

A black and white photograph of a rocky shoreline. In the foreground, there are large, light-colored rocks and a body of water. In the background, a dense forest of evergreen trees is visible on a hillside.

ANEE

Newsletter of the Council of
Outdoor Educators of Ontario

Volume 10 Number 1 Sept. 1980

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Newsletter Editor	Sheila Mudge	#1004-283 Pharmacy Av Scarborough, Ont. M1L 3G1	(H)416-757-4926 (B)416-439-4773

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Far North	George Oldenburg	109 Garland Cresc., Sudbury, Ont. P3B 3P2	(H)705-566-9392 (B)705-566-9600
North	Sylvia Humphries	62 William St., Barrie, Ont. L4N 3J6	(H)705-726-1714 (B)416-775-2262
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Central	Judy Simpson	67 Gloucester St.#7, Toronto, Ont. M4Y 1C8	(H)416-929-9171 (B)416-630-6263
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Government Liaison	Dorothy Walter	Min. of Culture and Recreation 8th Flr., 77 Bloor W. Toronto, Ont. M7A 2R9	

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ANEE IS MOVING!

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(EFFECTIVE DEC.20)

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ANEE (AH-NEE) IS AN OJIBWAY WORD USED AS A GREETING OF FRIENDSHIP, IT IS USED AS A CORDIAL SALUTATION AMONG 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.

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Next Deadline!

NOV. 30 and DEC. 30

FROM THE EDITOR'S DESK

There are many times when I'm glad I don't live south of the border. Oh true, in Canada, our energy costs are rising rapidly, our dollar runs a poor second, and our national leaders leave much to be desired. But we don't have Ronald Reagan! The Oct. 9, 1980 Toronto Globe and Mail quotes him on the front page--"If the EPA and the environmentalists had their way, we'd all be living in rabbits' holes and birds' nests," and then summarizes his message -- "Ronald Reagan puts miners' jobs ahead of clean air." What an easy way to take a giant step backward!

Of course, my speculations on the kind of America an avowed anti-environmentalist would lead are academic by this point in time. I'm sitting at my desk writing on Oct. 14 with 3 weeks to go in the campaign, and Reagan clearly ahead in the polls, but you're reading this sometime in November and the decision has been made.

There are those that would argue that Reagan at least has the guts to state his position openly, while in our own country industry has only to flex its muscles and the government backs down on its emission control deadlines or whatever.

I guess my real question is what are we doing about this situation? How many of us have been actively involved in this municipal election campaign? How many of us attend all-candidates' meetings to put our concerns forward and then vote for the candidate who deals with environmental issues best? How many of us, given the opportunity, would vote for Reagan, without ever knowing that he regards us as Outdoor Educators and practising environmentalists, as raving extremists? How many of us would vote for coal miners' jobs instead of clean air?



Sheila Mudge,
Editor, Anee

Food: The other energy crisis

by Karen Paul

The population of the world is approximately four billion. By 1985, it will be five billion. The world's population has doubled during the last thirty years. The world's consumption of fossil fuel energy has doubled in the last ten.

Along with land, water and human labour, fossil fuel energy is a primary resource in the production of the world's food. Yet, in spite of the breathtaking expansions of world fossil fuel energy in recent years, increases in food production continue to lag behind increases in population. There are still shortages of food. There are still undernourished people. There is still death from starvation in several parts of the world.

In the production of food, fossil energy is used in several ways. It is used directly as a source of motive power in the forms of gasoline, diesel oil and electricity. It is used indirectly in the forms of fertilizers, herbicides and pesticides. It is used supportively in the manufacture of machinery and tools, in the delivery of raw materials to farms, and in the distribution of farm products to their ultimate consumers.

The resources of fossil fuel energy, land and human labour are interrelated and can be substituted for one another. For example, a tractor, which uses fossil fuel energy as its source of power, can be used to reduce human labour on the land. Similarly, increasing the use of fertilizers can reduce the area of land used. Food production as practised in Western countries has become increasingly energy-intensive: it uses massive inputs of fossil fuel energy as substitutes for both land and human labour. However, its efficiency in energy terms is questionable. The graph, and the table below, are offered as illustrations of these points. It would appear that the Mexican corn farmer of 1970 realized an energy return on his original energy investment 48 times the return his United States counterpart realized, mechanization notwithstanding.

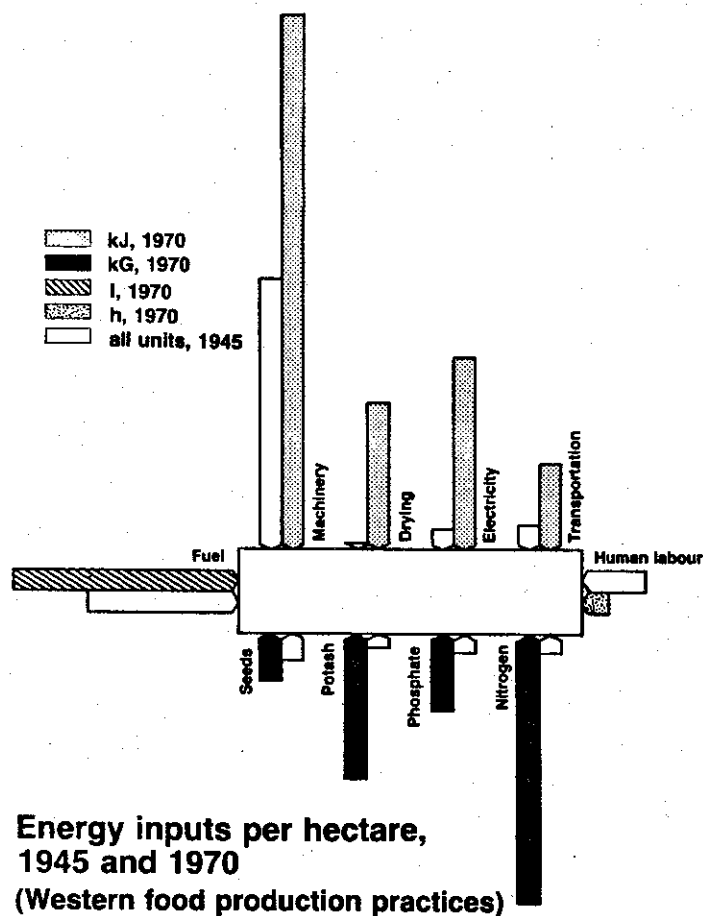
Because they depend so completely and so inefficiently on energy from fossil fuel sources, the energy-intensive food production practices of the Western countries appear to be incapable of solving the problem of continuing world food shortages. As world supplies of petroleum and natural gas become increasingly scarce, a transition to other forms of energy will become absolutely necessary, as will a re-

examination of the options for substitution of land, water and labour for fossil fuel energy in food production practices. In the remainder of this article, we'll be looking at some of the possibilities for efficient change.

ENERGY EFFICIENCY OF CORN PRODUCTION (1970)

	Energy-intensive (United States)	Labour-intensive (Mexico)
energy investment per hectare	27 818 020 kJ	222 353 kJ
energy return per hectare	74 866 682 kJ	28 649 769 kJ
efficiency: return on original energy investment	2.68	128.8

Land: Currently, 1.4 billion hectares are being used for food production around the world. There are an additional 1.8 billion hectares which could be made productive of food. Most of this latter area of land lies outside densely populated parts of the world, hence it will be brought into use only when economic conditions justify the extra expense of doing so.



Conservation Tillage: Minimum or zero tillage is an encouraging new development for both land and water management. This reversal of past and present practice conserves soil, water, labour, energy, machinery and fertilizers. Surprisingly, it also increases yield.

Drip Irrigation: This is a new system of water management whereby the crop and not the soil is irrigated. Drip irrigation systems can be installed which will apparently result in as much as 40-50% savings of both energy and water, as well as savings in herbicide and labour costs.

Forage Crops: Forages are human food resources in that they provide feed for approximately 2.5 billion ruminant animals which, in turn, man can make use of. They're also important in managing and improving the soil base. Grasses and perennial forage legumes provide a complete vegetative cover which protects the underlying soil against erosion. Forage legumes perform another useful function too, in that they fix nitrogen and thereby add to the soil's nitrogen level without the expenditure of any fossil fuel energy. They can also be used in rotation with row crops such as corn. Land resources for forages are world wide and there are many opportunities for improvement in the ways we use them.

Biomass Conversion: Gasoline and diesel oil used by farm machinery can be replaced by methane made from crop residue and animal dung. For every tonne of cereal grain, there are one or two tonnes of crop residue which in fuel energy terms, are presently being wasted. Biomass conversion could be especially important as a source of energy in developing countries. Here, animal and human labour is abundant and cheap, but fuels are scarce and expensive. Fuels made locally through biomass conversion could be used for the operation of machinery and devices for which animal or human muscle power would be unsuited or inadequate, for example, in lift irrigation device and threshing machinery.

Renewable Energy: In the future, there are expected to be many more applications of technology to harness the energy of the winds, the tides and the sun's radiation directly to power some of the machinery used in food production which is now being driven by non-renewable fossil fuel energy.

We are all well aware of the current world fossil fuel energy crisis. What we are not so conscious of is the world food energy crisis. Clearly, without many changes in food production practices; without much more efficient use of fuels, human labour, land, water and biomass wastes; without concerted application of the full range of human expertise and ingenuity to the solution of these two world energy problems, both crises will worsen, acute local fossil fuel shortages, known to be temporary have already led men to kill. It is frightening to think what could happen, should world shortages of food become more acute, increasingly widespread and permanent. If men will kill in imagined defence of their livelihoods, what will we do in actual defence of our lives?

Reprinted from Current
September/80 Vol. 1 No. 4

REGIONAL NEWS

North

On Friday, September 5th, 1980 the first annual COEO Northern Region meeting was held at Toad Hall near Coldwater, Ont. All members of the Northern district were invited and we had a very encouraging turnout.

The meeting took the form of workshops in which the following topics were presented: Stan Choptianey (Barrie) presented his views on "Map Reading and Orienteering." Phyllis Bentley (Barrie) shared her ideas on "Outdoor Cooking." John Nidderly, who is a local expert on birds gave a session on "Bird Study" with particular emphasis on the numerous Great Blue Herons that inhabit the area. "Canoe Strokes and White Water manoeuvres" were presented by Mike Mason from Alliston. Rick Hay and John Sexton, both from the Outdoor Centre at Kearney were willing contributors to the gathering. Rick did work on "Fire Building" while John gave a stimulating session in "Astronomy" with particular emphasis on the summer triangle and its relationship to the constellations visible in the Coldwater area. Nancy Walsh (Barrie) and Dave Reddell (Guthrie) contributed to a very relevant session on "No Trace Camping" Colleen Wallace (Innisdale) showed excellent understanding and application in her session on "Insect Pests and How To Deal With Them."

The evening was concluded with a gathering around a large, friendly campfire.

A special visitor from the Advisory Board was also present and we would like to thank the board for their interest in our area. Sheila Mudge--acting in two capacities--Advisory Board Rep and Anee Editor spoke to the group about Anee contributions and inspired us to continue our local membership drive.

I would like to thank all who contributed and participated in this annual gathering. The only thing missing from our meeting was the formerly active Tawingo crew.

Bob Gouldie
Chairman, Northern Region.



Central

Slate of Officers - 1980 - 81

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Treasurer -	John Logan	H. 537-7881 B. 278-6104
Secretary -	Carol Austin	H. 622-6717 B. 278-7287
Advisory Board Rep -	Judy Simpson	H. 929-9171 B. 630-6263

Meetings this year will be on staggered days and we are hoping to see more of you in attendance. Programs look exciting and informative! A schedule of meeting dates and programs for the year follows:

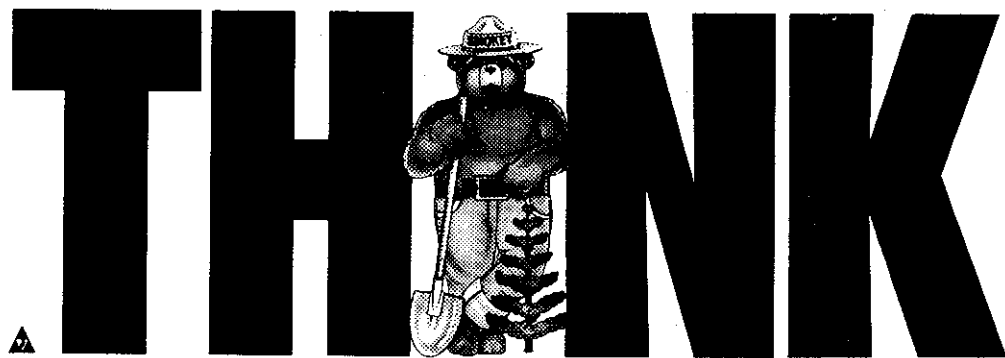
DATE	LOCATION	PROGRAM
September 27, 1980	ANNUAL CONFERENCE, Sudbury	
November 12, 1980	#44, 1455 Tyandaga Park Dr Burlington (Carol Maher's -634-6695)	Guest Speaker Beatrice Olivastri National Survival Institute
January 13, 1981	Hillside O.E.C. Scarborough 282-2611	An Arctic Experience- Brent Dysart
March 9, 1981	Hobberlin Collection Drewry P.S., North York	Fossils, Energy, Geology
May 14, 1981	Jack Smythe Field Centre Peel Board 453-4197	Campfire Music- Clare McGee
June 17, 1981	Forest Valley O.E.C. North York 630-6263	Social, Square- Dancing



THINK FORESTS



THINK FORESTS...PREVENT WILDFIRES



CREATIVE ARTS

A WILD ANIMAL

Five paces away!
It must have been movement
But after that awareness
Nothing except a nose testing the air.
The eye fixed, unblinking
For four minutes,
And then relaxing
One rapid blink.
The mosquitoes had found me
Was creature bothered too?
My eyes darted many times
To the sentinel body,
To my watch,
To annoying insects,
It was Easter bunny pose
Chocolate rabbit fashion.
Only one ear was visible
Until after ten minutes.
The chocolate melted
And front legs now on ground
Bunny hop placed him behind tree
And out of my sight.

Brant County, Ontario
June 8, 1973

John Ogletree

A SPECIAL VINE

Today I discovered - rediscovered the vine.
First the carpet of Hepatica, purple and white
And then the brown hanging length of sinuous scaly wood.
A boyhood joy returned and seizing Nature's rope high
I launched my body and again experienced childhood flight.
My child thrilled as she duplicated this feat
I warmed momentarily and then the sudden fear
That parents feel for future generations chilled me.

Kent County, Ontario
May, 1968

John Ogletree

BARNEGAT BAY MAGIC

Green light underwater pulses
Each time a foot splashes from the ship's swim platform
Chemicals, gases or organisms?
Cold light, bioluminescence, from a myriad of jellyfish blobs.
Each swimming stroke illuminated by tiny flashes.
A nude celebration attended by countless coelenterates.
The moon swings back and forth to lend additional magic
But some fear of injury intrudes, for can't jellyfish sting?
Sea swim is cut short, but the discovery thrill continues.
Pale green pulses showing form.
Mysterious underwater kinship to airborne fireflies
Warm air breeze brushes my brow as jelly glow touches a rope.
Ocean mystery shared with friends
A life memory burned into brain.

Applegate Cove
Barnegat Bay, New Jersey
July 19, 1980
John Ogletree

THE WALK

Freedom
The rushing stream matches my emotion.
Excitement.
To step back from a towering granite mass that will not recede.
Exhilaration
To see the spider threads of water disappear in a spray that
never reaches ground.
Trespass
To view the rise of snow-melt waters on cultivated land.
Ascent
To a moss-lichen carpet with peaceful valley view.
Awakening
To time demands that prevent further climb.
Thrill
To words spoken and words unsaid.

Nolven, Norway
May 21, 1976.
John Ogletree

BOOKS - MAGAZINES - FILMS

An Excerpt

The following passage puts into words memories and feelings many of us share. It is taken from the introduction to On the Loose, by Terry and Renny Russell (Sierra Club, Ballantine Books.) This beautifully written and illustrated book was published in memory of Terry who was lost during a rafting mishap on the Green River in 1965.

--B. L. Richardson--

"Have you ever walked 34 miles on a straight-arrow dirt road in the desert with only a Jang-jar of some rusty water because you expected somebody who didn't come and then walked past your turnoff in the dark and had to sleep on a cattleguard? Have you ever dropped your sleeping bag in the ocean by mistake? Have you ever followed a jeep-track in the rain which got worse and worse and fainter and fainter and petered out on a vertical quarter mile from where you wanted to go? Have you ever slept on a cobblestone river bank, or on a sand dune on a windy night and spit sand all the next morning? Have you ever climbed a mountain but missed the right peak by half a mile but the sun was down and you were freezing and had better find some dry wood and a place to sleep in the snow quick? Have you ever walked 234 miles of mountain trail to see how fast you could do it? Have you ever started a backpack trip and hit a storm on the first pass and spent 24 hours under a wet plastic tarp drinking lumpy icy chocolate and walked through the snow to a cabin and burned your jeans drying them over a wood stove? Have you ever left your insect repellent behind on a rock? Have you ever had a cheese sandwich for Christmas dinner in Death Valley? Have you ever camped in a dump? Have you ever gone to sleep on a beach and woke up in water and had to sleep up on rocks under a cliff which rained sand on your neck all night and lost a tennis shoe and almost your glasses to the tide? Have you ever lain under a truck for five hours because it was the only shade in the desert in July? Have you ever walked 50 miles, or walked 41.3 miles with blisters for glory? Have you ever fallen out of and under a boat in a rapid because the deck wasn't tied on right? Have you ever had just dried figs and sandy bread for breakfast, lunch and dinner? Have you ever floated a lake shore at night groping for a campsite midst bare rock and cactus? Have you ever built a fire with a water ski because it was the only wood?

No, I reckon not all of them, maybe. But that's how we've grown up, Ren and I: that and a thousand little glimmers on the water, a thousand red streaks in the sundown sky, a thousand puffs up the trail. Everybody goes about it differently, of course, but I don't guess we'd trade any of

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it. It's meant a lot of good humour. It's meant a few flashes of almost unbearable beauty which I can only call religious experiences (and if religion means anything, that's what they were.) "Fitness," experience, are part of it, too. Most important is an imperishable attitude, a philosophy if you like, a way of laying out the world and of planting ourselves in it. Now we know what is trivia and what is real.

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The best of times and the worst of times. Now Science with its right hand unveils the more and more delicate machineries of life just before (or after) its left hand destroys them. The same ravaging giant who threatens to demolish it utterly on Earth is the only creature who can comprehend and glorify Creation... But no, we'd better not allow ourselves even that little egoism. Doesn't the crane whoop in celebration, the honker honk in celebration, the otter dive and slide in celebration, the coyote bark in celebration, the buffalo paw and grunt in celebration? We aim a black box and scratch on beaten wood pulp.

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Actually, the eloquence of the wilderness is not a pattern for human eloquence. There lives no hardier fool than whoever shouts, "The scene inspired me to set pen to paper," or brush to canvas, or thumb to lyre. The wilderness inspires nothing but itself. Our babbling and scratchings resume in the den or studio, whenever things resume their comfortable and incorrect proportions.

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Terry and Renny Russell, planet Earth, twentieth century after Christ. We live in a house that God built but that the former tenants remodelled - blew up, it looks like - before we arrived. Poking through the rubble in our odd hours, we've found the corners that were spared and have hidden in them as much as we could. Not to escape from but to escape to: not to forget, to remember. We've been learning to take care of ourselves in places where it really matters. The next step is to take care of the places that really matter. Crazy kids on the loose; but on the loose in the wilderness. That makes all the difference."

Berkeley
February 6, 1965

Terry Russell

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POT POURRI

A two billion year secret

by Jay Ingram

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In the currently hectic search for new sources of energy, scientists and engineers have proposed some exotic (and so far infant) technologies such as controlled nuclear fusion and solar powered satellites. But not all proposals have been quite so grandiose: some suggest that man should try to mimic the energy processes of a very common and totally unglamorous thing, the green plant.

Green plants make sugars from sunlight, water and carbon dioxide gas. This process is called photosynthesis. It's an incredibly complex act, and the details of it are far from being completely understood.

Even the colour of a leaf hints at its molecular sophistication. Chlorophyll, the principal light-trapping molecule in most leaves, absorbs light from both the red and the blue ends of the spectrum. Hence, when we see light which is reflected from a leaf, it's low in reds and blues but high in greens, the colours the leaf does not trap.

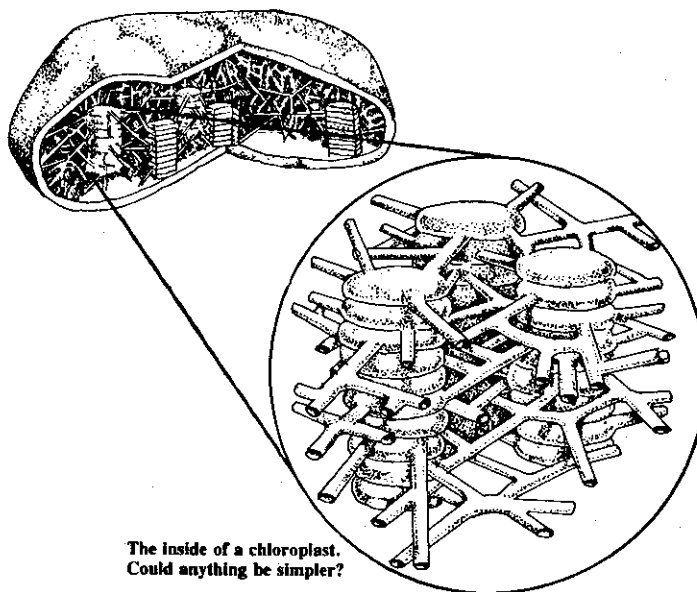
Every leaf contains millions of cells, and in each one of these there are approximately a dozen football-shaped chloroplasts. The chloroplast is filled with layers of membranes, rather like stacks of pancakes, and the subtle chemical events of photosynthesis are played out in and around these stacks.

The entire process hinges on bouncing electrons. Light hitting the chlorophyll molecule energizes an electron and, in less than 1/100 seconds, that electron spins away and is passed hand-to-hand-like down a line of molecules. On its way, the electron loses its new-found energy, some of which has been trapped. This trapped energy is ultimately used to weld carbon atoms together to make sugars.

Let's get back to the electron. It's dislodged from the chlorophyll molecule by light, but chlorophyll doesn't have an unending number of electrons. For the process to continue, there has to be another source of electrons. That source is water. As water molecules are dismantled in the chloroplast (a reaction which also depends on light) electrons are supplied to keep photosynthesis going, while oxygen from the water is released as waste.

It's this spilling of the water molecule that so intrigues energy researchers. If we could replace just this much of photosynthesis, using sunlight to split water molecules, we could produce hydrogen gas for fuel. H_2 from H_2O !!! Could anything be simpler?

Apparently, yes, Plants still seem to do it much, much better than people do. To date, science has got this far: Spinach chloroplasts, separated from the leaf, have been used in research laboratory systems to produce small amounts of hydrogen gas when exposed to light. Here the ultimate goal of the research is to find a replacement for the spinach chloroplast - an artificial version of the chloroplast which could be mass produced and would be longer lived than real chloroplast. Hopeful estimates suggest that the world's total - yes, total - energy needs might be met by collecting solar energy over an area of 500,000 square kilometers (that is, an area nearly half the area of Ontario) and using it to produce hydrogen gas, which could then be stored, transported and burned just like any other fuel we use.



The inside of a chloroplast.
Could anything be simpler?

To date, though, the chloroplast has not yielded up its secrets, and attempts to make artificial replicas have met with very little, very limited success. Perhaps that has something to do with the fact that the chloroplast has had a two billion year start on man. There's a certain irony in the situation, too. The modern version of photosynthesis splits water molecules to produce electrons. It is possible to use other kinds of molecules, but none of them is as plentiful and as easily available to plants as is water. The switch to water two billion years ago was a response to a shortage of other useful raw materials. It would appear that the ancient ancestors of today's green plants had their own energy crisis: they handled it by developing new chemical processes for themselves. Perhaps we will too.

Reprinted from Current
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Pelletized waste wood reduces energy costs

Abitibi-Price Inc. will become the first industry in Canada to use pelletized waste wood as a major source of fuel as a result of a major move by the company to reduce high-cost energy.

The company has signed a long-term contract with Shell Canada, Limited to buy 90,000 tons of pelletized waste wood annually to fire a boiler at its Iroquois Falls plant. It will reduce the company's dependence on gas.

Under the system called Woodex, Shell will establish a multi-million dollar pelletizing plant at Hearst, 170 miles west of Iroquois Falls. It is scheduled to go into production in early fall.

The system, never before used in Canada, will involve Shell's purchasing waste wood such as logs, chips, sawdust and shavings from local sawmills in the Hearst area. This raw material will be fed into a grinder, moved into a kiln where moisture content will be reduced from 50 percent to 15 percent and then into a high heat-pressure chamber where it will be pelletized.

The fuel will be trucked to Iroquois Falls from the Hearst plant, with each vehicle hauling as much as 40 tons of pellets.

Abitibi-Price will spend \$1.8 million at its newsprint mill this year to accommodate the new fuel. This project will include a storage bin, dust collectors on the furnace and dust control equipment on the handling facilities.

"We look upon this move as an important step in our efforts to curb rising fuel costs." T. Newman McLenaghan, senior vice president, explained.

"We must conserve energy and we must find new energy sources in order to keep operating costs down and our products competitive in the marketplace."

Reprinted from The Forest Scene, March, 1980.

Woodlots provide wildlife habitat

A well-managed woodlot encourages a diversity of wildlife, the Ontario Forestry Association was told at its annual meeting.

James F. Bendell submitted that woodlots of five acres or more often offer the best potential habitat for wildlife. He suggested they should be irregular in shape with corridors and openings, and be rich in herb and shrub production.

As many as 80 different species of birds, 50 of mammals and five to 10 each of reptiles and amphibians are to be found in Ontario, said the speaker, who is Kortright professor of forest wildlife management at the University of Toronto faculty of forestry.

Among the most important trees for woodlots, he said, are all conifers, trembling aspen, pussy willow, iron-wood, yellow birch and fruit and nut-producers.

As shrubs, he recommended yew, dogwood, hawthorn, sumac, hazel, blueberry, raspberry and elderberry. Desirable herbs included grasses, clovers, dandelion, smartweed, asters and goldenrod.

Professor Bendell said that nothing is wasted in nature. Hollow trees serve as dens and nests, and tall trees offer perches for hawks and ospreys. Dead standing trees are homes for insect, larva and fungi.

Fallen logs, wood and slash piles, drum logs, caves and rocks provide habitat.

"All these things are the furniture of the forest. You have a prime real estate in your woodlot," he said.

He advised woodlot owners to manage their property in order to enhance their enjoyment. Especially to be enjoyed, he suggested, are the various wildlife noises, odours and signs, by day and by night, seasonally and after rain and storms.

Reprinted from The Forest Scene, March, 1980.



When life hands you a lemon, make lemonade.

By Jay Ingram

Believe it or not, the cloud of our energy crisis might have a silver lining. If we can survive the immediate pressure, we might see the beginning of a dramatic, even revolutionary, change in our society. If you think this sounds ridiculous, consider another energy crisis: Britain's wood shortage of the 16th and 17th centuries.

Life at that time depended on wood. It was used mainly as fuel, but there were wooden carriages and ships, wooden buildings with wooden furniture in them, even wood by-products like vinegar, alcohol and charcoal. But wood began to run out, the direct result of more people, particularly urban dwellers, using more wood, and the dwindling supplies became much more expensive.

The price of firewood went up eightfold in a hundred years, almost triple the rate of inflation. Everyone felt the pressure in 1593, beer exporters had to begin bringing back the barrels they exported, or at least the equivalent amount of wood. But while all this was going on, there was a substitute available, one that had been around for centuries: Coal.

Coal, however, was unpopular, because it was dirty. Craftsmen refused to work with it and homeowners were reluctant to heat with it. Being fussy about using coal was easy -- until the price of wood really got out of hand. Coal began to look a lot better, although it was dirty, it was cheap. As coal became accepted, new machines for mining and using coal had to be developed; some of them, like the steam engine, began in the coal fields and went on to revolutionize society.

The steam engine solved an urgent problem for the infant coal industry. Ground water had to be pumped from the mines and the pumps in use at the time were powered either by flowing water or horses, both of which were expensive. Too expensive -- the sole virtue of coal was in its low price, so it didn't make sense to spend a fortune pumping out a mine. The hunt was on for a cheap pump, and by the turn of the 17th century, the first steam-powered pump became the rage, and the scene was set for a revolution in transportation.

Coal fields in the 1700's featured steam-powered pumps working right at the coal seam, and horsedrawn railways hauling the coal away. It didn't take long to put the two machines together. The first appearance of a steam locomotive in a coal field was in 1812, and by 1830 -- just 18 years later --

the first railway passenger service had begun: the railway age had been launched.

It's worth remembering, too, that the steam engine was only one of countless new machines and processes resulting from the wood energy crisis. In fact, the crisis actually created the Industrial Revolution, and society was transformed. Does this suggest that our 20th century energy crisis will change our society on the scale of the Industrial Revolution? And what might these changes be?

How about moving into space? Seriously -- the scenario has already been sketched by Professor Gerard O'Neill of Princeton University and Dr. Peter Glaser of the Arthur D. Little Company in Cambridge, Massachusetts. Moving to space could be a direct result of our energy needs, for example, solar energy needs; for example, solar power might be an alternate source of energy, but large-scale earthbound solar power has some serious drawbacks, such as clouds and night time. If, instead,

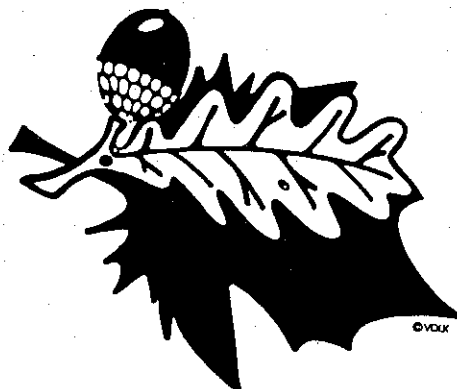
power might be an alternate source of energy, but large-scale earthbound solar power has some serious drawbacks, such as clouds and night time. If, instead, solar energy is gathered in space, both problems are eliminated.

A satellite, hovering over a target on earth, could deliver solar energy in the form a microwave to the target day or night, cloud or no clouds. It's estimated that as few as a half-dozen satellites could supply Ontario's electrical energy needs by the turn of the century, at a cost comparable to existing earthbound techniques. Each satellite can deliver up to 10,000 megawatts, depending on its size. There are, naturally, technological and ecological problems to be solved, but it is possible, and think for a moment what it could mean for our future.

Industry in space means people in space. Initially, as specialists, but maybe as colonists -- even residents. It would be an unprecedented physical leap, but it could happen. Imagine a generation of humans for whom space is home -- even the Industrial Revolution pales in comparison.

Jay Ingram is the host of Quirks and Quarks on CBC Radio, Saturdays at noon.

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POT POURRI

Analysis of A School Field Study Activity

by-John Ogletree

This author tries to emphasize the field study use of the immediate school environment but some special ecological studies must be conducted some distance from the schoolyard. Sand dune succession study or sand succession study can not be carried out by all students in the province, but the outline that follows suggests some of the organization necessary whenever students are involved in outdoor studies.

Examination of the student activity sheet shows:

- (a) A certain amount of equipment was assembled for this study. It is likely that magnifying glasses, trowels and identification guides were included with the metric tape measures and insect collection nets mentioned. Some ropes or transect lines are used to act as a reference or base line for the separate plots.
- (b) Students were probably given instructions to bring clipboards, paper and pencils for field use as diagrams and information from field and museum have to be recorded.
- (c) There had to have been previous teacher familiarity with the area in order to design the field activity itself and to establish appropriate study plots.
- (d) The class of 24 students is divided into smaller work groups that can be supervised more readily. If there had been 28 students a seventh work group could be established to work at plot #5 which would be deeper in the forest.
- (e) Some additional assigned responsibilities help with control and organization. Group captains and reporting secretaries have special duties.
- (f) Mechanical details such as transportation, noon meal, costs and times have been considered.
- (g) Prior contact with museum personnel has taken place as the museum study is probably occurring during off-season times. Access to washrooms was likely arranged at this time.
- (h) Although there is mention of plant collection in plot #1, it is likely that it is more a case of uncovering plants and covering them again after details of root growth have been recorded. Collection should not be permitted.



Safety concerns are not voiced in the student activity sheets but may have been revised verbally. The supervising teacher(s) have a portable first aid kit or access to one that is on the bus.

It is assumed that usual board policies regarding field studies have been adhered to closely. These policies deal with adult:student supervision ratios, use of parental permission and/or information forms, release of students and teachers from other regularly-scheduled classes.

This particular field study had small groups study plots but the total student group followed the entire transect after the individual plot studies were completed. The field activity acts as an excellent review of succession theory.

Field studies may be thought of as laboratory exercises in the out-of-doors. The activities do require attention to organization and safety but they allow direct observations and data collection.

This writer encourages a photographic record to supplement the observations and promises fun with the completion of this particular field study.



FIELD STUDY ACTIVITY SHEET

SAND SUCCESSION STUDY - RONDEAU PROVINCIAL PARK

DEPARTURE TIME: Bus leaves school at 9:05 a.m.

RETURNING TIME: Bus returns in time to meet county buses.

REQUIRED EQUIPMENT: Your group captain will have the necessary scientific equipment. Wear proper clothing and comfortable footwear. Binoculars and cameras can be brought to aid with observations and permit a photographic record.

MEAL: Pack a complete noon lunch as there will not be any food available to supplement your meal.

TRANSPORTATION COST: The \$5.00 fee collected last month will be used to help pay the actual costs of the three biology field trips held this school year.

ACTIVITIES: This is an opportunity to see the results of a series of changes that have taken place over a long period of time at Rondeau Provincial Park. Although sand dunes are present at Pinery Provincial Park they are absent at Rondeau so the study is one of sand succession to forest. A museum tour will take place before lunch in order to gather information on the formation and geological history of the area.

GROUP 1 - DRIFT AREA - ELAINE M*, GERALDINE M., PAT C., PAUL T.

GROUP 2 - MIDDLE BEACH - BOB B., CHARLES M., MARY-ANNE S., CAROL R.

GROUP 3 - PIONEER PLANTS - BLAKE F., BRUCE S., BOB BR., JANE O.

GROUP 4 - PLOT #2 - PAT N., JOHN C., BRAD B., ANDY B., SHERRY K.

GROUP 5 - PLOT #3 - BECKY W., BONNIE F., DENNIS C., WILFRED M.

GROUP 6 - PLOT #4 - PEGGY J., DEBBIE M., CHARLES B., DAN B.

*Note: Names underlined above denote group captains. Captains are to pick up equipment for their group prior to leaving. They are responsible for returning the equipment in good order and for submitting the ecology report for their area after compiling the information.

Group 1 and group 2 members may help the other groups complete their studies if the drift and middle beach studies conclude early.



GROUP 1 - DRIFT AREA - Establish a description of the drift area including:

- (a) Materials making up the drift
- (b) Distance of drift from water
- (c) Distance of drift from pioneer plants
- (d) Animals found in and around the drift.

Note: Classify the materials making up the drift and estimate the relative percentages of the different types of things found.

GROUP 2 - MIDDLE BEACH - Give a complete description of the middle beach area. Include measurements of the distance between present drift line and high drift line. Compare the composition of the two drift lines by getting a detailed description of the high drift line and then looking at the result of group 1 work. Include the measurements of the distance of high drift line from the water and the distance between high drift line and the pioneer plants.

GROUP 3 - PIONEER PLANTS - Survey this area of initial colonizers (marked Plot #1) and

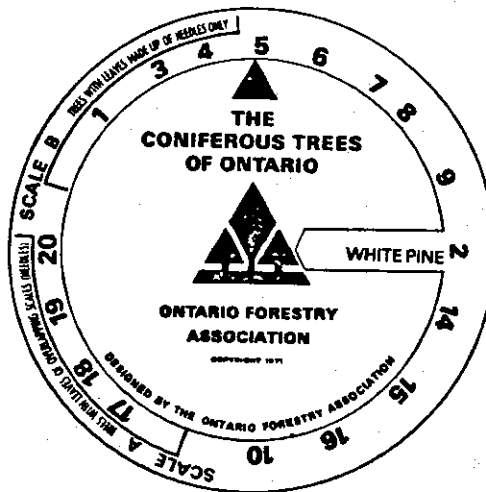
- (a) Record approximate numbers of different plants in the plot.
- (b) Collect samples of each of the pioneer plants as previously instructed.
- (c) Give a description of each of the colonizing plants emphasizing the adaptations for survival evident in the plant species.
- (d) Attempt to identify the plants by use of the identification guides and reference literature.
- (e) Excavate the root system of a grass species as completely as is possible so as to show other students.
- (f) Record the names of all animals found in this plot.
- (g) What is the distance of this plot from Lake Erie?

GROUP 4 - PLOT #2 - Is there any dominant plant species in this plot? What abiotic changes appear to have taken place? Estimate the percent of ground covered by vegetation here. Record other plant species found in addition to any predominant plant. What is the distance of the plot from Lake Erie? Use the insect collection nets to "sweep" the vegetation and report on all kinds of animals caught. List other animals found in the area of the designated plot. Include any animals that have left evidence of a previous visit to the plot area. Is the composition of the plot similar throughout its length (vertical transect?) Use diagrams or sketches to show the appearance of plants that you are not allowed to collect. Include measurements of plant height. No collection is allowed.

GROUP 5 - PLOT #3 - Establish field records similar to those required for plots #1 and #2. No collection is allowed.

GROUP #6 - PLOT #4 - Establish field data similar to that required for the first 3 plots. No collection is allowed.

At the beginning of the next week each group captain will hand in 1-2 typed ditto sheets with a summary of the group findings. These will be redistributed to the senior biology class as their study record. Individual students should add the museum notes they made on the formation of Rondeau and its geological history. It is also necessary for individuals to explain why the reported changes occurred over the years.



Get Your Own
Coniferous Tree
Identification Wheel

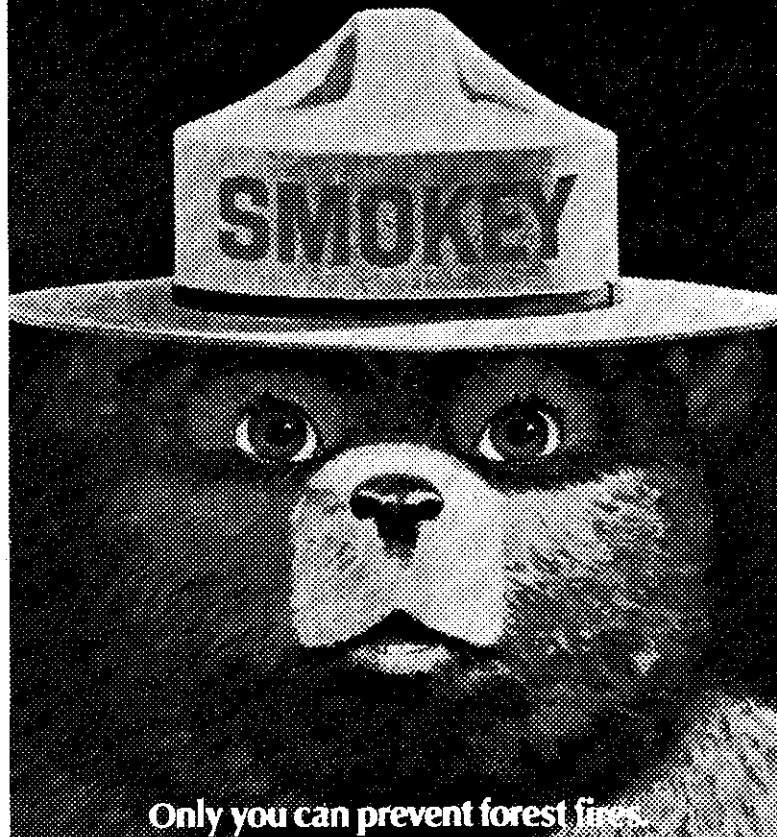
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(Instructions for use on back)

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From: _____	(name)
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Please send _____ wheels @ \$1.00 ea. - Total _____	
_____	% Provincial Sales Tax _____
Total order for which cheque/money order enclosed _____	
(Orders of 25 or more cost is 50¢ each + 7% P.S.T.)	

**An old flame
can break your
heart.**



Only you can prevent forest fires.

Ad

DATEBOOK

CANOE ONTARIO PLANS CANOE SAFETY CONFERENCE

Canoe Ontario will be hosting a Canoeing and Safety Conference Saturday, November 22, 1980, 9:00 a.m. to 8:00 p.m. at the Skyline Hotel, Toronto, Ontario. This is the first conference of it's kind in Ontario.

There will be a full day of sessions on such topics as canoeing safety in the U.S.A., hypothermia, wilderness first aid, canoeing equipment design and safety and water rescue techniques and Ontario agencies responsible for water rescues.

If you wish to receive further information on the Canoeing and Safety Conference contact Jane Arkell or Sue McGregor at:

Canoe Ontario
160 Vanderhoof Avenue
Toronto, Ontario
M4G 4B8
(416) 429-7700

CANOEING INSTRUCTOR COURSES 1981

The Ontario Recreational Canoeing Affiliation will be offering instructor level courses in Lakewater, Moving Water and Canoe Tripping in the spring and summer, 1981. If you are planning to attend one of the courses, please keep these dates in mind:

MOVING WATER: Course 1 - May 28-31
June 5-7
This course will be held on two consecutive weekends.

LAKEWATER:

Course 1 - June 5-13 (Level II and III)
Course 2 - Aug. 28-Sept. 2 Level III only)

CANOE TRIPPING: Course 1 - June 12-20
 Course 2 - June 19-27
 Course 3 - Aug. 23-Sept. 2

The locations, costs and other details will be published in the newsletter.

If you wish to receive information on the skills and theory necessary for these courses, etc., contact Sue McGregor at Canoe Ontario.

160 Vanderhoof Avenue
Toronto, Ontario
M4G 4B8
(416) 429-7700



AN INVITATION TO JOIN . . .

COEO COUNCIL OF OUTDOOR EDUCATORS OF ONTARIO

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

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

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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 _____
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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 H. Aikman, Membership Secretary COEO
14 Lorraine Drive,
Hamilton, Ontario
L8T 3R7