questioning whether the measures in place are sufficient to prevent major accidents".

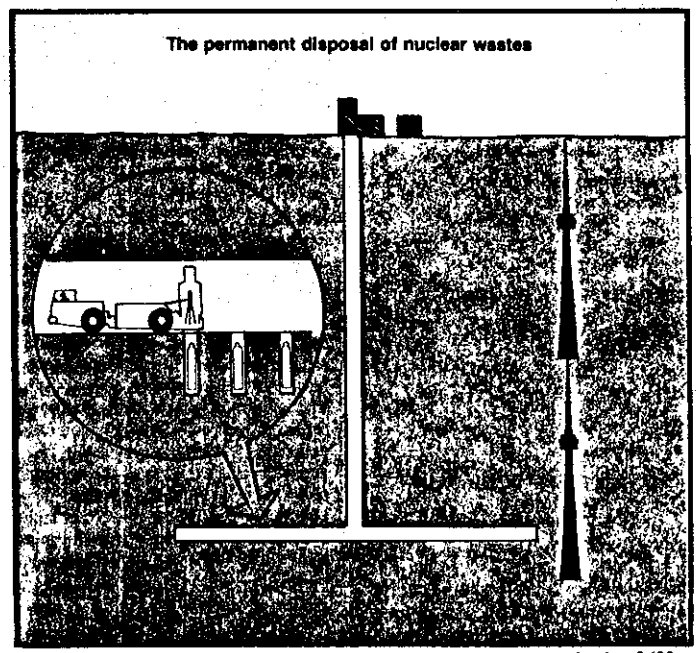
A decision that must be made

Without doubt, one of the most dangerous features of a modern society is its continuous production of toxic wastes, the unvalued, therefore unwanted, by-products of its industrial activities. At the present time, many of these wastes, especially those in chemical forms, are simply discarded in the ecosystem; they're dumped into lakes, rivers and the sea; or they're spewed into the air.

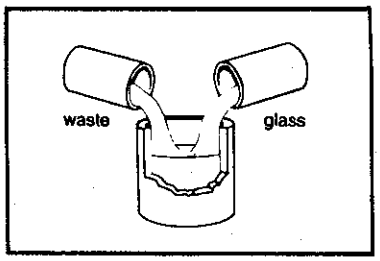
In common with most other industrial activities, the generation of electricity by means of nuclear reactors produces wastes. In fact, radioactive wastes are by-products of every stage of the nuclear fuel cycle: mining, milling, refining, fuel fabrication and reactor operation. In distinction from many other industrial wastes, however, the fuel wastes of nuclear generating plants are not "simply discarded in the ecosystem". Quite the reverse happens; nuclear fuel wastes are carefully and continuously kept in isolation, the object being to keep them out of the ecosystem for long periods of time.

More than 99.9% of the radioactivity produced in the operation of a CANDU nuclear reactor is concentrated in its used fuel bundles. When these are discharged from the reactor, they are intensely radioactive. After ten years of contained storage, their radioactivity decreases to less than one-tenth of one percent (<0.1%) of its initial levels. Nevertheless, it is still so high that, even after ten years, bundles of used fuel must be completely contained by some shielding medium such as thick concrete or lead, or by a covering depth of water.

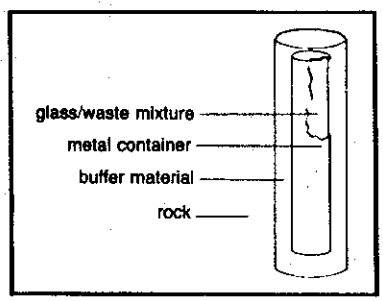
At the present time, there are approximately 150 000 spent fuel bundles in water-filled storage pools at CANDU reactor sites. The question is: "What are we going to do with them?" In general, there are two options. One option is to consider used fuel as a waste having no further use, hence no value. In this case, after appropriate treatment, the spent fuel would be moved to a permanent containment site and disposed of. The second option is to recognize that there is still quite useful material, plutonium, in used fuel which, if it were recovered, could be used in a CANDU reactor again. In this case, the irradiated fuel would have to be reprocessed to recover its plutonium, and only the wastes left after this reprocessing would be consigned to permanent disposal. What are we to do with our used fuel bundles? Should we recover the useful plutonium they contain? At the present time, the cost of reprocessing used fuel bundles for plutonium recovery would be too high; it is cheaper to write off its value. However, by 1999, the situation might be different; at the beginning of the 21st century, we might be able to save both the material resource and money through reprocessing.



If research confirms the method, we'll bury our nuclear fuel wastes at depths of 600 – 1000 metres – that's approximately one and one-half CN towers down.



The first step would be to mix the waste with glass, to harden into a solid mass inside its container.



Then, the container would be encased in a buffer material and buried as shown above.

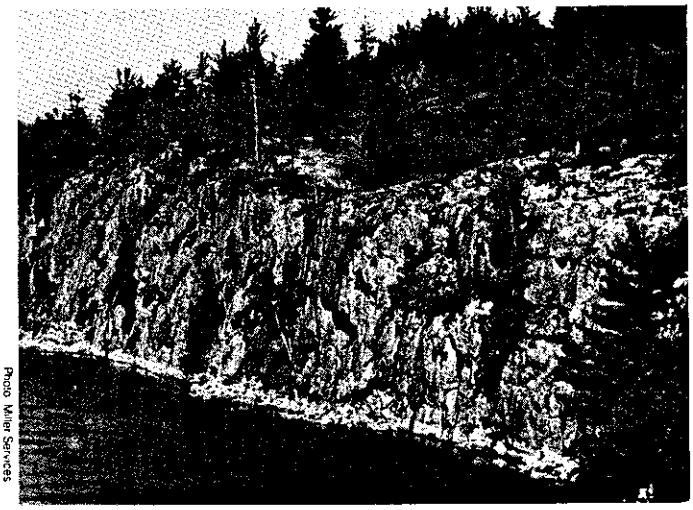


Photo: Miller Services

In Canada, we're researching burial deep in the Canadian Shield.

Should we recover the potentially useful plutonium in our used fuel bundles? There's a lot there, and by the turn of the century there will be a lot more. In fact, it is estimated that the energy potential of all the recoverable plutonium in the CANDU fuel bundles we'll have used by the year 2000 will be equivalent to the energy potential in three billion – yes, three billion – barrels of oil. At our 1980 rate of use, this amounts to Canada's total oil consumption for four years.

At the moment, neither option has been chosen. Our present course of action is storage; we submerge our used fuel bundles in large pools of ordinary water at our nuclear generating stations. This is both safe and economical. However, it is not regarded as a permanent solution.

Research into developing safe permanent disposal methods for used nuclear fuel wastes is being carried out in many countries. Most of these, including Canada, have concluded that the best solution to the problem of irradiated fuel disposal is to bury it deep in the earth. In Germany, they're experimenting with disposal in abandoned salt mines. In Canada, we're researching burial deep in the Canadian Shield, in rock formations which have remained stable for more than two billion years.

Critics of the use of nuclear power express many legitimate concerns about the management of used fuel bundles. Certainly, it must be acknowledged that research into the unanswered questions is not yet completed. Nevertheless, they are being researched, and as each new bit of information becomes available, it is distributed internationally.

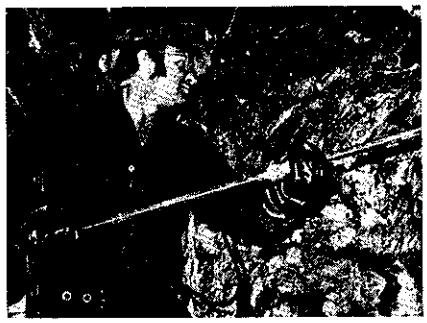
The Canadian research programme into the safe disposal of nuclear fuel wastes calls for the construction and operation of at least one "demonstration facility" to test the basic design. In connection with this programme, Atomic Energy of Canada, Limited (AECL) is investigating deep water movement and the hydraulic properties of rock at three locations. In Manitoba, this work is being done at their Whiteshell site. In Ontario, it's at Chalk River and Atikokan.

The decision, whether or not to recover the still useful plutonium contained in used CANDU fuel bundles, is an economic and political decision which must, in the end, be made by governments. And even if that decision is in favour of reprocessing, there will still be a lot of radioactive waste left after the plutonium is extracted; this waste will still have to be kept isolated from the earth's ecosystem for very long periods of time. □

underground *continued ...*

"provision and efficient use of high volumes of ventilation air", complete with monitoring systems to ensure that all of its components work well. Third, the Report suggests "rigorous adherence to sound work practices". The idea here is that the amount of mineral dust and radon gas can actually be reduced by the way the miners do their work.

Although important, implementing the suggestions discussed above cannot solve the problem of the miners' abnormal risk of developing lung cancer. One way of reducing this risk appreciably would be to limit each miner's accumulated life-time exposure to ionizing radiation in this work environment. There'd be an additional gain from this course of action: the likelihood of individual miners developing silicosis would be reduced as well. It is thought, however, that the most significant difference could be made by implementing the Ham Report recommendation that miners "cease smoking both at home and at work". Why? Research has clearly established that uranium miners who smoke cigarettes are much more likely to develop lung cancer than are non-smoking miners.



The Report again: "medical science is not currently able to determine which individual regardless of exposure to ionizing radiation is destined to develop carcinoma of the lung". For the miners as a whole, however, there is firm statistical evidence that lung cancer occurs more frequently than it does amongst persons who do not experience abnormal exposure to ionizing radiation in their work environments.

Excerpts from: CURRENT;
Energy Information for Ontario Teachers

AN INVITATION TO JOIN . . .

COEO COUNCIL OF OUTDOOR EDUCATORS OF ONTARIO

MEMBERSHIP APPLICATION FORM

PLEASE PRINT COMPLETE AND SEND WITH REMITTANCE TO ADDRESS BELOW

NAME (mr.)(mrs.)(miss)(ms) _____

HOME ADDRESS _____ MAILING ADDRESS IF DIFFERENT FROM HOME

_____ _____

POSTAL CODE _____ _____

POSTAL CODE _____

TELEPHONE NUMBER (where you can be most easily reached) ( ) __ __ __ ___ ___ ___ ____

If applying for a FAMILY MEMBERSHIP, please list persons who will be using the membership _____

YOUR POSITION _____ EMPLOYER _____

UNIVERSITY OR COLLEGE ATTENDING FULLTIME IF A STUDENT _____

I am in the _____ Region of COEO (see listing below)

FAR NORTHERN Patricia, Kenora, Thunder Bay, Algoma, Cochrane, Sudbury, Rainy River, Timiskaming.

NORTHERN Parry Sound, Nipissing, Muskoka, Haliburton, North Bay, Simcoe County

WESTERN Essex, Kent, Elgin, Middlesex, Huron, Bruce, Grey, Perth, Wellington, Waterloo, Oxford, Brant, Haldimand-Norfolk, Dufferin, Lambton

CENTRAL Niagara South, Lincoln, Hamilton-Wentworth, Halton, Peel, York, Ontario, Metro Toronto

EASTERN Victoria, Durham, Peterborough, Northumberland, Hastings, Prince Edward, Lennox and Addington, Renfrew, Frontenac, Leeds, Grenville, Ottawa-Carleton, Dundas, Russell, Stormont, Prescott, Glengarry, Lanark

OUT OF PROVINCE Any area in Canada outside of Ontario

OUT OF CANADA

THE C.O.E.O. MEMBERSHIP YEAR IS FROM SEPTEMBER 1 TO AUGUST 31. ANY MEMBERSHIP APPLICATIONS RECEIVED AFTER MAY 1 WILL BE APPLIED TO THE FOLLOWING YEAR

Please check Type of membership NEW ___ RENEWAL ___ Give current membership number _____

Fees attached: Regular $15.00 ___ Student $8.00 ___ Family $25.00 ___
Institutional Subscription $10.00 ___

Make your cheque or money order for the appropriate amount and payable to the COUNCIL OF OUTDOOR EDUCATORS OF ONTARIO and mail with this form to

John Aikman,
Membership Secretary,
47 Rama Court,
Hamilton, Ontario.
L8W 2B3