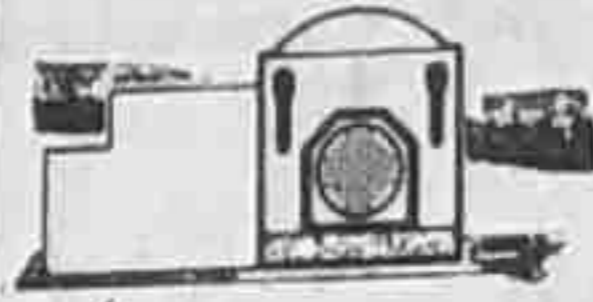


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Special Edition: Nuclear Waste Issues



Ethical Dilemmas of a Nuclear Society

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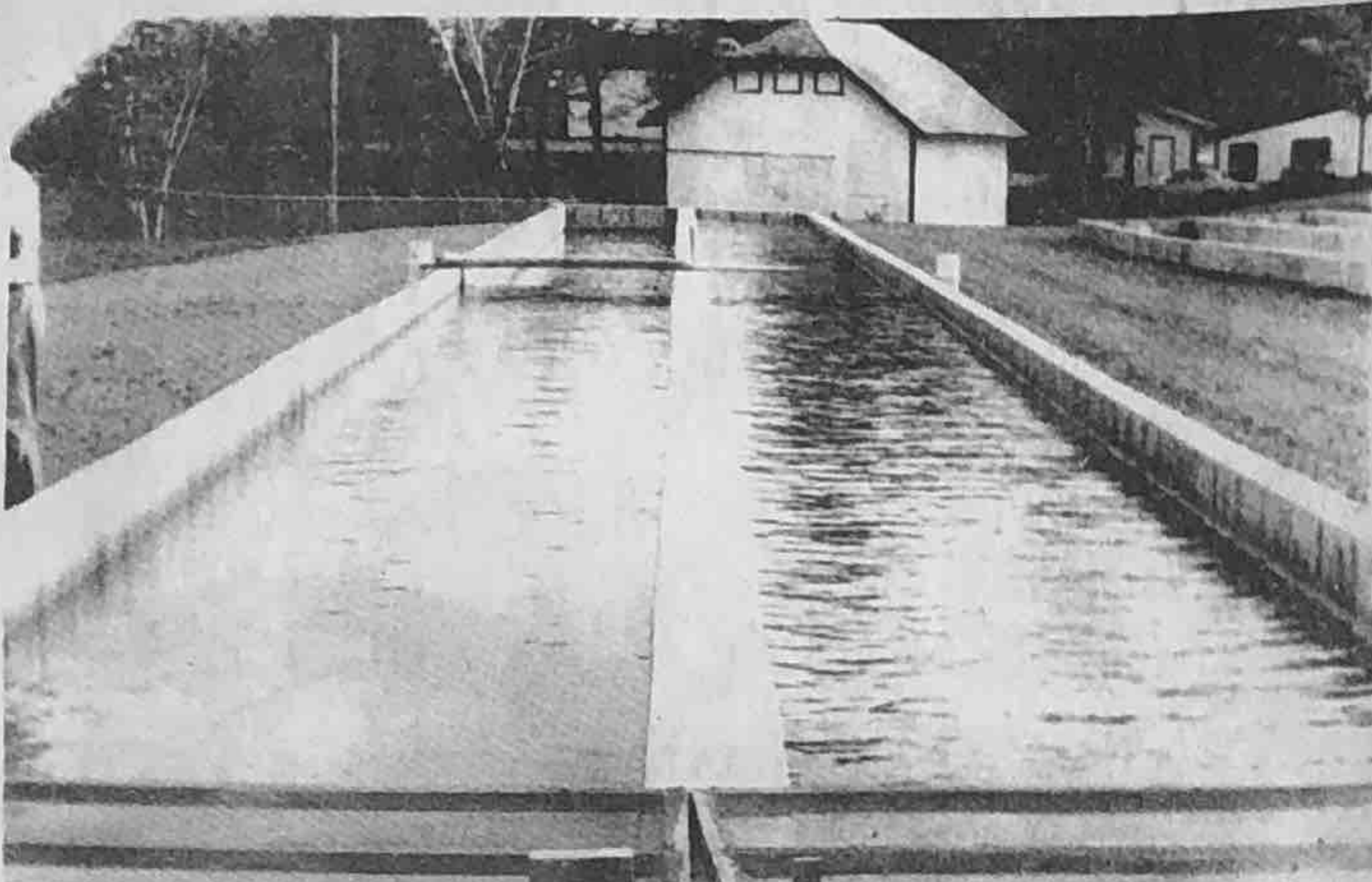


A CHRONICLE OF THE
LAKE
SUPERIOR
OJIBWAY



OCTOBER, 1986

Lac du Flambeau Dedicates New Hatchery Raceways



This is just one of the five raceway units which were recently dedicated at the Lac du Flambeau Third Annual Open House and Intensive Fish Culture Facility Dedication.

Lac du Flambeau (LdF) dedicated its new raceway facility during an open house Monday, September 29th. The facility, representing two years of planning and work, provides the LdF Hatchery with five raceway units each unit with four separate raceways.

According to Dewey Schwalenberg, Deputy Administrator of the LdF Natural Resources Department, the twenty new raceways, each 8' by 100', represent a total of 2,000 square feet of raceway. Six new rearing ponds are also completed across the road from the raceways.

Schwalenberg says that the new complex is dedicated to two principles which he defines as 1.) the provision of a needed facilities, personnel and products to maintain stocking 2.) the protection of tribal sovereignty in its ability to manage tribal resources.

Schwalenberg feels that without the latter, the State would impose its authority and regulate tribal resources.

Part of the funds for the project came from a Community Development Block Grant through the Department of Housing and Urban Development. However, the Lac du Flambeau Tribe matched the grant with \$250,000, \$100,000 of that in cash and \$150,000 in "in kind" payment.

The hatchery has been primarily raising and stocking brown trout, rainbow trout, and brook trout, according to Schwalenberg. But they are currently working with the Great Lakes Indian Fish and Wildlife Commission (GLIFWC), the U.S. Fish and Wildlife Service (USFWS) and the Great Lakes Fisheries Commission (GLFC) in a project which will provide lake trout.

Schwalenberg says a pilot project will be initiated this winter on the rearing of lake trout.

The hatchery is also in the process of developing its own brood stock for certain species. Hatchery crew have recaptured 20"-24" brown trout which were stocked as 6" fingerlings two years ago in Fence Lake. Schwalenberg says the hatchery will keep those captured for spawning and for brood stock. They will also develop a brood stock of lake trout.

Schwalenberg credits numerous individuals and organizations for their cooperation and assistance in achieving the hatchery's new complex. In particular, he praised the Lac du Flambeau Tribal Council for authorizing the project.

He says the facility was designed by tribal personnel, using blue-prints and materials from other hatcheries and the tribe's vocational-technical program.

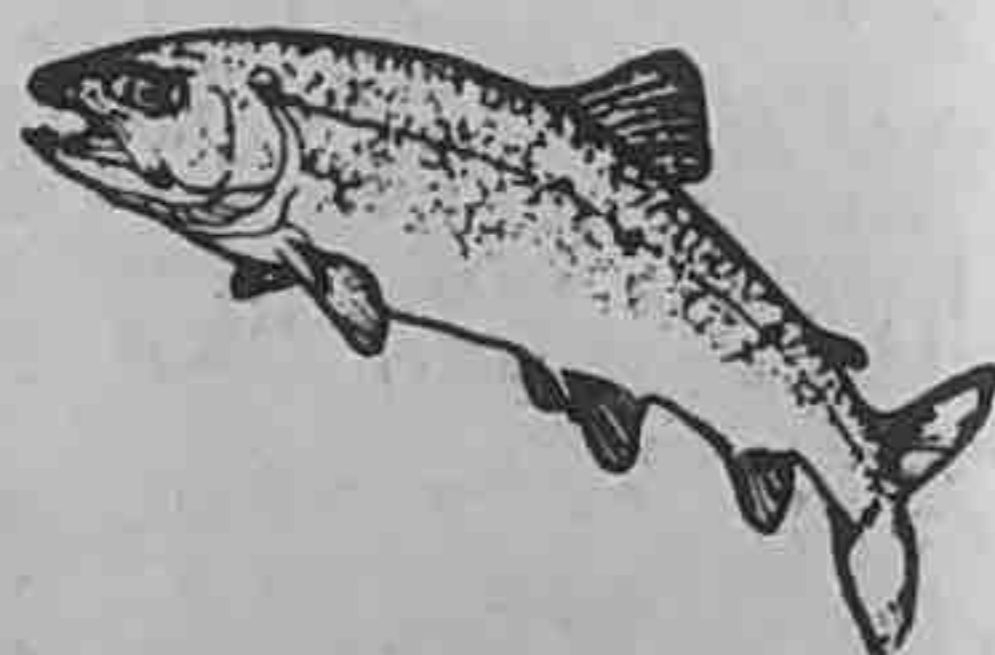
Schwalenberg feels the facility is the most technically advanced in the area.

He also credits the cooperation from the USFWS and the Bureau of Indian Affairs for providing \$20,000 worth of assistance for the wells. The pump houses, he said, were built by personnel from the tribe's fisheries department.

The project, he feels, made maximum use of tribal capabilities and personnel and emphasized the "do-it-yourself" spirit. Consequently, the project provided side-benefits such as training, creation of management opportunities and employment.

To give some idea of the hatchery's current operations, in 1986 it stocked 100,000 plus walleye fingerlings (2'-6"); several thousand muskies; and 22 million walleye fry.

All 1986 stocking was on-reservation. However, Schwalenberg notes that the Tribe did offer to donate walleye to surrounding communities to assist in their stocking efforts but were turned down in lieu of the treaty fishing activities.



Participating in the Dedication were left, Dr. Earl Barlow, Area Director for the Minneapolis Area Office, BIA; Mike Allen, Tribal Chairman; and Dewey Schwalenberg, Deputy Administrator of the LdF Natural Resources Department.



The 1986 off-reservation deer season began during September.

Don't forget to attend GLIFWC's 3rd Annual Conference

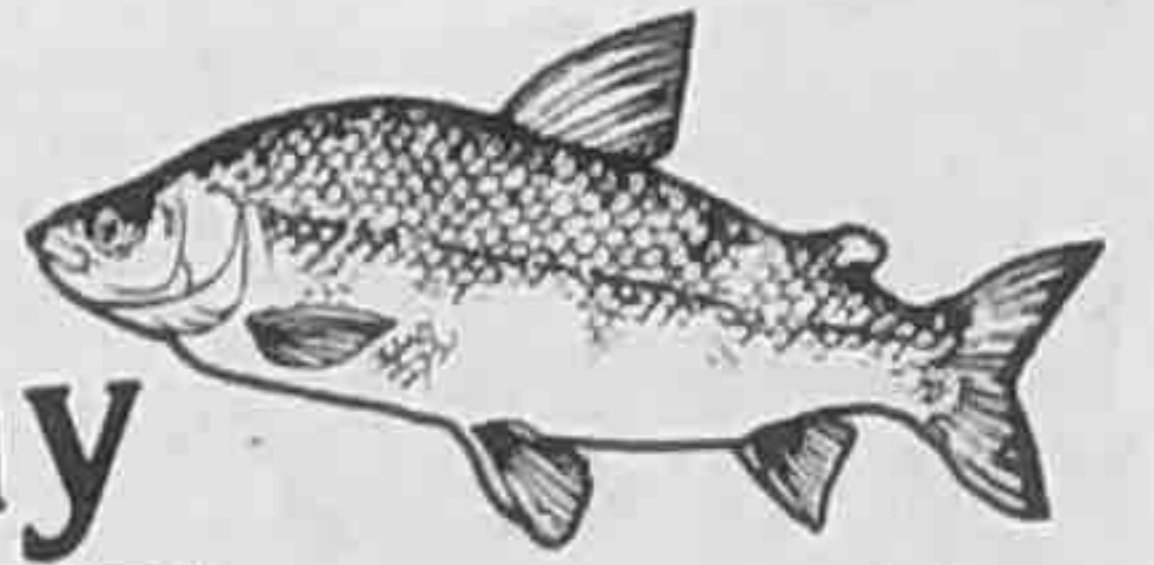
Where? Quality Inn, Barker's Island, Superior, WI

Chippewa Off-Reservation Treaty Rights will be discussed in-depth - history, social problems, treaty rights and politics, negotiations, government to government relations.

When? October 9 and 10, beginning at 9 a.m.



Red Cliff Opens Buffalo Bay Fish Company



The grand opening of the Buffalo Bay Fish Company, a tribally-owned business, took place Tuesday morning signifying the culmination of a two-and-a-half year project.

The company both retails and wholesales fresh Lake Superior fish, a process made possible by the newly-equipped building and refurbished commercial fishing dock, which lies directly below the building.

According to Richard Gurnoe, Red Cliff Tribal Chairman, the project began two-and-a-half years ago when the Red Cliff Tribal Council and the Commercial Fishing Association decided to chip in independently and erect the small processing building at Red Cliff.

Since that time, Red Cliff applied for and received a grant from the Administration for Native Americans. The grant, says Red Cliff Planner Mike Malcheski, facilitated equipping the building.

Equipment includes a new freezer, cooler, two

one ton flake ice machines and a refrigerated truck. The grant also provided for three employees and the refurbishment of the dock.

Buffalo Bay Fish Company serves 14 big boat and ten small boat commercial fishermen from the tribe as well as several non-Indian commercial fishermen.

Fish, hauled up from the boats below, are gutted, filleted and boxed for sale.

Malcheski says markets include fish producers in Wisconsin, Michigan and Minnesota as well as area restaurants.

According to Gurnoe, the business is also looking into providing suckers for a large fish processing firm in Marionette, Wisconsin. A market for rough fish, such as sucker and carp, is being sought to supplement the sale of trout and whitefish.

The new company is being managed by Jim Vermoch and also employs two fish-handlers, Don Thomas and Pete Andrews.

Gurnoe is pleased that a vision has come true after years of hard work, planning, and working through the ins and outs of the grant process.

He chuckles, remembering sending Red Cliff Vice-Chairman Leo LaFerner out to Washington with a case full of fresh fish as a goodwill gesture. By the time LaFerner was in Washington, he was trodding the halls of the capitol with a bag dripping from his load of fish, which had completely thawed by then.

Although just opened, the company has been kept busy and is already looking towards expansion, perhaps increasing the size of the dock and doubling or tripling the freezing capacity.

Buffalo Bay Fish Company, which sits on a hill above the lake opposite the tribal administration building, is open to the public and retails delightfully fresh fish. A wonderful treat for any table!



On the newly remodeled dock just below the Buffalo Bay Fish Company's building stand several of those who participated in the grand opening ceremony in September.

ORGEON YAKIMA MAN'S CONVICTION UPHELD

SALEM, OR (IPN) - The Oregon Court of appeals ruled that the state has the authority to prosecute a member of the Yakima nation for selling fish during a closed commercial season.

Warner Jim appealed a conviction in Wasco County, contending the fish were caught under a permit issued by the Warm Springs Tribe, but the court said Jim violated the permit by commercially selling the fish.

Jim's prosecution was valid because he violated court-imposed measures to protect Columbia River Fish runs, said the court.

The appeals court, in another case involving a Warm Springs man, ruled that the state could not prosecute Bruce Jim, who was convicted of selling a deer he lawfully killed on the reservation.

The court said state regulation of Indian hunting and fishing must give way to Indian rights and that those rights permit selling deer meat off the reservation.



Jim Vermoch, manager of the new Buffalo Bay Fish Company cleans a trout.

Treaty Deer Season Underway

TRIBAL DEER REGISTRATION

The 1986 Off-Reservation Treaty Deer season is upon us. Deer hunting started on September 13 and will run through December 13, with a 5 day break from November 17-21. All deer shot under tribal regulations must be registered at tribal conservation departments. What is registration and why is it necessary?

Deer registration begins in the field with the deer hunter. This year tribal hunters may hunt antlerless deer in any deer management unit which is open and there is no limit to the number of antlerless deer permits which may be issued. In exchange for this liberal system the hunter must accept some responsibility. All deer killed, regardless of sex, must be tagged with a metal carcass tag issued to tribal hunters. This tag establishes who killed the

deer. If the deer has no antlers (a doe or fawn) then the antlerless deer permit must be validated. To validate an antlerless deer permit the hunter slits out the number of the deer management unit in which the deer was killed.

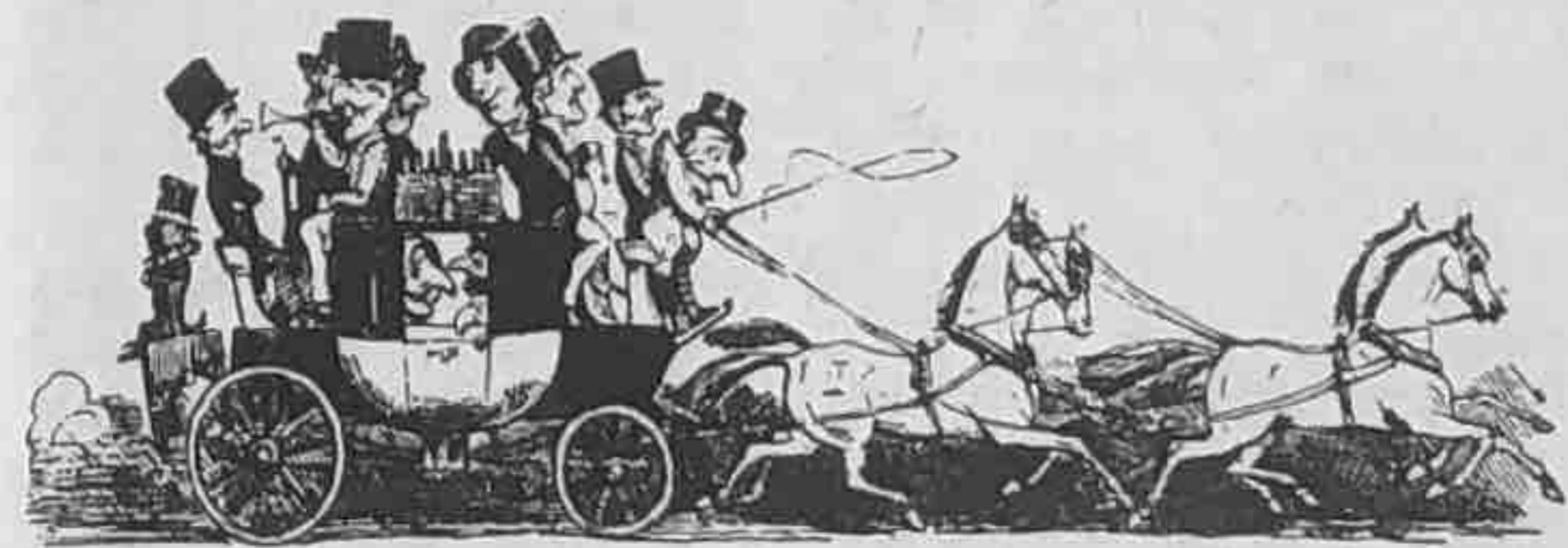
The deer must then be brought to the tribal conservation department (remember, transport the deer in plain view). Once there, the registration person will inspect the hunter's permit and the deer to make sure all is in order. Information on the sex of the deer, the management unit and county in which it was killed, the date of kill and permit and registration tag numbers will be recorded. Finally, the registration tag will be affixed to the deer. This should be a easy and relatively rapid process.

The primary reason for registration is to keep an accurate account of the number of deer which have been killed and

where they have been taken. Each deer management unit has an antlerless deer quota. When this quota is reached that unit must be closed to antlerless deer hunting. It is therefore necessary that we know how many deer are being harvested.

The other reason for deer registration is that it is one of the few times that the biologists can get their hands on a wild animal. With the animal in front of them, they can determine it's age by examining its teeth and they can determine it's ability to survive the winter by measuring the amount of fat on the body.

With all of these pieces of information (harvest, ages and fat index) wildlife managers can evaluate the deer management program to determine if any improvements can be made. We have no one but the hunters to thank for providing us with this valuable information.



"IMMIGRANTS WERE JUST DRIVING THROUGH THE COUNTRY"

Reprinted from the Duluth News Tribune Letter to the Editor column, Sunday, September 7.

EDITOR: Referring to Norbert Colhoff's Aug. 31 letter, did Colhoff forget his history?

God did not make America exclusively for the Indians. He made it huge so that everyone in the world who wanted to come here would have room, and with the same rights that the first citizens had.

As people from other countries started coming here to build homes, and live in freedom, they were attacked, tortured, murdered, scalped, and their belongings were

burned by the Indians. The newcomers had not molested or harmed the Indians in any way. The immigrants were just driving through the country, looking for a place to live.

When enough of them managed to survive to defend themselves, the tide was finally turned. If wrong has been done towards the Indians, it was in retaliation for the heinous crimes committed against them.

LEONA B. ANDERSON
1419 HILL AVENUE
SUPERIOR





The Miner's Canary and the Eagle:

By
David Siegler
GLIFWC
Policy Analyst

Treaty rights do not exist in isolation. Treaty hunting and fishing rights cannot adequately be understood except as one aspect of tribal self-government. By exploring the bases of tribal self-government, the issue of treaty hunting and fishing rights can better be seen as of a piece with tribal self-government as a whole, and with the place of tribal self-government in our American constitutional scheme.

Consider these provisions taken from a tribal constitution. They provide the tribal government with the power:

- to appropriate funds for public purposes;
- to levy taxes;
- to regulate the conduct of business and to impose taxes and license fees on doing business;
- to regulate the inheritance of property
- to charter organizations for economic purposes;
- to promulgate and enforce ordinances providing for maintenance of law and order and the administration of justice;
- to regulate the activities of hunting, fishing, ricing, trapping, and snowmobiling; and
- to enact ordinances governing planning and zoning.

What is going on here? These are not insignificant powers that are included in this constitution: taxation, law and order, zoning, inheritance, hunting and fishing regulations. Can the tribe get away with this? Who gave them these powers?

U.S. CONSTITUTION

Most of us have been schooled to believe that the United States constitution allocates the entire universe of governmental power in the United States. Indeed, the allocation of power - between the national government and the states, and among the three branches of the national government - is one of the primary functions of the constitution. But where does the constitution say anything about the powers of Indian tribes?

The constitution refers to Indians only twice. One of those references deals with apportionment of congressional districts, and provides that "Indians not taxed" are not counted. This provision does not take us very far in the exploration we are attempting here. The other provision does, and we will return to it shortly. But neither provision allocates or recognizes Indian tribal governmental power. Why then, 200 years after the adoption of the constitution, is the allocation of power still a live issue in Indian law? Why do Indian tribes still possess enough governmental authority to make the allocation of power - jurisdiction, in other words - perhaps the central issue in Indian law?

The answer to this question comes in two parts. For the first part going back as far as the adoption of the constitution will not be enough. Although the constitution is on the verge of celebrating its bicentennial, we have to go back to another event, one on the verge of celebrating its quinquacentennial, Columbus's "discovery" of America. What is important here, the United States Supreme Court has reminded us, is that the Indian tribe were here first, that they were independent and sovereign nations on this continent, and that their claim to sovereignty long predates that of the United States.

TRIBAL SOVEREIGNTY

Therein lies the first key to understanding tribal power and, a few steps further down the historical and analytical road, to understanding why, for instance, Chippewa Indians have an 85 day deer season this year, while non-Indians have only a 9 day season. Before European contact, Indian tribes had all the attributes of sovereignty that any political community has. And the powers of Indian tribes today remain, in general, those inherent powers of a limited sovereign which have never been extinguished.

The endurance of the inherent nature of tribal sovereignty was brought home forcefully to a Mr. Anthony Wheeler, a Navajo tribal member, who was arrested, tried, convicted, and sentenced to a fine and jail term, under Navajo tribal law, in Navajo tribal court. He then found himself in federal court answering to federal charges arising from the same event.

Mr. Wheeler called foul; double jeopardy he claimed. The United States Supreme Court rejected his claim. Even though a person cannot be tried twice for the same crime by the same state, a person can be tried twice by two separate sovereigns, for instance by the United States and by an individual state. And, concluded the Court, a person can also be tried twice by the United States and by a tribe. Why? Because each is a separate sovereign. Unlike a municipality whose authority to prosecute derives from that of the state, and which cannot prosecute if the state has already done so, a tribe does not derive its authority from any external source. A tribe's authority is not, in any way, delegated to it by a state or by the United States. A tribe's authority is inherent in its historical sovereignty. A tribe's powers are thus not given to it by anybody, but are powers that inhere in its governmental status.

This is all fine for Mr. Wheeler, but does his case really imply tribal sovereign authority to tax Indians and non-Indians, zone and regulate the use of their land, try civil cases affecting them in tribal court?

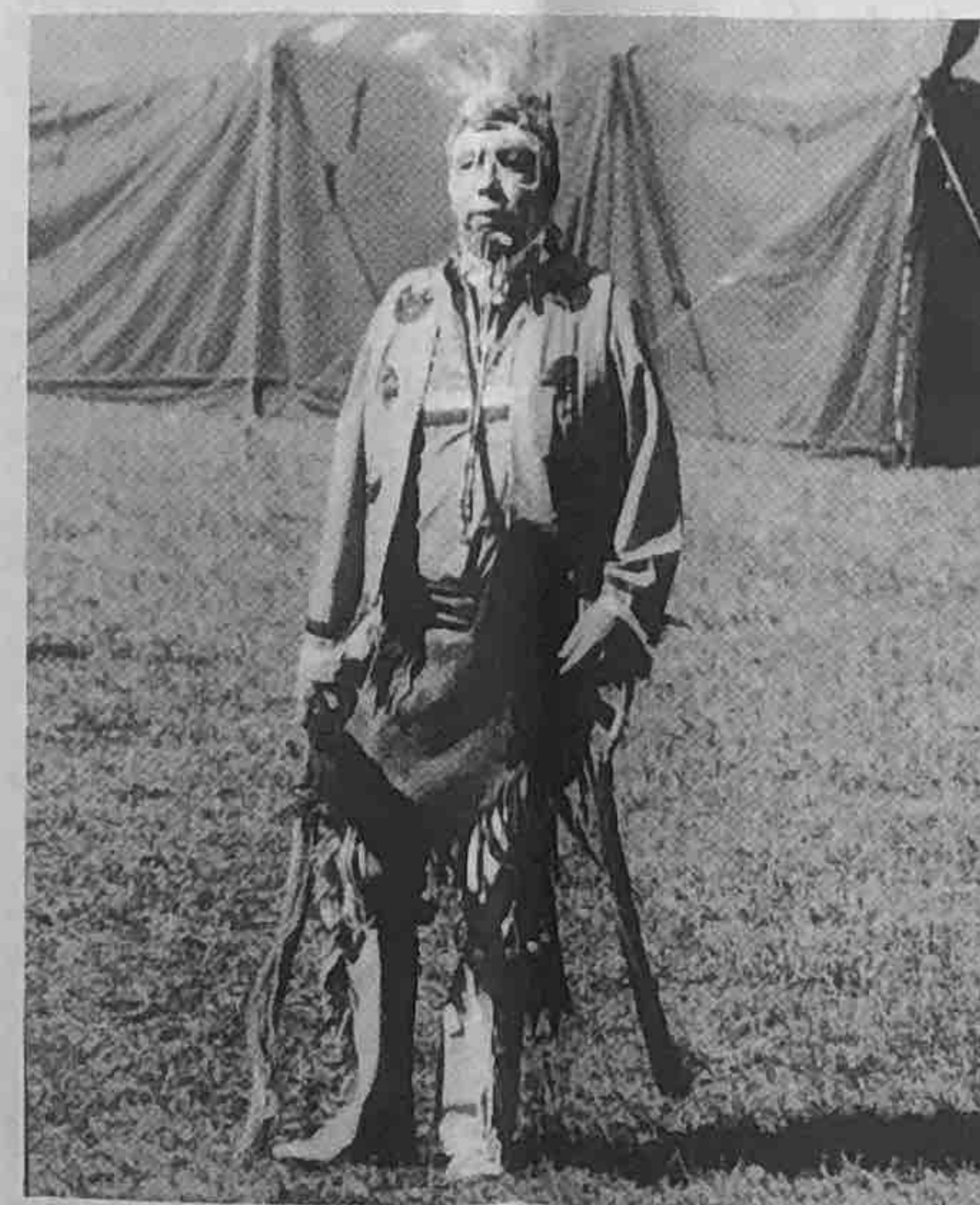
Surely tribal sovereignty can only go so far. Tribal sovereignty is, in fact, limited. It is limited by treaties, federal

statutes, and the implications of what is called the "domestic, dependent" status of tribes, a subject to which we will return in a moment. Put another way, Indian tribes still possess all those aspects of sovereignty not granted away by treaty, taken away by statute, or withdrawn by implication of their domestic dependent status. How much is that? It turns out to be quite a lot - never enough for Indian tribes, always too much for states - and includes the power to do all of the things just mentioned in the paragraph above.

What about the domestic, dependent status of tribes? If the implication of that status can limit tribal sovereignty, we had best understand what it means.

DOMESTIC NATIONS

The term goes back 150 years to a pair of cases, Cherokee Nation v. Georgia, and Worcester v. Georgia. In these cases, Chief Justice Marshall concluded that Indian tribes are not foreign nations, not because they are not nations, but because they are not foreign. They are thus "domestic" nations. And since their previous sovereign power to conduct their own external affairs - for instance, to conduct foreign diplomacy or



Leo LaFerner, Red Cliff vice chairman, welcomed everyone, on behalf of the Red Cliff Tribal Council and Red Cliff Community, who traveled from near and far to attend Red Cliff's 8th Annual Pow-Wow honoring John Gurnoe.

make war - has been terminated by virtue of European conquest, they are thus dependent. Yet within their own territory, Marshall concluded, they are sovereign nations, and the laws of the surrounding state have no effect within their borders.

Marshall called the tribes' status "peculiar;" later courts have called it "anomalous and complex." Yet that status has persisted, albeit with substantial modifications, over the years. The tribes' continued semi-independent status, allowing the exercise of sovereign powers pre-existing those of the United States, reveals that the constitution does not, after all, allocate the entire universe of governmental power in the nation.

The constitution does play an important part in understanding the modifications that have been made to tribes' governmental status since Marshall's time. Even so, the constitution in this case primarily codifies principles that long predate it.

LAW OF DISCOVERY

The international law of discovery was developed by the European powers to bring order to what they called

the New World. Under the law of discovery, the sovereign in whose name "new" territory was "discovered" acquired the fee to it, subject only to the native population's right of occupancy. The aboriginal right of occupancy, or "Indian title" as it has been called, was not extinguished by discovery, but as between the discovering European power and the rest of the world, the sole right of acquisition - whether by belligerent or peaceful means - was fixed.



What does the law of discovery have to do with the allocation of power today? The law of discovery established the principle that intercourse with the Indians was to be completely under the control of the sovereign. As to the thirteen British colonies on the eastern seaboard, that power was vested in the crown; that power passed to the states upon independence; the states quickly restored that power to the national government, first under the Articles of Confederation, and then, under the constitution.

Art. I, §8, par. 3: "The Congress shall have power to regulate commerce with foreign nations, and among the several states, and with the Indian tribes." Those final words were interpreted by Chief Justice Marshall as intended to give the "whole power" of managing Indian affairs to the national government.

TRIBAL POWER

Thus we have the second key to understanding the place of tribal power in the American system: the

constitution does not regulate the exercise of pre-existing tribal power but it does unequivocally allocate the power to deal with the Indian tribes to the national government, withdrawing it from the states.

The exclusive, pre-emptory authority of the federal government to manage the nation's relations with the Indian tribes has three implications. Federal authority includes the power to completely destroy tribal govern-

ment: tribal sovereignty exists at the sufferance of Congress and is subject to complete defeasance by it. But unless and until Congress acts, tribes retain their existing powers. And tribal sovereignty is dependent and subordinate only to the federal government, not to the states. How far down our analytical path from Columbus's voyage have we come so far? Tribes have certain powers inherent in their historical sovereignty. The national government can limit those powers to whatever extent Congress pleases. State power over Indian activities is constricted on the one hand by tribal sovereignty and on the other by federal preemption.

What does all of this have to do with understanding treaty hunting and fishing rights? Because treaty hunting and fishing rights are essentially a power issue: the issue is whether the state or the tribe has the authority to regulate hunting and fishing by tribal members. We need just a couple more pieces in the power allocation analysis

(continued on page 4)

(continued from page 3)

to see how the hunting and fishing issue fits into the complete picture of tribal self-government.

Tribal sovereignty and federal preemption have varied over the years in the amount of reliance placed upon them in determining whether particular state regulations of Indian activities are permissible. Marshall's opinions were ringing affirmations of tribal sovereignty as the ultimate bar to state action. Since then the two concepts have been viewed as giving rise to two independent but related barriers to state jurisdiction with the trend away from sovereignty and towards federal preemption. Tribal sovereignty persists, however, as an "important backdrop" to the analysis, thus remaining an interest informing the balance of all other interests.

TRIBAL AND STATE AUTHORITY

The most recent United States Supreme Court addition to the analysis applied to conflicting claims of tribal and state authority was in the case of *Rice v. Rehner*. In *Rice* the Court took a particularized look at whether the tribe had a "tradition" of exercising sovereignty - that is, regulating - the activity that the state wished to regulate. If no such tribal tradition could be found, the tribal interest would be presumed to be minimal, federal preemption of state regulation would not necessarily be presumed to exist, and the balance of interests would tip toward the state's position.

Rice has been applied twice by the Wisconsin Supreme Court, with the court finding once that a tribal regulatory tradition in the specific area did exist, and that state regulation was ousted, and finding the other time that a tribal tradition did not exist and that state jurisdiction was not ousted.

The recent line of cases culminating in *Rice* leave, in general, something to be desired. The concept of a tribal "tradition" may be sufficiently vague, and the balance of interests may be open to sufficiently different yet still reasonable calculations, to be unworkable. Balancing tests are inherently unstable predictors of the law in any particular case unless calibrating factors are accepted which preset, within a useful range, the relative weights each interest will possess when placed in the balance. For most cases in which the *Rice* analysis would apply, these factors are unfortunately absent. In treaty hunting and fishing rights cases they appear to be present. Let us look now at treaty hunting and fishing rights issues and see how our preceding discussion of power allocation principles informs our understanding of them.

TREATY RIGHTS

For starters, the term "treaty rights" is something of a misnomer. Up to this point we have only discussed the pre-existing rights of the sovereign, pre-discovery Indian tribes. Recall, the

power possessed by Indian tribes today are inherent powers of a limited sovereign. Hunting and fishing rights are no different. Those rights are not conferred by treaty. In fact, as a general matter treaties do not confer on the Indian tribes any significant rights at all. Treaties are instead grants of rights from the tribes to the United States, and, as with any grant of property rights, certain aspects of those rights can be reserved by the grantor. Thus what are commonly called "treaty rights" are really rights not granted away by treaty or, in other words, reserved rights.

The *Voigt* case then is about a specific set of inherent sovereign rights, reserved by treaty, and never subsequently extinguished. In this particular case, the rights involved are the rights to hunt, fish, and gather on lands ceded by treaty in 1837 and 1842.

The Court of Appeals decision in *Voigt* left many issues unresolved and subject to continued litigation. Looking at two of those issues will help us apply our earlier discussion of power allocation in the hunting and fishing context.

One issue is the question of what specific resources are subject to the treaty right and what methods to take those resources are reserved under the treaty right. The opinion is often stated on street corners and in newspapers' letters columns that Indians should be allowed to exercise their treaty rights, maybe, but that they should use only the methods and equipment available in 1837 or 1842 to do so. People who hold this opinion would thus



have Indian fishermen do without such things as monofilament line and power net-lifters, and Indian hunters do without automobiles for reaching hunting sites.

Principles of tribal sovereignty, the basis for reserved treaty rights, lead to a rejection of this position. What would have been the status of an independent, sovereign Indian tribe in 1800 with regard to the adoption of new technology? Such an independent nation would certainly have had the power to adopt new technology. Prior to 1837 and 1842 the Chippewa tribes had indeed adopted new technology from the Europeans. Unless the right to adopt new technology was ceded by the tribes or taken away by the federal government, that right must continue to exist.

REGULATION OF TREATY RIGHTS

The second *Voigt* issue we will discuss is more complex. It is the issue of the regulation of the exercise of the treaty rights. The courts have said that the state can regulate tribal off-reservation hunting and fishing rights if such regulation is reasonable and necessary for the conservation of the natural resources. All of the operational terms of that formula - "reasonable", "necessary", and "conservation", have been strictly and tightly

construed to require proof of a true conservation necessity for the application of a state law. Even so, does a treaty right have any meaning if the state can regulate its exercise? As anomalous a proposition as this may seem, it turns out to be consistent with the power allocation principles enunciated by the Supreme Court in other contexts.

State regulation of hunting and fishing for reasons of resource conservation is simply a specific application of the general principle that state interests must be taken into consideration in analyzing the extent of federal preemption of Indian affairs against the backdrop of Indian sovereignty. On the reservation, those interests have been held to be minimal. But off-reservation, with shared natural resources at issue, the situation changes.

SELF-REGULATION

In *United States v. Washington*, Judge Boldt developed the concept of the self-regulating tribe, a concept that comports well with *Rice's* "tradition" analysis, even though it predates it by almost a decade. Boldt recognized that states have an interest in protecting natural resources. Presumably, if tribes are going to be long-term users of the resources, they have an interest in protecting them too. How best can those interests be met in a way that recognizes the backdrop of tribal sovereignty? The answer provided by Judge Boldt was to hold simply that if a tribe can protect the resource - if, as to its members' use of natural resources, it can be self-regulating - then everyone's interests are satisfied with no interference by the state. And, prefiguring *Rice*, Judge Boldt set out some standards to determine if a tribe was self-regulating - if, in other words, it had a currently operational "tradition" of self-regulation. These standards include having access to resource management expertise, having ordinances to put biologically sound management schemes in place, having law enforcement to enforce the ordinances, and having tribal courts to adjudicate violations of the ordinances. It is these tests of self-regulation, combined with the strict conservation requirements for the assertion of state regulation in the first place, that provide the weights and standards which make a balancing test, in this context, workable.

INDIVIDUAL RIGHTS

The existence and exercise of treaty rights appears from this analysis an occurrence which, placed in its historical context, should be hardly remarkable. Why then, are so many people opposed to Indian treaty rights? The



An Eagle soaring high above the dancers, and a blue sky blessed Red Cliff's pow-wow which took place September 12-14. Both young and old come together in unity to make each pow-wow a success.

answer to this question brings us to the concluding topic of this paper, that of individual rights.

Certainly part of why treaty rights sometimes meet with opposition is based on what has already been discussed - power. People understand that the tribes have the power to authorize their members to hunt and fish in ways they cannot, and they do not like it. And certainly, for some people, racism is a part of it.

But for many people, including some of good faith, there is an apparent element of individual rights, fairness, equal rights involved. They say it is unfair for someone, just because he is an Indian, to be able to shoot three Canada geese a day when a non-Indian can only shoot one. They say it is racial discrimination, that it ought to be against the law, that it ought to be prohibited by the constitution.

These people, as well-intentioned as they may be, misconstrue the issue. They misconstrue it because they focus their attention on individual rights and not governmental ones, and on racial distinctions, not political ones. This is an important error because it is the political conception of the tribe that is the origin of whatever is distinctive about the legal position of the individual tribal member.

Individual Indians cannot shoot three geese a day off-reservation this year because they are Indian - indeed, Menominees can't do it, Oneidas can't, Winnebago's can't, Potawatomes can't - but because they are members of a tribe which possesses particular rights as a sovereign which have never been extinguished. It is the tribe which possesses the right and it is the tribal government which can permit, limit, or deny its members the opportunity to exercise the right. Tribes have, in fact, negotiated season agreements with the Wisconsin Department of Natural Resources and on several occasions imposed more restrictive requirements on their members than the agreements would have required. Because of the governmental nature of tribal rights, governmental action recognizing the unique status of Indian tribes and which has some kind of

beneficial or preferential effect on tribal members is not racially discriminatory and is not proscribed by the constitution.

PROTECTION OF MINORITY RIGHTS

There is, however, one real issue of constitutional concern which the exercise of treaty rights raises. If the allocation of power is one of the main topics which the constitution is about, the other side of that coin - the protection of minority rights, the protection of the rights of those not in power - is the other main topic. The willingness and ability of our institutions of government to protect Indian rights is the issue.

Indian treaty rights are not "minority rights" as they are commonly thought of, but they are possessed by a minority. As such, those rights are susceptible to threats of majority political action. We have seen that happen here in Wisconsin with the passage a year ago of SB 88, in which the privilege of 10,000 disabled hunters to hunt from their vehicles and on roads was taken away in order to stop a few hundred Indians from doing the same thing. We also saw it in Wisconsin in the Spring of 1985, during the off-reservation spearing season. Mobs of non-Indians descended on the landings from which Chippewa members were launching their spear-fishing boats. Dangerous wakes were created on the lakes by non-Indians hoping to interfere with Chippewa spears. And shots were fired out of the darkness at Chippewa spears. But what was perhaps most disturbing of all was the reaction to these events of state officials. An influential DNR official concluded at the end of the season that Chippewa spear fishing should never again be permitted, that the rights should, in essence, be bought out. Why? Because "there is no use in anyone pretending that the use of spears for fishing game fish will ever be acceptable in the north."

It takes only minor modification of that sentence for it to fit another time and another place with traditions vastly different from those of Wisconsin. Change a few words and you have: "There is no use in anyone pretending that black children going to school with white children will ever be acceptable in the south."

The point is not to compare the civil rights of blacks with the treaty rights of Indians. The point is how easy it is to justify the limitation of rights in either case by appealing to some static conception of what the majority will or will not "ever" accept.

This paper is entitled "The Miner's Canary and the Eagle: The Protection of Minority Rights and the Allocation of Power in Indian Affairs." The eagle is a symbol to many Indians of authority, of power. The eagle also represents, of course, the United States and is an emblem of American power. The interaction of the powers symbolized by the eagle has been one subject of this paper. The canary has also been seen as symbolic of the relationship between the Indian tribes and the United States. Felix Cohen, the preeminent scholar of Indian law, had this to say:

Like the miner's canary the Indian marks the shift from fresh air to poison gas in our political atmosphere; and our treatment of Indians reflects the rise and fall of our democratic faith.

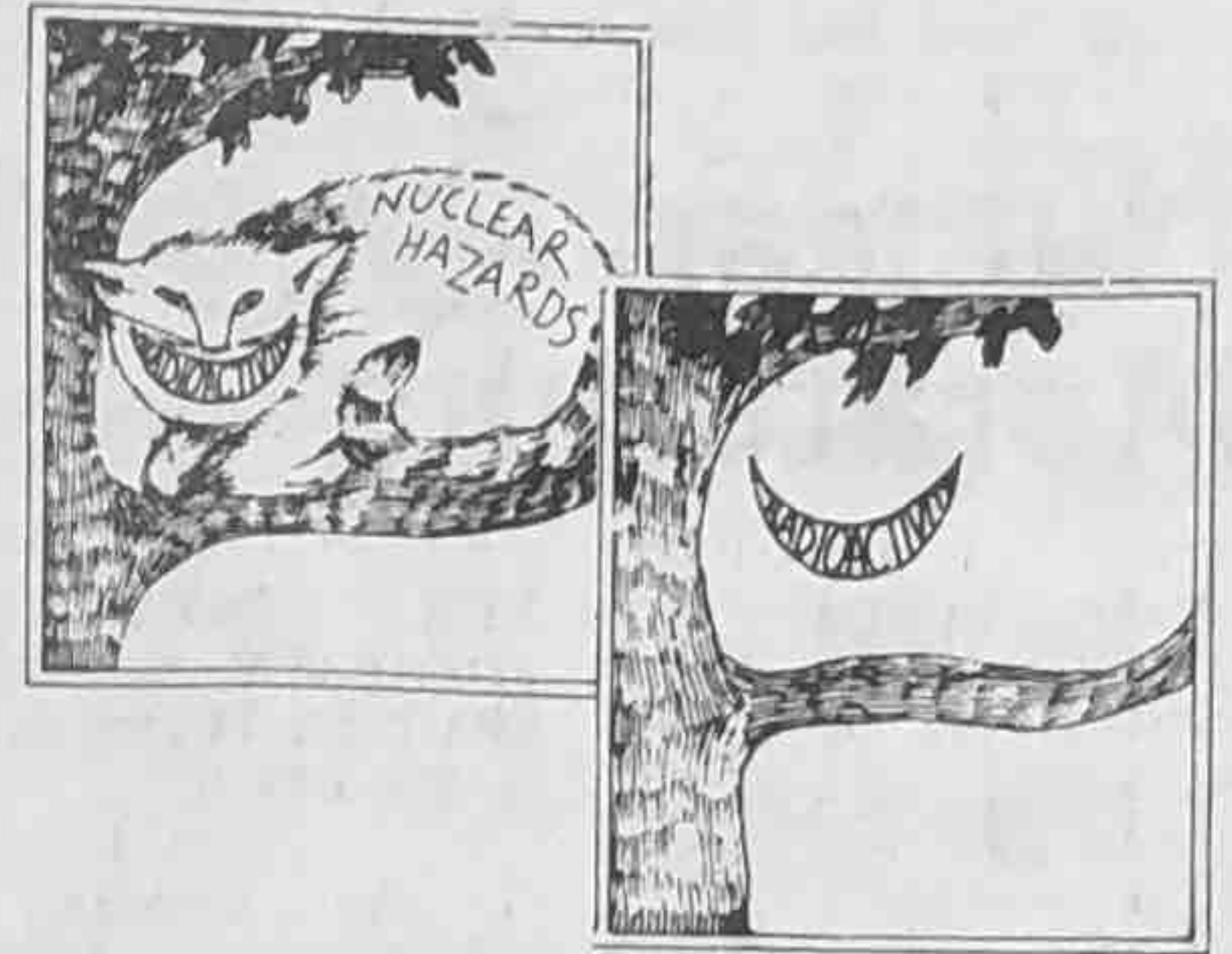
As Wisconsin continues to learn about Indian treaty rights, let us hope that it will also learn to accommodate them in a way that does credit to our democratic faith, that recognizes the "backdrop" of tribal sovereignty, and that protects minority rights.

(This speech was given by Siegler in Madison on September 16 to the Dane County Bar Association and the Central Lions Club. Footnotes have been omitted by the Editor. For a complete listing, contact Siegler at the Great Lakes Indian Fish and Wildlife Commission.)



Radio-active Waste - The Invisible Killer

Nuclear Waste Special



Tribal Involvement

NUCLEAR ISSUES AND THE TRIBES

The problems relating to living in the nuclear age were thrust dramatically in front of tribal governments last winter when the U.S. Department of Energy (DOE) identified various sites near or on reservation lands or treaty-protected lands which they wished to consider for a nuclear waste repository site. Under the Nuclear Waste Policy Act tribes were allotted status comparable to that of states. Consequently, the tribes, in theory at least, were given the opportunity to have input into the siting process

and received grants with which to acquire the technical expertise necessary to comment on the DOE's Draft Area Recommendation Report (DARR).

Involvement in this process, plus contemplation of the hazard being proposed by the DOE to tribes and tribal lands, has alerted many tribal governments to the real threats and dilemmas which confront us as citizens living in the nuclear age. Consequently, they have taken a leadership role in advocating for the environment, for the rights of their communities, and for the continued need for public involvement and concern regarding this issue.

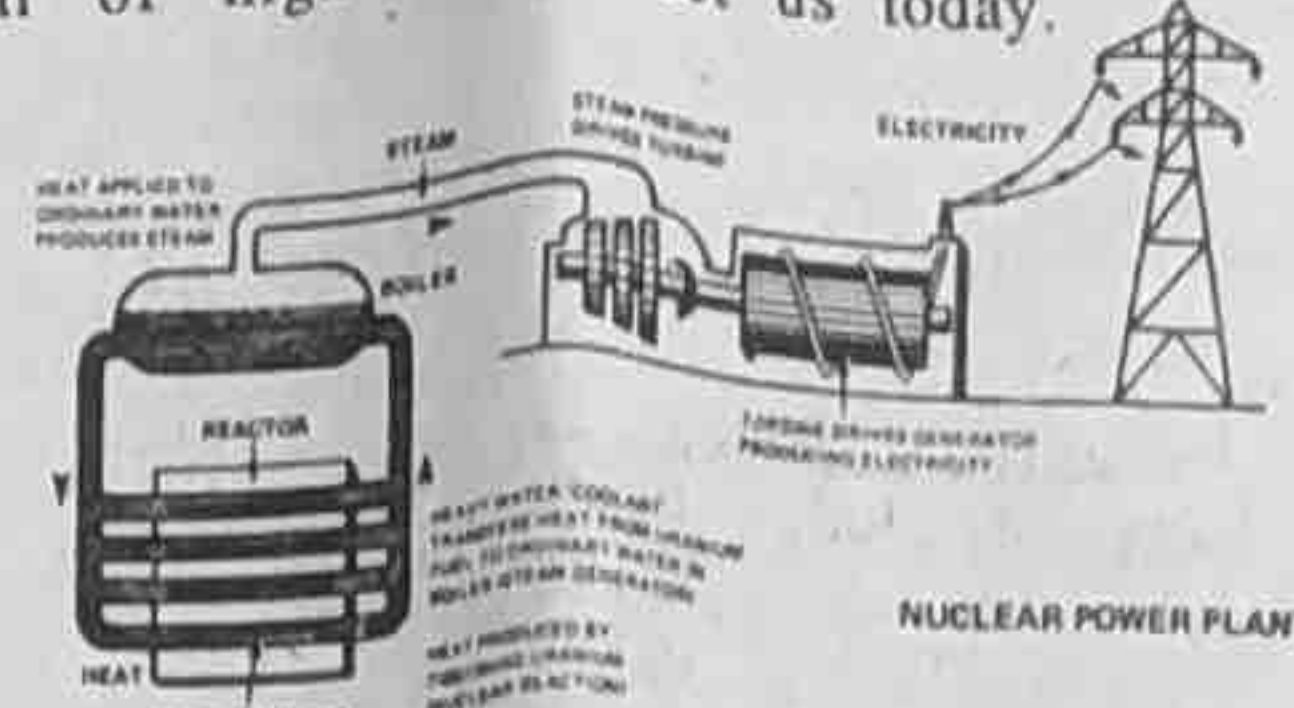
NUCLEAR ISSUES CONFERENCE: Winnipeg, Manitoba

The Conference, which was held September 12-14, brought together representatives from various countries, including the U.S., Canada, Britain, and Sweden to discuss the dilemmas confronting us as citizens of pro-nuclear governments, all of which are currently dealing with the problems of disposal of high-level

radioactive waste from nuclear power plants, from military use and from medical use.

A wide variety of nuclear topics were discussed, including ethical dilemmas, politics, socio-economic impacts, alternative energy, health and public safety, and citizen advocacy.

In the pages of this issue, the discussion from the conference will be reviewed in an attempt to better define the scope of nuclear issues as they affect us today.



DOE Has Not Gone Far

Although candidates for the second round nuclear waste sites may have been relieved to be labelled "indefinitely postponed" by the DOE, that does not indicate the DOE has gone away permanently or has discontinued its interest in a crystalline rock repository.

but they are not doing it here. Rather they have invested \$30 million in Canada's Underground Research Laboratory in Manitoba, which is a project simulating an underground repository for nuclear waste in crystalline rock.

As a matter of fact, the DOE is quite busily exploring crystalline rock's suitability for a nuclear waste repository,

The Underground Laboratory is an extension of the Canada's Atomic Energy Commission (AEC) and is located about ten miles north of AEC's main plant at Pinawa, Manitoba.

Ethical Dilemmas of a Nuclear Society

The Ethics of Nuclear Waste Siting from a presentation given by Dr. Kristin Schrader-Frechette, author of Nuclear Power and Public Policy.

responsibility to each other and future generations.

ETHICAL QUESTIONS

She poses several interesting questions. For instance she asks:

- 1.) Can we build an argument from ignorance? Can we bury nuclear waste in the sea, because we don't know whether or not it is harmful?
- 2.) Can we impose a level or risk on future generations which is no greater than the risk for this generation and how can that be satisfied with a cask designed to last 500 years?
- 3.) Can we assume in planning an underground repository that the world will be geologically or politically stable in all the years to follow?

Frechette feels that in light of the numerous uncertainties surrounding the burial of nuclear waste, our societies are confronted with ethical questions which she summarizes in questions as follows:

- Can we mortgage future generations?
- Can we justify irreversible environmental damage?
- Should taxpayers continue to pay?
- Should governments promote a "plutonium economy," thus creating problems of nuclear waste production around the world for immediate economic gain?

THE EXPENSE OF NUCLEAR POWER

These are questions which, Frechette feels must be considered as we continue along the path of continued nuclear production. She feels that the cost of nuclear energy, though billed as cheap and clean, has never been appropriately measured in terms of the dollars required for clean-ups from accidents such as Three Mile Island, in terms of health costs to people who are being exposed to radiation, or in terms of the costs to dispose of the wastes.



Dr. Kristin Schrader-Frechette defines the moral and ethical dilemmas confronted by the nuclear age in light of the public risk.

"Government is more worried about the bottom line for corporations than people's health."

Waste disposal itself requires consideration of basic human rights questions, according to Frechette. She challenges, for one, the "vesting doctrine" which assumes that if an investment has been made, such as that made by the nuclear power industry, that there exists a right to return, disregarding individual's rights to health and safety. Government, she said, is "more worried about the bottom lines for corporations than people's health."

Siting also poses problems of geographical equity. It is a foregone conclusion, she says, that waste storage facilities will be located in rural areas. Essentially, people living in non-waste producing regions will be exposed to the risk rather than people living in the waste-producing areas. She also asks why repositories can't be sited in urban areas, if indeed, the level of risk is as low as government and industry like us to believe.

INFORMED CONSENT NECESSARY

Part of the siting process, according to Frechette should be obtaining informed consent from those who

acceptable number. She does not feel that we can accord civil rights - the right to life - on the basis of an average, and that this contradicts our philosophy in other areas of human rights where judgements are made on the basis of special needs.

She noted in conjunction with this that if judgements were made on the average in regard to detrimental effects of air pollution, the black population would be targeted because they are affected 83% more than the white population.

The fourth dilemma set forth by Frechette was the "contributors dilemma." In this instance we are expected to condemn massive exposure to radioactive pollution, but condone incremental exposure, which causes an equal number of statistical casualties.

The solutions to the dilemmas and to the ethical contradictions facing us in relation to nuclear waste - the cost and the risk - are not easy to find.

"If risk is unavoidable, let's see full compensation."

Frechette believes, however, that informed consent and full compensation for risk incurred by people on account of the nuclear industry should be born by the industry.

"If risk is unavoidable, let's see full compensation," she said. "Let's see huge bonds to pay for the future medical

expenses which will be incurred."

Presently, we are subsidizing the nuclear industry and we are taking an uncompensated risk. Frechette feels that if nuclear power had to pay its own way there would be no nuclear power.

COMMENTS:

In comments following the address given by Dr. Kristin Schrader-Frechette, several interesting points were raised...

1.) The United States atomic energy policy includes no recognition of the foremost need to protect public health and safety. There now exists nothing for the citizen to use under our system of justice to protect his rights. The policy needs to be restated.

2.) Canada has no tradition or statutory conventions to protect the citizens.

3.) Government and the industry are so closely linked that government cannot be considered unbiased regulators of the industry. The nuclear energy people are the wrong people to be in charge of its disposal. There is evidence that information on accidents are not shared with the public.

4.) Pro-nuclear governments spend gross amount of energy monies in subsidizing nuclear power and leave little to the development of alternative energy sources.



Dr. Marvin Resnikoff addressed the audience on the dynamics of placing hot materials in crystalline rock.

HOW MANY DEATHS ARE "ACCEPTABLE"?

The "threshold dilemma" raised by Frechette asks whether we can accept a certain number of fatalities arising from contact with radio-activity as an

Nuclear Moratorium



NUCLEAR MORATORIUM

(The following article was written by Crossroads Resource Group. Crossroads Resource Group is a Winnipeg-based public interest organization concerned with energy and environmental issues. The group is a member of the International Coalition, Friends of the Earth.)

As individuals and as societies, human beings appear reluctant to admit mistakes. After thirty years and billions of dollars invested in fission energy development, the idea of abandoning the venture is unthinkable to many. Yet, now is the time when the unthinkable must be thought. Barring a capital shortage, the world stands poised on the threshold of a nuclear future. The promise of that future is a world of electrical abundance. A review of the evidence demonstrates, however, that there are a number of weaknesses in the nuclear dream, and that a moratorium on nuclear development is in order.

ANY EXPOSURE TO IONIZING RADIATION INVOLVES A RISK OF DIRECT OR HEREDITARY INJURY.

This statement is derived from the position of the International Commission on Radiological Protection (ICRP) - an international organization of scientists whose work constitutes the basis of current radiation exposure standards in most countries. The ICRP assumes that there is "a linear relationship between dose and effect" and that even "exposure from natural background radiation (for example, the sun and the earth) carries a probability of causing somatic or hereditary injury, which would be present without the addition of (any) man-made exposures (for example, ionizing radiation produced by nuclear power facilities)." This contrasts sharply with the impression successfully advanced by the nuclear industry that exposure to radiation in amounts lower than the established standards carry no risk of injury. (The standards were, in fact, established on the basis of vague risk-benefit assessments rather than the results of scientific experimentation).

Two studies sponsored by the U.S. National Academy of Sciences and completed within the last year have supported the assumptions of the ICRP with respect to the possible dangers of both background radiation and the routine emissions from nuclear power facilities. Thus, there is mounting evidence that current standards of radiation exposure are inadequate to safeguard human health and life.

THE TECHNICAL ADEQUACY OF REACTOR TECHNOLOGY IS DOUBTFUL.

The problems of reactor safety relate to both design and quality of manufacture and assembly. These problems are so significant that the nuclear power industry cannot guarantee conformity even to the inadequate radiation exposure standards currently in force. Because of its significance the topic of reactor safety has been dealt with in a separate position paper produced by the Crossroads Resource Group.

THE TECHNOLOGY IS INCOMPLETE SINCE A METHOD OF STORING THE HIGHLY RADIOACTIVE REACTOR WASTES HAS NOT BEEN PROVEN.

An acceptable method of waste disposal would require that the radioactive material be isolated from the biosphere while in storage and retrievable from the storage facilities in the event of geological disturbance (for example, an earthquake). From this it follows that constant surveillance of the wastes must be maintained and that back up storage capacity must be provided for all waste stored. The problem of transporting radioactive the risk of problems of stability of supply could become acute.

This problem is also aggravated by the large size of individual production facilities.

THE CAPITAL INTENSITY OF THE INDUSTRY COULD DISRUPT THE ECONOMIES OF THOSE NATIONS THAT ATTEMPT TO "GO NUCLEAR".

The complex equipment and the need for redundant systems have made nuclear fission technology extremely capital intensive. The extremely high costs are forced even higher by large interest charges accumulated over the large lead times required for nuclear projects.

The capital markets have already imposed constraints on the planned expansion of the industry. Even if expansion becomes possible the drain on the capital markets could prevent growth in other sectors of the economy. This, in turn, could cause the "demand" for electrical energy to fall and the real per unit costs to rise significantly.

THE 'NEED' FOR NUCLEAR POWER HAS NEVER BEEN ADEQUATELY DEMONSTRATED.

Advocates often claim that nuclear power is essential for the survival of modern materials safely must be dealt with. To date, the waste disposal schemes advanced have not taken account of these above factors.

Questions regarding adequate isolation of the vast quantities of radio-

active tailings from uranium mines appear to have been given very little consideration in the past. Safe containment of wastes produced at intermediate points in the fuel cycle has received almost no attention.

THE COMPLEX NATURE OF THE TECHNOLOGY TOGETHER WITH CERTAIN PSYCHOLOGICAL FACTORS HINDER THE ABILITY OF NUCLEAR POWER TO PROVIDE ENERGY SUPPLIES ON A RELIABLE BASIS.

When an accident or a technical problem occurs in a particular reactor, consideration must be given to shutting down all similar reactors. Thus, the industry is prone to what are termed 'generic' shutdowns. Such a situation necessarily has a negative impact on the stability of the energy supply. This problem was demonstrated clearly after the Three Mile Island accident when it was considered necessary to shut down eight other reactors temporarily. If the proportion of electricity provided by nuclear power is increased significantly, society. However, when faced with a capital shortage in 1976, Ontario Hydro was forced to promote conservation. Thus, it appears that society only really "needed" nuclear power until the demands of the capital market dictated that the "need" no longer existed. One might well ponder how a truly human need suddenly ceases to exist simply when capital is unavailable. And perhaps it might be found that the former "need" was not really a human need at all.

In fact, for a number of reasons Canadians have incorporated a tradition of energy waste into all aspects of their lifestyle. This legacy of waste means that today, investment in conservation can yield more usable energy per dollar invested than any investment in new capacity.

INCREASED DEPENDENCE ON NUCLEAR POWER WILL CREATE ANOTHER OBSTACLE TO DEMOCRATIC PROCESS IN OUR SOCIETY.

The complexity and capital intensity of nuclear technology require large-scale production as a condition of economic viability. Thus, control over energy supply - the lifeblood of modern industrial societies - becomes increasingly concentrated in the hands of the small group of technologists

who design and control the technology. These people constitute a technological elite that "exercises, perhaps unconsciously an enormous amount of power and influence" over society. In practice, when questions regarding nuclear power have arisen, the 'elite' enter the debate with a view to shifting the terms of reference to the realm of technology and excluding the rest of society from meaningful and effective participation in the making of decisions that affect the use of social capital and thus the course of society. For example, the risk-benefit assessments inherent in current radiation exposure standards have been evaluated by the nuclear elite. Although the elite might reasonably be expected to assist through the outlining of risks and benefits, judgments regarding the acceptability of a particular risk-benefit ratio and more properly a matter to be established through democratic process.

INCREASED DEPENDENCE ON NUCLEAR POWER WILL REINFORCE THE EROSION OF CIVIL LIBERTIES IN OUR SOCIETY.

Fissile material such as plutonium and enriched uranium are used for the production of both electrical energy and weapons. The quantities of these materials available for diversion will increase exponentially with the expansion of the nuclear power industry.

To protect against the theft of fissile material as well as to safeguard nuclear reactors from sabotage governments appear likely to introduce highly visible but repressive and ineffective safeguards.

The security activities undertaken could include the use of pre-employment screening and continuing surveillance during employment in the nuclear industry. The use of informers, infiltrators, wiretapping, checking on bank accounts and the opening of mail could be practised on 'suspected' members of perceived extremist groups.

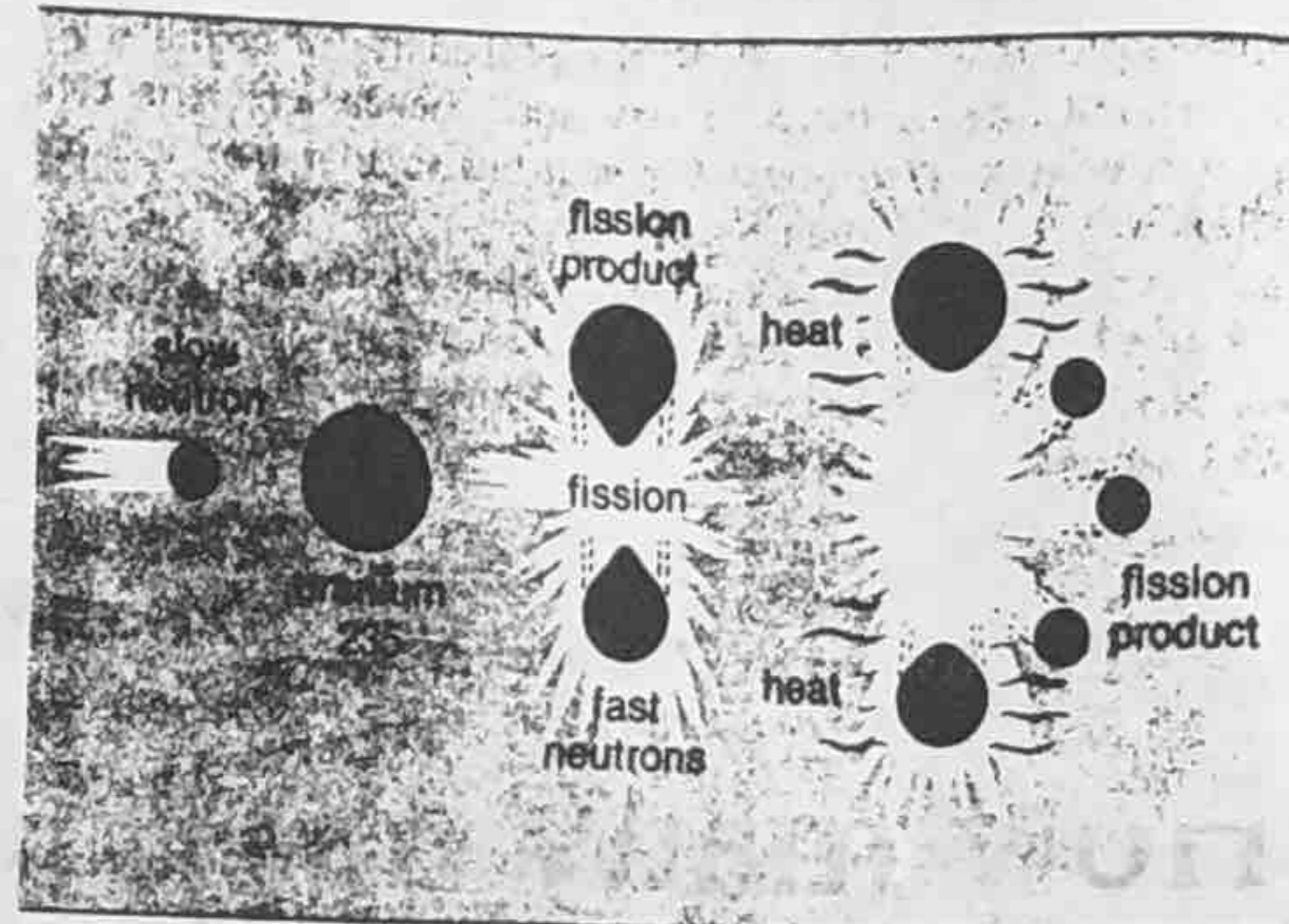
Action taken to recover material that was known to be stolen or to respond to an internal nuclear threat by terrorists would likely include wide-scale and determined search and could involve the use of general search warrants (which are at present illegal), restrictions on the rights of movement and assembly and the suspension of Habeas

Corpus. Unfortunately, the public officials and technologists involved in the promotion of nuclear power as an energy panacea appear totally unaware of "the possible long-term dangers to the fabric and freedom of society." There has been virtually no consideration of these aspects of nuclear power in the arena of democratic politics.

inevitably require the sale of nuclear power systems to other nations.

While the nuclear industry would argue that its sales can be limited to "acceptable" customers, it is not difficult to foresee the day when the list of potential 'stable-nation' customers is exhausted. At that time standards of stability will face revision if the nuclear industry is to survive.

The alternative expansion of internal



CONTINUED USE OF NUCLEAR POWER WILL LEAD TO THE PROLIFERATION OF NUCLEAR WEAPONS.

All nuclear reactors produce plutonium - one of the fissile materials that can be used in the production of weapons.

It is a simple fact that the potential market for nuclear reactors within any single country is not large enough to sustain an unsubsidized nuclear power capital goods industry. Attempts to keep the manufacturers of nuclear power facilities in business

markets through planned obsolescence - would be unconscionable.

The participation of the Canadian government in the formation of a uranium producers' cartel and its protection of Canadian corporate participants through the passage of so-called "gag laws" provide evidence of the type of machinations that can occur when industries feel economically threatened.

(Footnotes have been omitted by the editor. For a complete listing, contact Crossroads Resource Group, Box 1436, Winnipeg, Manitoba.)



Paul DeMain, Governor's Office of Indian Affairs, speaks about environmental concerns at the Protect the Earth Rally.

NUCLEAR WASTE ISSUES CONFERENCE

WINNIPEG, CANADA
SEPT. 12-14, 1986



Ethical Issues



ETHICAL ISSUES - A PROBLEM OF EXTERNALITIES, i.e. social costs. Classical economic theory has it that one ought to assess all the private costs and benefits of a transaction and can ignore the costs and benefits to the public.

The question must be asked: Why do the classical laws of economics not provide a methodological framework for considering the social costs of producing certain goods? Secondly, is this failure to compensate for these extremities, or the avoidance of them, defensible on methodological or ethical grounds?

All discussions of morality issues concerning nuclear policies are often confused by the presence of what is known as The Naturalistic Fallacy, which can be defined as the attempt to transform ethical characteristics or propositions to nonethical ones.

The most common ways of committing this error are three in number: 1.) replacing ethics with one of the natural sciences; 2.) deriving "ought" (evaluation, normative, emotive) statements from descriptive or factual statements, and 3.) failing to consider the "open question" (when the natural quality of a thing is defined as good, it is always an open question whether or not the quality is in fact good). One can ask for reasons why something is defined as good, or challenge the assumptions.

Throughout the discussion it became obvious that many of the assumptions of the DOE or Canada Atomic Energy Commission are entirely challengeable and that many of the ethical questions are not likely to be considered by pro-nuclear governments or the industry.

Another consideration is 3.) **THE POLITICAL STRUCTURE**. The debate must be carried on by an informed public that agrees on the definition of the issues, and there must be a means of getting public input on nuclear policy matters.

One of the facets of the debate must be 4.) **THE**

Rusche said he did not know the reason for the error in the original document, but said it may have been an error in arithmetic.

DOE also deflected Markey's request for a list of meetings and telephone calls between DOE officials and elected officials on the waste dump program, saying the department "does not create and maintain records of all such communications."

DOE did not supply a list of meetings and calls recorded by Rusche's office, however. From Jan. 15 to May 29, when the department announced the three finalists for the first dump site and halted activity on selecting a second site, there were 50 such sessions, most of them involving members of Congress from states with potential waste sites.



David Siegler, GLIFWC policy analyst, criticizes DOE for irresponsibility.

Tucker are amazed at the governments' apparent unconcern with the hazards of low-level waste and what is deemed "permissible releases" by regulators, such things as gaseous effluence which falls on crops, liquid wastes which enter local water supplies.

Tucker commented that if all the one million deaths which will occur from the Chernobyl accident happened at once, with one million people dropping over simultaneously, all reactors would be shut down immediately. But they will die over the next ten to thirty years and no one will take notice.

Bertell feels that the long-term prognosis for a nuclear society is "slow death by poisoning. If an accident enters into the equation," she says, "it will only go faster."

To Tucker, who feels that the documents from the DOE contain false promises and wishful thinking, the government in promoting the nuclear arms race and the nuclear industry is killing the citizens it is designed to protect.

Radiation she says is the "invisible killer" and this society must 1.) stop producing nuclear waste 2.) put the most talented and concerned people in charge of disposing of existing nuclear waste.

"The nuclear industry is killing the citizens it is designed to protect."

"We are left with only two possible conclusions: either the department is engaging in a cover-up and obstructing this committee's investigation or incompetence has become the hallmark of this program," they wrote.

According to Rusche, there are no such documents because "I sent the secretary on this matter...We don't work in such a manner that every communication with him is a formal document." Rusche said all communications between his office and Herrington's were oral.

"We talked about it from time to time," Rusche said. "There was no subterfuge involved. That's not the way we do business."

Markey and Swift also accused DOE of a "cavalier attitude" on the cost of a nuclear waste dump, noting that the department acknowledged to Reagan underestimated by more than \$1 billion the cost of locating the dump at Hanford.

DOE initially estimated that it would cost \$4.38 billion more to put the dump at Hanford, the most expensive site, than at Yucca Mountain, the least expensive. In its response to Markey's questions, DOE said the figure was a "typographical error" and should be \$5.45 billion.

whether political pressure played a part in the selection.

In its written response to Markey, the department said that "a number of working drafts were developed" before a final recommendation on the three sites was forwarded to Reagan in May, but that only the final version is available.

"When a new draft was produced, the previous draft was no longer operative or of any use, and was not retained," DOE said.

In general, government agencies are not required to retain copies of such internal documents unless a decision has been challenged in court. Legal challenges were expected in the case of the high-level waste dump, and all three states selected as finalists filed suit the day DOE's recommendation was approved.

Ben C. Rusche, head of DOE's Office of Civilian Radioactive Waste Management, said it is common practice in the office to dispose of outdated working drafts. "They serve no value," he said, adding that saving them is not "practical."

In a letter to Herrington, Markey and Rep. Al Swift (D-Wash.) said they found it "hard to believe that there is not one memorandum in DOE files...which relates to the secretary's decision to recommend the three final sites."

A-WASTE SITE PAPERS DISCARDED

BY
CASS PETERSON
WASHINGTON POST
STAFF WRITER
July 16, 1986

The Department of Energy has told congressional investigators that it did not keep drafts of documents involving the selection of the nation's first high-level nuclear waste dump, and that its final recommendation to President Reagan contained a billion-dollar "typographical error."

The documents were requested last month by Rep. Edward J. Markey (D-Mass.), chairman of a House subcommittee investigating the selection process, who told Energy Secretary John S. Herrington in a letter yesterday that the missing documents suggest that the DOE is either "engaging in a cover-up" or guilty of "incompetence."

Markey was seeking documents relating to DOE's decision two months ago to narrow the search for a high-level nuclear waste dump to three western sites: Yucca Mountain, Nev.; Deaf Smith County, Tex.; and Hanford, Wash. Questions have been raised about the environmental suitability of those sites, especially the government's nuclear reservation at Hanford, and

Health Risks:

How many deaths are "Permissable"?

How many deaths are even counted?



"THE INVISIBLE KILLER": Health Issues

One of the presentors on the effects of radiation was Dr. Rosalie Bertell, director of the International Institute of Concern for Public Health, specializing in health effects of low-level ionizing radiation. She is author of the book "No Immediate Danger: Prognosis for a Radioactive Earth." The other presenter was Kathleen Tucker, Director of the Health and Energy Institute, Washington, D.C., specializing in the health effects of the nuclear industry.

"Nuclear governments are all alike. They want to treat citizens like mushrooms - keep them in the dark and feed them bullshit."

Both Bertell and Tucker expressed concern that effects of radiation are being minimized by governments and nuclear industry and that the public is not adequately informed about the health problems caused by exposure to radiation.

As Tucker stated, "Nuclear governments are all alike. They want to treat citizens like mushrooms - keep them in the dark and feed us bullshit." We were promised, Tucker continued, that nuclear energy would be safe, reliable and too cheap to meter, but power plants are not reliable; there are

accidents every year, and nuclear power is proving to be very costly.

Tucker cited the Kerr-McKee plant in Oklahoma (where Karen Silkwood worked) which was releasing ionizing radiation into the atmosphere. That radiation, she said, can change the subatomic structure of matter. In humans it can 1.) damage a cell which is passed on to other cells 2.) kill a cell or 3.) do nothing.

Cellular damage, however, is the concern of both Dr. Bertell and Tucker because it produces a damage which can be cancer-causing and responsible for a large number of deaths - however, those deaths occur over a span of years.

To date there are no studies on genetic damage caused by radiation. This will be seen in the years to come. However, studies are being performed which document increased rates of leukemia and infant mortality rates in areas which are downwind of nuclear power plants.

WISCONSIN CITIES BEING STUDIED

Bertell cited studies in Wisconsin in the communities of Rice Lake, Eau Claire, La Crosse and Green Bay which are downwind of reactors which show a rise in the death rate of immature infants following the siting of reactors.

Bertell commented that these studies only chart the course of babies who die, but many others are damaged in ways that are not immediately apparent.

In studies done on the victims of Hiroshima, a high incidence of leukemia was found seven years following the bombing, but after thirty years came tumors.

Tucker feels that anyone living downwind of a nuclear reactor can expect to see similar results 10, 20, 30 years down the line.

Bertell also had information gathered from the Marshall Islands, whose inhabitants have been the victims of fall-out from U.S. atomic bomb testing in the area. Sixty bombs had been dropped near the islands from the years 1946-1958 and the thirty-three thousand inhabitants became unconscious guinea pigs for the effects of fall-out.

In five years there was evidence of infertility, still births, physical deformities and mental retardation. 100% of the children who were exposed when under the age of nine have since undergone thyroid surgery and the headstart age population shows eight out of eighty with Downs Syndrome.

SLOW DEATH BY POISONING PERMISSIBLE

Both Bertell and

Socio-Economic Impact

SOCIO-ECONOMIC IMPACTS, A Workshop
This workshop was conducted by Gary Keith, Director of the Texas Department of Agriculture's Radioactive Waste Studies Program.

Because the presenter's experience was in Texas, the focus of discussion was on the impact siting could have in that state. Deaf Smith County in the Texas panhandle was selected as one of the three finalists for a federal high level waste repository. Nevada and Washington State are the other two finalists.

The DOE has said that site characterization will take about five years, with the President in making the final decision about 1991.

The DOE has temporarily postponed its search for a second repository, which included two sites in Wisconsin (the Puritan and Wolf River Batholiths). Six other "eastern states" ranging from Minnesota to Georgia were being examined for possible sites before the postponement.

Deaf Smith County is being considered as one of the possible repository sites because of its underground salt deposits. Basalt is the underground rock at the Washington site and tuff in Nevada.

The "eastern" sites are in crystalline, or granite, rock.

The Ogallala Aquifer (the largest in the nation, ranging from North Dakota to Texas) lies beneath the Deaf Smith site and supplies irrigation and drinking water. The Santa Rosa formation underlies the Ogallala and supplies good quality water to some areas in the site and surrounding townships.

The nine square mile surface areas of the Deaf Smith site is prime farmland, used for farming and ranching. Deaf Smith County frequently produces more crop and livestock cash receipts than any other county in the state. In the 1982 U.S. Census of Agriculture, it ranked as the 12th most productive county in the entire nation!

Naturally, Texans are angry over the choice by the DOE of the Deaf Smith County site, and dismayed that the DOE could consider a radioactive waste dump in such a high food-producing area.

They have produced numerous fact sheets concerning the number and location of food-related businesses (food processing, beverage manufacturing, grain warehouses, food manufacturing, and feed lots) within the 150 mile radius

of the proposed nuclear waste dump, as well as the number of people at and within 35 miles of the site; land use characteristics; and water resources available.

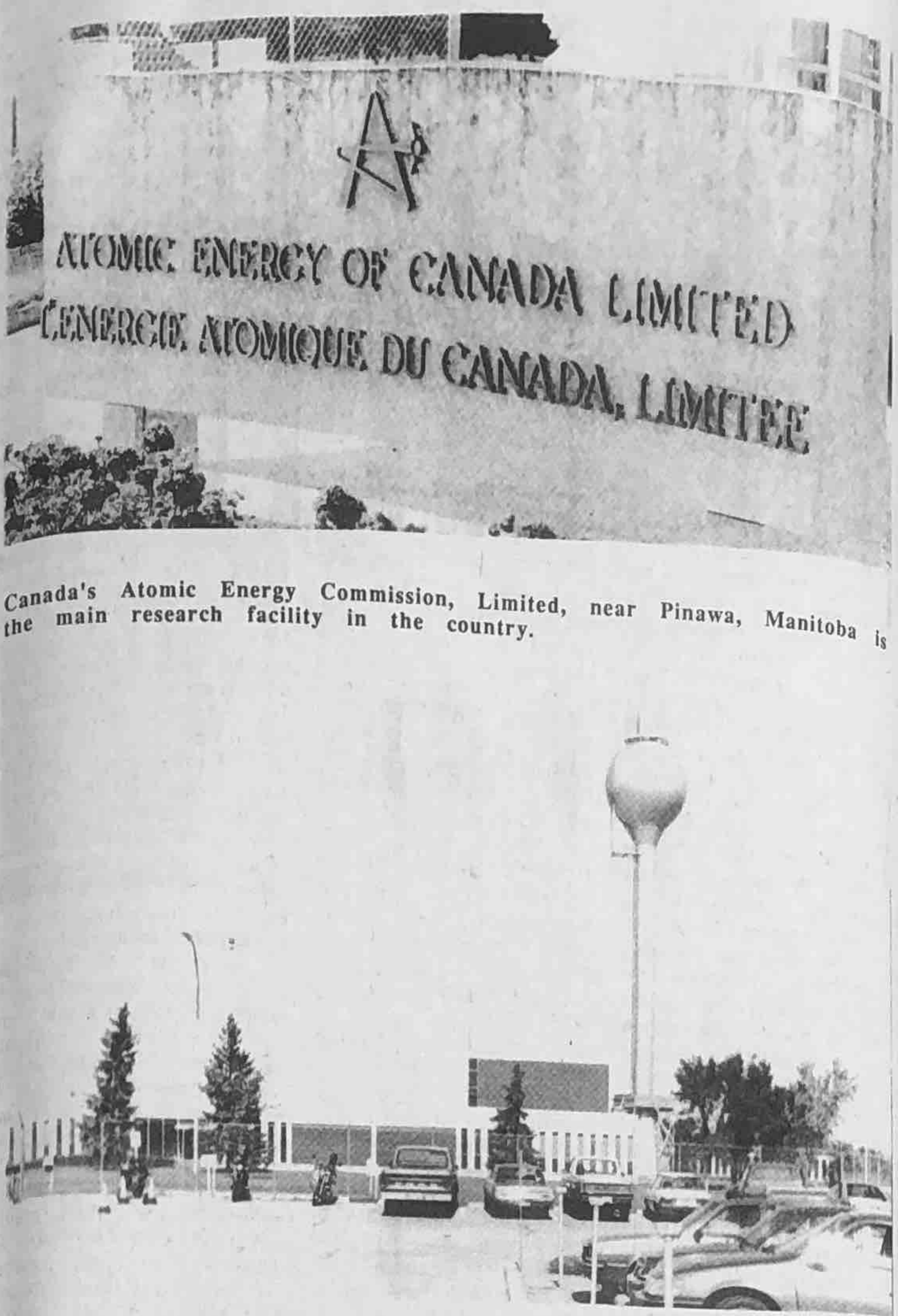
Also the Texas Radioactive Waste Studies Program has produced several studies, one of which is entitled the "Economic Effects of a High-Level Nuclear Waste Repository."

Simply put, contamination of the air and/or the water at or near the site would be devastating to the county as the food which they produce and depend upon for a living would be contaminated and unmarketable. Total lifestyles would have to change, and not all farmers or ranchers are either interested or qualified to be workers in a nuclear waste repository.

Essentially, for those who would wish to remain there, the economy would have to be based on the dump itself, as the agricultural economy which has traditionally sustained the area would no longer exist.

The socio-economic impact would be devastation of the society as it is currently existing both socially and economically.

(Another good choice by the DOE!)



Canada's Atomic Energy Commission, Limited, near Pinawa, Manitoba is the main research facility in the country.

One section of the expansive plant of Canada's Atomic Energy Commission, Limited, near Pinawa, Manitoba. About 14 miles from the main plant is the AECL's underground laboratory where a facsimile of a crystalline rock repository is being produced and studied.

An Example of the Impact

5,300 TOLL FORECAST FOR CHERNOBYL

Cancer Fatalities Would Surpass Those From 1945 A-Bombs

By
R. Jeffrey Smith
and
Michael Weisskopf
Washington Post
Staff Writers
August 23, 1986

The Chernobyl nuclear accident appears to have been the world's most deadly case of radiation contamination and could result in up to 10 times the number of cancer deaths expected in the aftermath of the 1945 bombing of Hiroshima and Nagasaki, according to U.S. experts who have analyzed information contained in a new, detailed Soviet report.

The report, drafted for a meeting next week of the International Atomic Energy Agency (IAEA), represents the first Soviet projection of health costs of the reactor meltdown that already has led to 31 deaths and hundreds of casualties.

Although the official calculation of radiation releases from the April 26 accident is lower than original estimates in the West, the report revealed that most residents in neighboring communities were exposed to radiation 1,000 times higher than the average level that occurred during the worst U.S. commercial nuclear accident at Three Mile Island near Harrisburg, Pa., in 1979.

"It's clear that in the language of the report, they've tended to minimize the effects wherever they can," said Warren Sinclair, president of the National Council on Radiation Protection, a nonprofit advisory group

chartered by Congress. "But this is the worst incident that has ever occurred, and there will ultimately be more cancer deaths from Chernobyl than we predict from Hiroshima and Nagasaki."

The 1945 U.S. atomic bombings of Hiroshima and Nagasaki in World War II resulted in roughly 100,000 immediate deaths. But among the survivors, 500 to 1,000 are ultimately expected to die of radiation-induced cancer. U.S. experts who have read the Soviet report predict 5,300 cancer deaths over the coming decades will result from the Chernobyl accident.

Among the environmental costs potentially threatening to the food chain, the fallout from Chernobyl elevated levels of radioactive iodine 131 in drinking water by as much as 10 times Soviet standards in mid-May. Miles of Ukrainian farm land and forests are expected to remain uninhabitable for up to four years. About 135,000 residents have been evacuated.

"The amount of radiation released from the accident is at least equal to if not greater than the amount of radiation released by the bombs at Hiroshima and Nagasaki," said Dr. Robert Gale, a bone marrow specialist who treated some of the Soviet victims.

Seymour Jablon, a radiation expert at the National Academy of Sciences, said, "the Soviets have quite a problem" and agreed with Sinclair that the number of deaths predicted in the report may be underestimated. For example, the report indicated that roughly 280 cancer deaths will result from radiation exposure within 30 kilometers of Chernobyl. Jablon thinks

that the deaths in this region may be closer to 400; Sinclair estimates 500.

The report provided fresh and often gruesome details of the accident's aftermath. Some victims received burns from fire and radiation over 90 percent of their bodies. With a breakdown of their immune systems, about a third suffered severe herpes infections.

An account of the evacuation of a nearby town raised questions among U.S. nuclear experts about the speed of Soviet crisis management. The town's 49,000 residents had been exposed to enough radiation within the first 20 hours to warrant evacuation in the United States, according to officials at the Environmental Protection Agency. But the actual departures did not begin for several more hours.

"Given the same accident scenario, we would have evacuated earlier," said David Janes, a division director at the EPA's office of radiation programs.

Much of the report, to be discussed by scientific experts on Monday at a meeting in Vienna, played down the adverse health effects of the Chernobyl accident. Swift evacuation of the population prevented irradiation above "established limits," the report said. It also characterized the "radiologic consequences" of the accident as "insignificant" when compared to the expected incidence of cancer from natural causes in the affected regions.

Buried in a series of appendices attached to the report is a far bleaker portrait of the accident and its aftermath, however. American experts who have examined

the report's data predict the disaster will cause more than 10,000 cases of thyroid cancer alone, resulting in at least 1,500 deaths.

A summary of the report that became public earlier this week blamed the accident on a series of errors by reactor operators trying to conduct a power-generation experiment.

But the appendices provided a new glimpse of the first hours after the resulting explosion and were more than 87,000 times the normal level.

As a result, some of the residents there received a total radiation dose up to 30 times the annual dose of a nuclear industry employee.

Residents of the nearby villages of Tolstoy Les and Kopachi, who apparently were evacuated later, received doses double that amount according to the report. Overall, the report indicated, 76 of those who resided between two and five miles from the plant will die of radiation-induced cancer.

A week after the accident, evacuation of an 18-mile area around the plant was finally completed. About 10 days after the accident, steps were taken to limit the exposure of the population to contaminated food. But some children in the region nonetheless received radiation doses to the thyroid that were comparable to those received by the adult survivors of Hiroshima and Nagasaki, according to U.S. experts.

Farms within the immediate area were blanketed by substantial fallout, and the report indicates that radiation levels at some spots will remain at more than 2,500 times the normal level, even one year after the

accident.

Cleanup has been complicated by the fact that winds and rain have often "dramatically redistributed" the radioejection of radioactive debris. They indicated that a ventilation system in the reactor building continued operating for days, ensuring the spread of fallout throughout the complex. Some of the 444 workers at the site contracted acute radiation poisoning, which was characterized by vomiting, headache, fever, infections, bleeding and skin damage, according to the report. Nineteen people received a lethal dose of more than 600 rems.

Prevailing winds caused the fallout cloud to move first to the north and west, then to the northeast for several days, and finally south, contaminating a wide area. Pripyat, a city located just west of the reactor, was initially spared by the cloud because of the strength of the wind, but as it subsided, "the radioactive flare covered the territory of the city during certain time intervals and slowly contaminated it," the report said. Some residents could have received a radiation dose equivalent to 100 chest X-rays during the early morning hours.

By the morning of the following day, radiation levels had reached 600 millirem each hour, an amount equivalent to 50,000 times the normal level. But a general evacuation did not begin until radiation levels on some streets reached 600 millirem, the report said. "Therefore the measures being conducted to decontaminate the populated points will generally only lead to a temporary

improvement of the radiation situation."

Part of the problem is that the radioactive particles will contaminate the food and water supply, thereby posing a long-term health threat. In particular, the report cited potentially serious long-term exposure to cesium in local meat, milk, vegetables and other products.

Late yesterday, government radiation experts were puzzling over a section of the report that appears to indicate that the number of cancer deaths from cesium exposure alone could be enormous, far surpassing the number of deaths projected thus far.

Thomas Cochran, a nuclear physicist with the Natural Resources Defense Council, an environmental group in Washington, estimates that if language in the English version of the report is correct, the fatalities caused by exposure to cesium alone could be as high as 30,000 to 40,000 over the next 70 years.

Other U.S. experts who have read the report agreed with this estimate, but government officials said that it sounded improbable, and that they were both checking the translation and attempting to contact Soviet officials for clarification.



NUCLEAR REACTOR ACCIDENTS: RISKS AND CONSEQUENCES

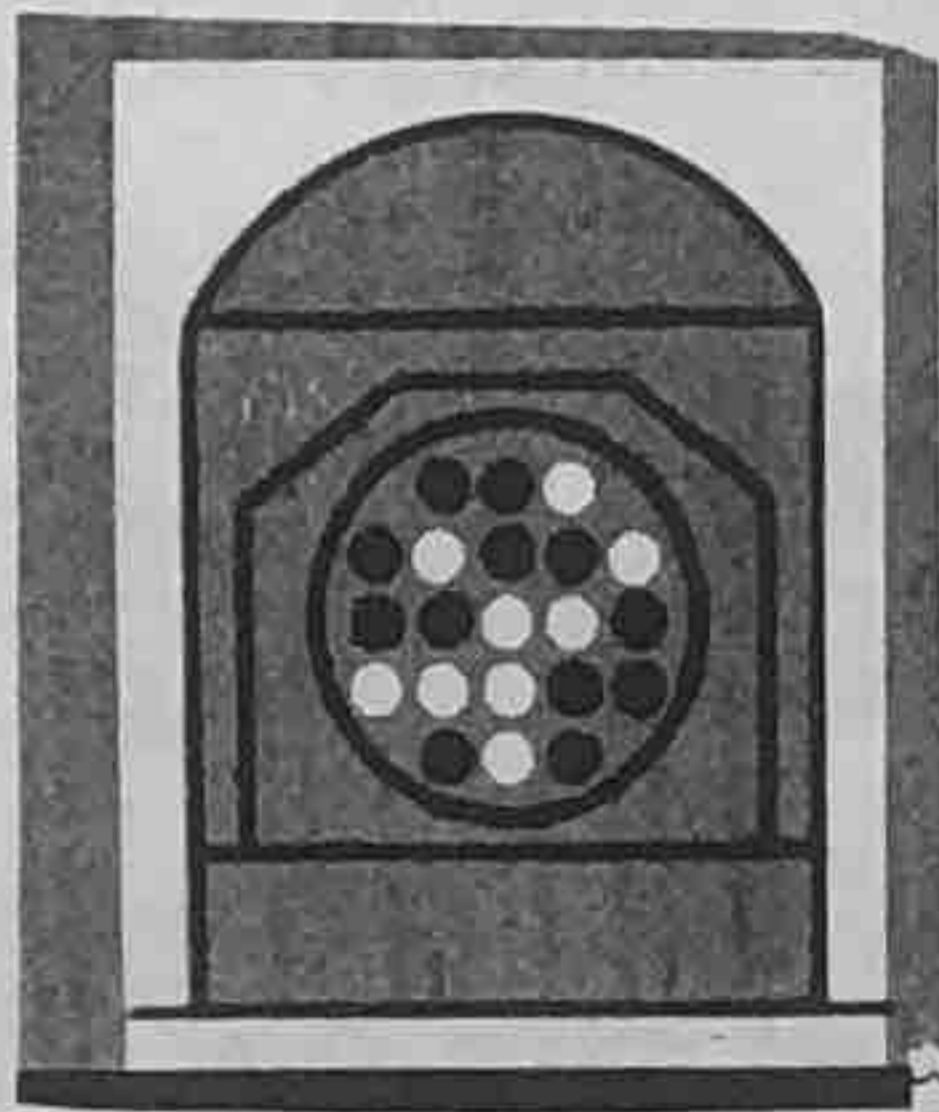
(The following article was written by Crossroads Resource Group. Crossroads Resource Group is a Winnipeg-based public interest organization concerned with energy and environmental issues. The group is a member of the international environmental coalition, Friends of the Earth.)

Crossroads resource group believes that the public must be given access to safety and accident information on nuclear power plants, that meaningful techniques must be developed to evaluate the safety of such plants, and that public discussion must take place in order to determine acceptable risks.)

March 28, 1979 - The news media told the world of an accident, a serious accident, at a nuclear power plant near Harrisburg, Pennsylvania. In the weeks which followed the breakdown at Three Mile Island, information and misinformation combined to tell of human error and equipment malfunctions, releases of radioactive gases and the possibility of a hydrogen explosion. Opinion polls showed that public attitudes towards nuclear energy had changed substantially. Investors in nuclear utilities were losing their nerve as they considered the incredible costs of such an accident - costs estimated at between \$1 billion and \$1.86 billion in the presidential report on Three Mile Island.

In the United States, the Nuclear Regulatory Commission (NRC) admitted that, on the basis of its previous studies, it has considered emergency planning to be of secondary importance when licensing reactors. New regulations were quickly drafted, and the NRC requested a shut-down of similar nuclear plants. (The commission backed off on its request when told by one utility that a shut-down could lead to power black-outs on the east coast during the summer of 1979). In Canada, the Atomic Energy Control Board (AECB) undertook an evaluation of safety standards at this country's CANDU reactors.

For the environmentalists who had opposed the nuclear program from its earlier days, the accident on March 28th represented a bittersweet victory. Increased public awareness came at the expense of a nuclear disaster.



A HISTORY OF NUCLEAR ACCIDENTS

Accident risks and health hazards appear at all stages of the nuclear fuel sequence, from the release of radon gas during the mining of uranium to the often careless storage of highly radioactive wastes. Nonetheless, the central performer in the nuclear story, the reactor itself,

usually draws the most interest from the media and consequently the public.

Undeniably the nuclear plant is a fascination and its power awesome, but as Three Mile Island and other projects have shown, the plant and its operators are far from perfect.

The following are a few examples of how nuclear reactors can behave when things go wrong.

THREE MILE ISLAND

In 1979, the 900 Megawatt Unit 2 reactor at Three Mile Island in eastern Pennsylvania became the scene of one of North America's worst nuclear accidents to date.

In the minutes following 4 a.m. on March 28, operators in the reactor's control room were brought to attention by more than 100 alarms. In the resulting confusion, it took more than forty-eight hours to discover what had gone wrong, and a preliminary staff report later indicated that during this time, the reactor was dangerously out of control.

The first event in the accident sequence was a pump failure in the secondary cooling loop. As a result, water in the primary loop was not properly cooled, and the reactor temperature began to rise. (The faulty pump was backed up by three other pumps, all of which had been taken out of service two weeks before.) When the water in the primary loop turned to steam, the primary loop pumps also failed, accelerating the heating of the reactor core.

As pressure rose in the primary loop, a relief valve opened and became stuck open, allowing over a million litres of radioactive water to spill into the containment building. (The same relief valve caused a similar accident two years earlier at another plant but the lesson had not been shared. As well, an indicator light showed the relief valve to be closed when in fact it was still open.) For more than thirteen hours the reactor core was partially exposed above the cooling water, and temperature climbed.

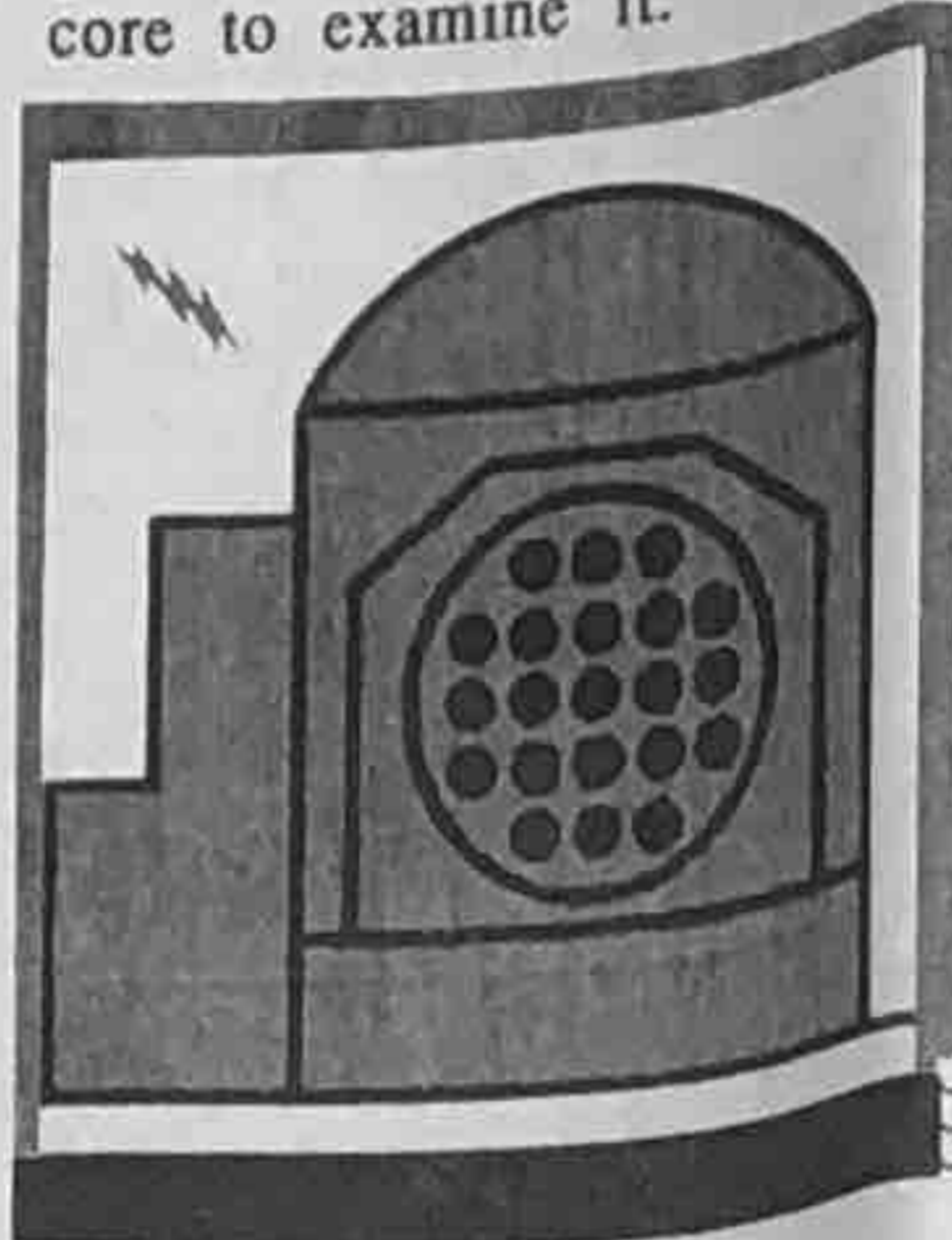
Added to the systems failures was a major element of folly. At the height of the crisis, for unknown reasons, technicians switched off the emergency and primary cooling pumps.

Ten hours after the initial failure, with water circulation restored, there was an explosion in the containment building. The presidential investigation (Kemeny Commission) suggested that this was caused by faulty seals on the reactor vessel which leaked radioactive gases and hydrogen. Radioactive gases also escaped to the environment from the auxiliary building through filters which failed to function properly. At least four plant workers received excessive radiation doses.

Two days after the accident had begun, it was obvious that the reactor was not cooling as expected. A chemical reaction was producing hydrogen gas which further incapacitated the cooling system. This 1,000 cubic foot hydrogen "bubble" eventually dispersed, although the Kemeny report was unable to explain its behavior.

In its 179 pages, the presidential commission's report gives dozens of examples of equipment failures and human errors. Good luck seems to have stood by the reactor operators and helped prevent a disaster. Nevertheless, the reactor was severely damaged.

Nuclear physicist and commission member Theodore Taylor felt that the reactor came "uncomfortably close" to a meltdown and stated: "My guess is that some of the fuel melted." Nobody will know for sure until the clean-up crew is able to get close enough to the core to examine it.



BROWNS FERRY

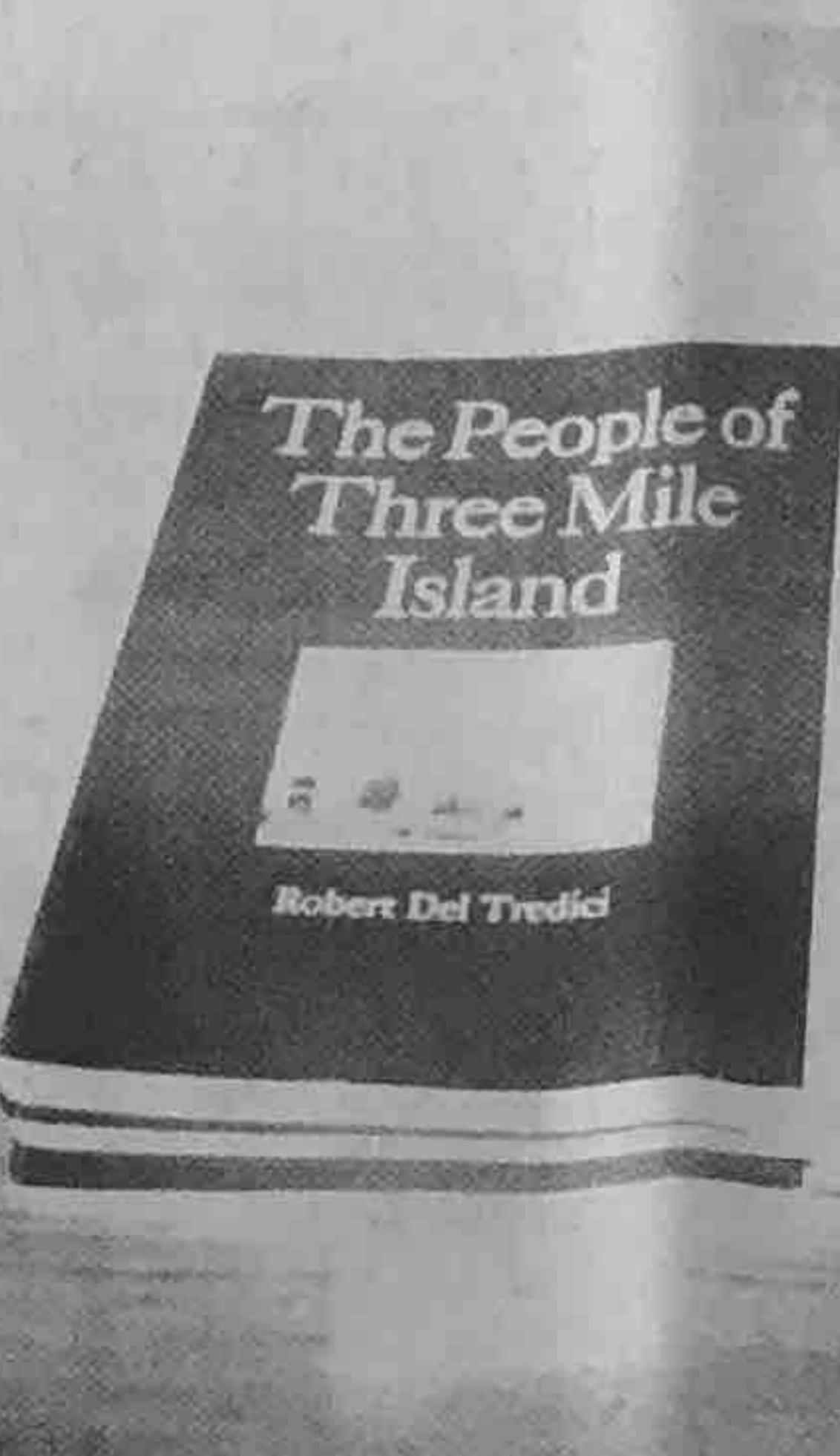
In 1975, two 1,065 Megawatt reactors were shut down after a fire which brought one of them precariously close to catastrophe.

On March 22, two technicians were searching for air leaks in the cable spreading room at the Browns Ferry plant, near Decatur, Alabama. A candle they were using ignited some foam rubber packing around the cables, and the fire quickly spread, burning for seven hours.

Included in the cables destroyed were several connected to control systems for Reactor No. 1. With both the primary and emergency cooling systems out of operation, the temperature within the reactor began to rise. Fortunately, undamaged relief valves reduced the pressure, and made possible a make-shift plumbing arrangement to get cooling water into the core. Tragedy was avoided, although some scientists feel that Unit 1 came close to a meltdown. The two largest nuclear reactors in the world were shut down for more than a year at a cost to the Tennessee Valley Authority of more than \$150 million.

DRESDEN

In June of 1970, the 794 Megawatt Dresden II reactor at Morris, Illinois went out of control for two hours after two control room instruments gave false readings. Radioactive Iodine was released into the containment building "at 100 times the permissible concentration."



There's lots to be learned about nuclear energy and alternate sources of energy before an informed public can make clear decisions about the risks they may choose to take.

FERMI FAST BREEDER

In October 1966, the Enrico Fermi Fast Breeder reactor near Detroit underwent a loss of coolant accident during start-up, resulting in a partial fuel meltdown. An explosion of the core didn't take place, but an anonymous Fermi engineer commented: "Let's face it, we almost lost Detroit." Several attempts to put the plant back into operation were unsuccessful, and the first commercial breeder reactor was permanently closed in 1972, after an explosion of the sodium coolant.

SL-1

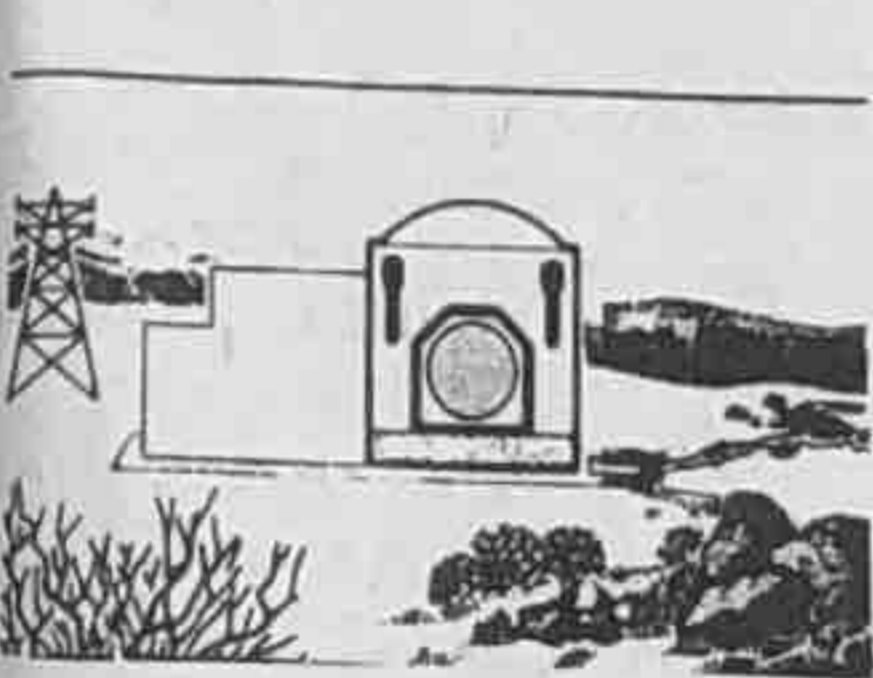
On January 3, 1961, a test reactor at the U.S. Atomic Energy Commission's research center in Idaho Falls failed with tragic results. Three men were assembling fuel rods in preparation for the reactor start-up, when somehow the reactor went out of control, killing all three. A subsequent investigation was unable to decide what had gone wrong.

NRU

In 1959, the experimental NRU reactor at Chalk River, Ontario was the scene of several operating errors. The improper removal of a defective fuel rod on May 23 resulted in a release of "tremendous" amounts of radiation which luckily did not reach the environment.

WINDSCALE

In 1957, the Windscale Pile No. 1 reactor in England was struck by fire, and large quantities of radiation were released. Milk containing "up to six times the permitted level of Iodine-131" was confiscated, and the reactor permanently shut down.



NRX

In 1952, human error, mechanical failures and misleading indicators resulted in a partial meltdown at the experimental NRX reactor at Chalk River. More than a million gallons of radioactive waste were released inside the building and the clean-up took several months. The accident report presented chilling news: "Examination suggests that a slightly greater power at an earlier stage might have expelled fission products in large enough amounts to have produced dire consequences locally. One more shut-off rod up or partially up could have made the difference."

Such a wide variety of accidents demonstrates the vulnerability of the nuclear plant. Unfortunately, it is not always possible to obtain information on accidents or failures. In Canada, the AECB is not allowed to release to the public, accident and safety reports from reactor operators. This secrecy may be eliminated with passage of the Nuclear Control and Administration Act, a bill which sets out to completely reorganize the regulation of the Canadian nuclear industry.

CONSEQUENCES OF A MAJOR ACCIDENT

Clearly, Three Mile Island was not the first major accident at a nuclear reactor. Fortunately, however, we have not yet experienced the sort of catastrophe associated with a total meltdown or a containment building rupture. Before examining the chances of such an occurrence, it is probably worthwhile to briefly consider the consequences.

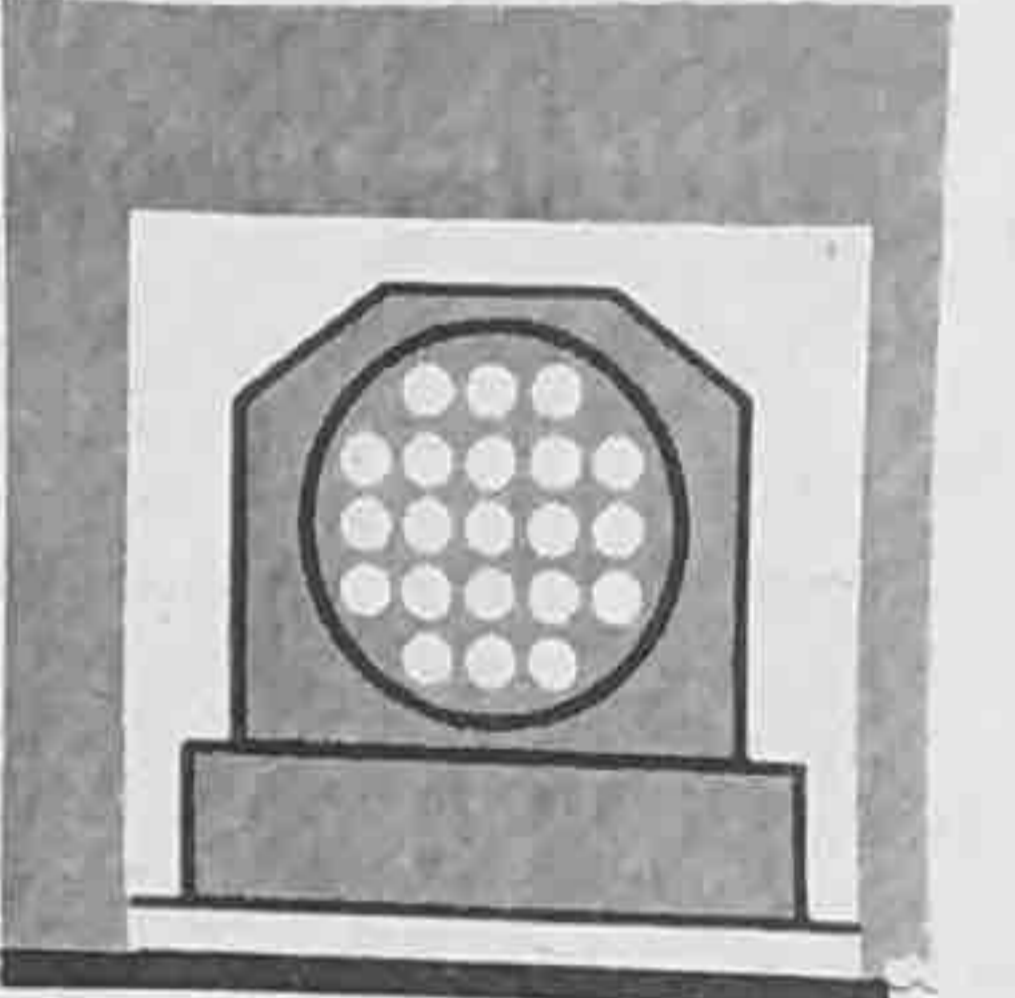
The first major study of a "worse case accident" was made in 1957 and is usually referred to as the Brookhaven Report. Although the report was carried out by the United States Atomic Energy Commission (USAEC), its findings have also been used by the AECB.

The Brookhaven results were horrifying, and in 1965, the USAEC conducted another study to update the figures, hoping for a more agreeable picture. Instead, the numbers were even worse, and the new report was suppressed until 1973 when the threat of a lawsuit brought about its release. The Brookhaven update calculated that a worst case accident could kill 45,000 people, injure 100,000 and do 17 billion 1965 dollars of damage. Land use restrictions might persist for 500 years downwind of the accident throughout an area the size of Pennsylvania. Despite such disastrous predictions, the operators of nuclear plants are limited to a liability of \$560 million by U.S. legislation, and a mere \$75 million by the Canadian Nuclear Liability Act.

The Brookhaven report also failed to consider the long term effects of radioactive releases - the cancers and genetic damage, which are exceedingly difficult to document.

ACCIDENT RISKS - THE NUMBERS GAME

Since nuclear reactor technology has only been around for the past thirty-five years or so, statistics are not sufficient for determining the chances of a particular accident. Instead, the techniques of risk analysis have been employed. With this method, the scientist tries to think up all the ways an accident could happen and assigns a probability to each. The mathematics is impeccable; the weak link is guessing how accidents could happen, guessing all the factors concerned, making sure nothing has been left out, and being sure there is no big unknown factor that could throw the estimates off. If a specific accident scenario requires the simultaneous failure of more than one independent system, then the probability of the accident is calculated by multiplying the individual failure probabilities. Thus, if each of three systems has a failure rate of once in a hundred years, then the chance of all three failing at the same time is once in a million years.



The risk analysis approach gives a nice quantitative ring to statements regarding the safety of nuclear power plants, without the necessity of actually demonstrating such remote possibilities as "once in a million years". As well, the weakness of the probabilistic approach is, of course, the difficulty in ensuring independence of the process and control systems, the protective system and the containment provisions. If it is possible for a single event (a fire, a flood, the actions of a skilled saboteur, etc.) to cause failures in two or even all three systems, ...then this type of "common code" or "cross linked" fault becomes the determining factor in the frequency of major radioactivity releases...

Such a common mode failure occurred at the Browns Ferry reactor during its 1975 fire, shocking the plant's designers who felt they had incorporated "over-skill" safety features.

The U.S. Atomic Energy Commission further promoted the numbers game with its Reactor Safety Study (the Rasmussen Report) released in 1975. The study purported to show that the dangers of nuclear power were negligible, by considering only the meltdown of a reactor core. The Rasmussen Report was not an independent analysis - most of it was prepared at USAEC headquarters - and there were severe criticisms provided by groups such as the Sierra Club and the Union of Concerned Scientists. SCUCS tested the validity of the RSS estimating techniques by applying them to a reactor accident which had already occurred at the Dresden plant in Illinois in 1970.



(continued from page 9)

The result was an accident probability prediction of one in a billion-billion. The Rasmussen Report has been discredited by several groups (see The Menace of Atomic Energy by Ralph Nader and John Abbotts) and yet numbers contained in its original draft form were picked up and published within the booklet "Nuclear Power: Questions and Answers" produced by the Canadian Nuclear Association.

(On a broader basis, the AECB in 1978 published the report: Risk of Energy Production authored by Herbert Inhaber. This document supposedly demonstrated the risks of nuclear power to be less than the risks of most alternatives. The Inhaber Report met with a great deal of skepticism in the scientific community and, it is fair to say, has now been thoroughly discredited.)

Responding to the criticisms directed at the use of risk analysis and probability theory, the nuclear industry has recently taken up the slogan "Defense in Depth" to stress the number of barriers set up between the nuclear reaction and the population. Presumably, the more defenses, the safer the plant. Physicist Ralph Torrie comments: This approach to reactor safety provides an interesting description of the blueprints of a smoothly running reactor plant, but can provide no quantitative perspective on the risks of a major release of radioactivity. It is even less useful than the probabilistic approach.

As mentioned earlier, accidents which, according to safety studies, should only occur very rarely, have already happened several times, and "redundant" safety systems have been rendered useless. The builders of reactors have spent time and effort to devise complex safety systems. Physicist Hannes Alfvén refers to this as perhaps pathetic, but not relevant. If a problem is too difficult to solve, one cannot claim that it is solved by pointing to all the efforts made to solve it.

Reactor safety also involves more than just preventing an accident. The public could be exposed to great danger, for example, if an airplane were to crash into a nuclear plant. Given recent reports on appalling security at some reactor plants, the possibility of sabotage may also take on an increased weight.

THE CHOICE

It is time to decide whether we wish to live with the nuclear power plant. In order for a responsible decision to be made, the public must be allowed to see the accident and safety reports, new research must be undertaken to properly determine the risks of accidents, and an "acceptable" risk must be defined.

(Footnotes have been omitted by the editor. For a complete listing, contact Crossroads Resource Group, Box 1436, Winnipeg, Manitoba.)



Alternate Sources of Energy: Something besides the nuclear option?

ALTERNATIVE SOURCES OF ENERGY

The presenter on this topic was Peter Winter, executive director of the Biomass Institute, Winnipeg.

The search for alternatives to oil came with the energy crunch in the 1970's. The military's need for spent nuclear fuel, accessible from nuclear power plants, was one of the incentives for the government supporting nuclear power as an alternative to oil. It was billed as clean, safe and cheap.

Ironically, at this point nuclear power is none of the above. However, most of the DOE's budget supports nuclear power, with less than 1% of that budget being given to explore other alternative sources of energy.

Like oil, nuclear power is based on consumption of a non-renewable resource. The world can run out of oil, and it will run out of uranium as well. The

process is one of depletion of substances which cannot be re-generated.

However, as Winter indicated, there exists a number of energy sources based on renewable resources. These include: 1.) Hydro-electric power even on small rivers 2.) Tidal-electric power 3.) Bio-energy (wood, waste, grain and straw) 4.) Geo-thermal energy 5.) Wind power 6.) Solar energy.

The use of renewable resources, however, may call for more regional thinking in terms of developing energy plants vs. the large power companies which supply vast areas.

Regions will have to look at the types of resources available to them and find the best alternatives. If there is hot water underneath the earth, that can be tapped to heat water and homes. If an area is by the sea, tidal-electric power may be an alternative. If rivers flow through the area, they can be harnessed for power. And, of course, the sun and the wind are everywhere as

are various sources of bio-energy, such as wood, waste and plant life.

Winter cited an example of Florida using the water hyacinth, a plant which is extremely prolific and even environmentally damaging, as a source of fuel. The plant is a fast converter, as are cattails, which may be looked at soon as a source of energy.

In California sewage sludge is being used to produce methane and heat. All in all, use of alternative renewable sources of energy is less costly, site specific and makes better use of civilization's waste and resources.

Some of the alternative sources of renewable energy will be looked at in greater detail in articles under their separate heading. The materials were prepared by the Biomass Institute. However, more monies are needed to continue research in these areas and develop the technologies required to make them less costly and cumbersome.

Wind Energy

The amount of power that can and will be taken from the winds blowing over Canada depends, finally, on economics. The question that wind power researchers are tackling, both here and abroad, is not "Can we make it work?" but rather "Can we bring the costs down?"

The scope for ingenuity in the design, construction and application of cheaper wind systems is considerable. Can durable and low cost wind turbine blades be made from some new combination of materials? What can be learned about the behaviour of turbines by running them in the precisely controlled conditions of a wind tunnel? In what regions should more data be gathered on the wind regime, so that a more accurate estimate may be made of the potential experience with running windmills out in the field and by simulating complex combinations of wind and other power sources on computers?

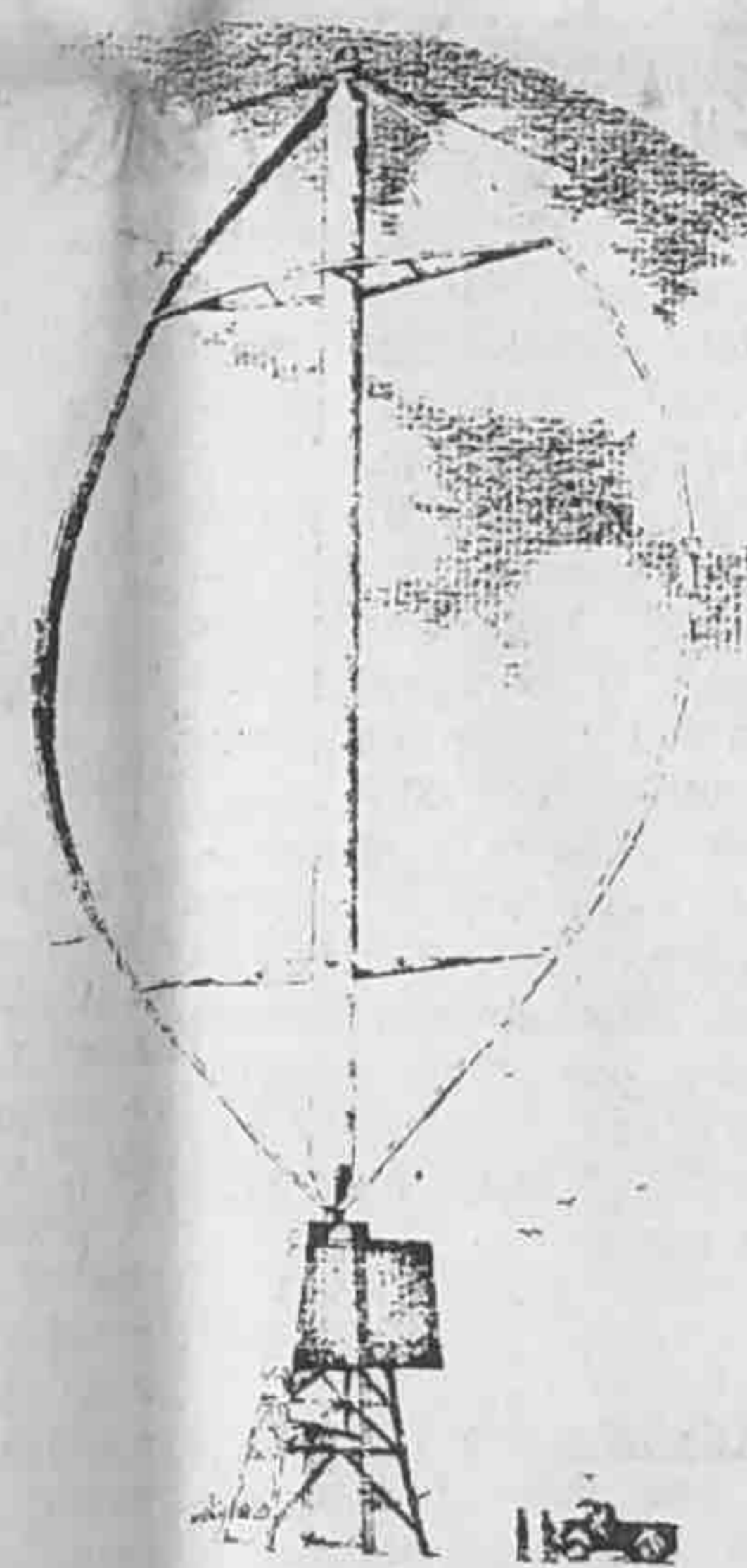
These, and a host of other questions, are being asked by researchers in federal and provincial government agencies, in university and company laboratories, and by individual experimenters. The spectrum of research in Canada is so broad that only a part of it, that in which the federal government is most involved, can be sketched here. The selection of addresses and readings that follow should help guide the interested reader to further coverage.

Under the federal government's energy research and development program the Department of Energy, Mines and Resources is responsible for developing policies for the country, and the National Research Council is responsible for coordinating research on renewable energy sources, including the wind. Almost \$2 million was spent on wind energy research in 1980 to support work in government, university and company laboratories, field trials with power companies, and more.

Much of this research centers on Canada's most notable contribution to the field of wind power — the Darrieus turbine. The application being most intensively examined is that of fuel-saving with intermediate to large machines. By supplementing another source of energy when the winds blow, by feeding power directly into a grid and thus avoiding expensive storage, Darrieus turbines could supply significant quantities of energy from the wind at a reasonable cost.

The world's largest Darrieus turbine was erected on the low-lying Magdalen Islands in the Gulf of St. Lawrence in May 1977. This experimental machine drives a generator, which in high winds — not at all rare on the Magdalen Islands, one of the windiest corners of Canada — can feed a maximum of 200 kilowatts of power into the local grid. This is not very much — in fact the 13,000 or so islanders use more than 100 times that amount of power at times of peak consumption. To meet most of their needs, the local grid carries power generated on the island by burning diesel fuel, shipped at considerable expense from the mainland. Some of this fuel can be saved when the winds blow.

The Magdalen Islands windmill, the largest Darrieus turbine in the world



(from "Exploring Energy -1, Wind Energy," by Sean McCutcheon, a publication Energy, Mines and Resources Canada and the National Research Council Canada)

Thermal Energy

Everywhere the history of geothermal exploitation begins in a similar way: with the use of natural hot water for baths. Romans, Greeks, Turks, and Japanese — people from every culture have thronged to hot springs seeking pleasure and health, convinced that the steaming mineral water will cure their ailments.

The next important step in the application of geothermal energy, the conversion of the Earth's heat to electric power, was first taken in Italy at the beginning of this century. At Larderello, near Pisa, are found fumaroles, or steam springs, natural holes in the ground from which steam issues. Dante's visit to the area may have inspired some of the smoking scenes of hell in his *Inferno*. In 1904, at a factory in which boric acid, a disinfectant, was being made from the hot mineral waters, Prince Piero Ginori Conti switched on five light bulbs which were powered by electricity generated by geothermal steam. Over the years, the amount of power generated at this site has grown, and now more than 400 MW are fed into Italy's grid.

A similar geothermal field occurs in the United States, north of San Francisco. William Elliot was hunting grizzly bears one spring day in 1847 when he stumbled upon a canyon that smelled of sulphur, and that had steam spouting from its steep walls. He was awestruck, he told his friends afterwards he thought he had found the gates of hell. This steam was first tapped for electricity in 1960, and today the largest geothermal plant in the world, The Geysers, converts it into almost 1000 MW of power.

Three geothermal fields have been developed on the North Island of New Zealand, which together produce around 350 MW. During the past two decades China, El Salvador, Iceland, Japan, Mexico, and a number of other nations have built relatively small geothermal power plants; so that today a world total of approximately 3 000 MW of geothermal power is being generated, and a good deal of expansion is planned or in progress.

Iceland was the first country to take the step of using warm water from the earth for heating. More than 40 wells have been drilled since 1930 in and around the capital, Reykjavik. From these wells heat in the form of warm water is piped to most buildings in the city for use in washing, bathing and space heating. Reykjavik boasts that, as it burns no fossil fuels, its air is smoke free, and its citizens delight in the seeming contradiction of their city's name — "Reykjavik" means "smoky bay". It was steaming hot springs, not fires which gave the city its name. In fact, most communities on this small mid-Atlantic island have clean, clear air for most are geothermally heated.

The source of heat under Iceland is hot volcanic rock. In France, which also has geothermal heating in its capital city, the heat source is sedimentary rock. Warm water is held in the bowl-shaped sedimentary formation, hundreds of kilometres in diameter, known as the Paris Basin. At Melun, a suburb of Paris, bore holes drilled in 1970 now bring warm water at an average temperature of 80°C to the surface. Its heat, extracted by a heat exchanger, helps keep a large block of apartments warm. This project has spawned many others and when present plans come to fruition, 500 000 apartments in France will be geothermally heated.

The Russians grow millions of tons of vegetables in greenhouses which are heated by warm water from sedimentary rocks. Much of Hungary's paprika also grows under glass, warmed by heat from sedimentary rocks. In Iceland, the potato is about the only domestic plant to flourish outdoors; but in geothermally heated greenhouses, plants as diverse as garden flowers and bananas are grown.

Still other ways of putting the heat of the Earth to work have been devised. Japan has some exotic examples, including geothermally heated fish hatcheries, eel-ponds, alligator nurseries, lily gardens, and breweries. Yet, the most important applications, after the early phase of building baths, remain the generation of electrical power and the heating of buildings and greenhouses.

(from "Exploring Energy -3 Geothermal Energy" by Sean McCutcheon, a publication of Energy, Mines & Resources Canada & the National Research Council Canada)



The Great New England Energy Show pulled up after driving from the east coast and joined the Protect the Earth Rally at Mole Lake. The display provides information regarding alternate sources of energy.

DYNAMICS OF PLACING HOT NUCLEAR MATERIAL IN CRYSTALLINE ROCK

This address was presented by Dr. Marvin Resnikoff, staff scientist for the Sierra Club's Radioactive Waste Campaign and the author of "The Next Nuclear Gamble."

Dr. Resnikoff began his address with several opening remarks regarding the nuclear issue in general. "In the end," he said, "nuclear issues are political issues." If there is not substantial citizen opposition in Winnipeg to the Lac du Bonnet underground laboratory, he said, Lac du Bonnet will be "it" sometime in the future.

Resnikoff also commented on the problems of working in the establishment and maintaining an anti-nuclear stance. "Anyone who criticizes the party line in the United States," he said, "is fired."

He also remarked briefly on the DOE's predictions ten years ago. DOE had predicted 500 reactors in operation at this point, which would require a new repository every five to seven years.

Ultimately the DOE had hypothesized on 2000 reactors across the United States, which would eventually require one repository every forty miles, according to Resnikoff.

In regard to hot material, i.e. radioactive waste, in crystalline rock, Dr. Resnikoff essentially feels that despite research and computer models and extrapolations, unknowns remain, which make the disposal of radioactive waste in crystalline rock an unpredictable and risky business.

In simple terms, if a hole is dug, water will come into the hole. In forty years time the hole will fill up with water which moves through the fissures.

The fuel placed in the hole is very hot and the hole is sealed. Therefore the water will heat up. Hot water is more buoyant so convection currents develop, rising one after the other in waves towards the surface. If enough fuel is placed in a small space, the temperature could come to above boiling.

There will be problems with erosion and leakage from the containers. The question is, and remains, how fast will it all come to the surface?

The effect of the heat on the water in the repository may also create a thermal pulse in 1,000 to 3,000 years which may effect a radius of about five miles, if there are no faults.

Resnikoff said it takes about forty years for water to get to the surface, moving at a rate of about four cubic meters per day. However, if the plug deteriorates or there is a crack in the substance, it may surface at the rate of 50 meters per day.

In order to seek a safe repository, researchers should:

1.) Map out fractures below the surface. However they can't do this without drill surface, a process necessary in characterizing any site, but at the risk of making the site look like Swiss cheese and destroying the site in the process of characterizing it.

2.) Perform permeability studies which require the construction of a chamber to determine accurately how much water comes in and flows out.

3.) Predict chemical properties if the material gets out and adheres to the rock.

Resnikoff stated that though computer models are also part of the process of accessing a site, the uncertainties are large. Using data collected over a period of a few years to project effects for thousands of years, is not accounting for a multitude of possible variables.

In conclusion, Resnikoff cited several important rules for predicting the future:

1. Use of numbers and statistics does not absolve the responsibility of thinking.
2. Use of computers does not absolve the responsibility of thinking, and more so than the above.
3. We must assume the predictions are wrong.
4. Never omit the error bias.
5. All predictions should be accompanied by the track record of the predictor.

Resnikoff also emphasized that any waste disposal should allow for a reversible situation, for future generations. If something is going wrong, there should be some ability to control or reverse the effects.

Bioenergy



BIOENERGY is what we call solar energy which has been captured by growing plants, and stored in forms of matter that we can use as food or fuel. For example, trees produce wood that we burn; wheat produces grain that we eat. In fact, as you read these words, you are being powered by bioenergy.

By burning wood, or by fermenting plants to make liquid fuel, or by turning manure into gas, we can tap the renewable store of bioenergy found in living things to power cars and trucks, papermills and sawmills, homes and hog barns.

Most of the energy we now use comes from the remains of dead plants which flourished hundreds of millions of years ago. When they died, they were buried and changed in the earth into what we know as fossils fuels: oil, coal and natural gas.

Oil, because it is such a compact fuel, has become the dominant source of the world's energy. Its rise to the number-one position, however, is recent; only a hundred years ago, almost all the energy used in Canada came

from wood. It remains more convenient to use oil than wood; but wood and other sources of bioenergy have one great advantage: they are renewable, whereas the stores of all fossil fuels in the earth are finite.

The rate at which oil is being pumped out of the earth's wells has reached its peak. From now on, oil will become increasingly scarce and expensive.

The most sensible response to this fact is to cut back on our energy use; for here in Canada we consume more energy per person than anywhere else in the world. This is partly so because we have a population which is thinly scattered across a cold, northern land—to keep a country like Canada running takes a lot of energy. But it is also true that the richness of our energy resources has encouraged us to develop extravagant habits.

Renewable sources of energy can also help, as we make the difficult transition away from the oil era. Already, bioenergy contributes four per cent of the energy used in Canada. A little of this is accounted for by the hundreds of thousands of homes heated by wood; but the largest bioenergy use is the burning of waste wood at pulp and paper mills.

(from "Exploring Energy -2 Bioenergy" by Sean McCutcheon and Association, a publication of Energy, Mines and Resources Canada and the National Research Council Canada)



Canada's underground laboratory in crystalline rock lies in terrain such as depicted above. A large expanse of land north of Winnipeg is characterized by surface granite.

MANITOBA TO BE USED AS A NUCLEAR WASTE DUMP?

by Ann Weiser

Joint U.S./ Canadian Proposals May Result in Contamination

From Spring, 1986 Network News

Manitobans derive none of their electrical power from nuclear sources, but for the last six years we have lived in the shadow of Canada's nuclear waste research program. The mandate of this research, centered at Pinawa in the eastern part of the province, is to demonstrate that high-level radioactive waste can be permanently disposed of in deep caverns excavated in the granitic rock of the Canadian Shield.

Lac du Bonnet, a small rural town close to Pinawa, is home to the underground research facility of Atomic Energy of Canada Limited (AECL). The facility is a shaft drilled 240 m. deep into the granite, in which researchers carry out experiments on the nature of the fractures within the rock, the effects of heat and pressure on these fractures, and on the migration of water flow through them.

This hole is one of a kind in North America and is a focal point for nuclear waste management research. AECL's activities at the URL and elsewhere in the area have escalated steadily, leaving little doubt in the minds of many Manitobans that when the time rolls around for

selecting a repository site for Canadian nuclear waste, the Pinawa region will be the number one choice.

As if this were not enough, we now face the very real possibility of becoming next-door neighbors to a future U.S. nuclear dump. In January of this year, the U.S. Department of Energy (DOE) announced 12 sites in crystalline rock areas as candidates for a high-level radioactive waste repository. Two of these sites plus one 'back-up' site, are in the Red River Valley of north-western Minnesota—within 160 km of the Manitoba border. The Red River flows north into Manitoba through prime agricultural land, through the city of Winnipeg, on into Lake Winnipeg and through the Canadian Shield into Hudson Bay. In the event of a repository failure, groundwater could breach the containment area and become contaminated with radioactive material. Since groundwater is copious in Minnesota, and surfaces everywhere in the form of springs, wetlands and wells, contamination of the surface drainage could follow rapidly. Catastrophic ecological damage to the entire watershed could result.

Manitobans have joined forces with our Minnesotan neighbors in protesting the DOE's untenable proposal. We have a long struggle ahead of us. Northeastern Minnesota is an extremely vulnerable area from a geo-political standpoint. The area has a relatively sparse population and

therefore little political influence, and it is economically depressed. It is underlain by a similar kind of rock as is found in Eastern Manitoba. Furthermore, it is within only a few hours driving time of Pinawa (easy transport of wastes). Considering that the DOE is about to invest \$30 million to become part of the research efforts at the URL, it seems unlikely that they will dismiss the Minnesota sites from consideration. The Governor of Minnesota's Nuclear Waste Council has long been concerned that the DOE will use the Manitoba research results to circumvent the necessity of building their own underground testing facilities. It is feared that this scenario is rapidly becoming a reality. A most depressing fact is that U.S. law requires that a crystalline rock repository be constructed and operational by the year 2006.

In 1985, residents of Quebec's Eastern Townships region faced a similar situation in that a northern Vermont site, close to the Quebec border, was originally under construction as a U.S. candidate area. In that case, Canadian External Affairs responded to the lobbying and protesting efforts of citizens and successfully intervened to have the Vermont site struck from the U.S. list. We in Manitoba hope for similar action, but a strong statement from External Affairs on our behalf has yet to materialize.

As Walter Robb...

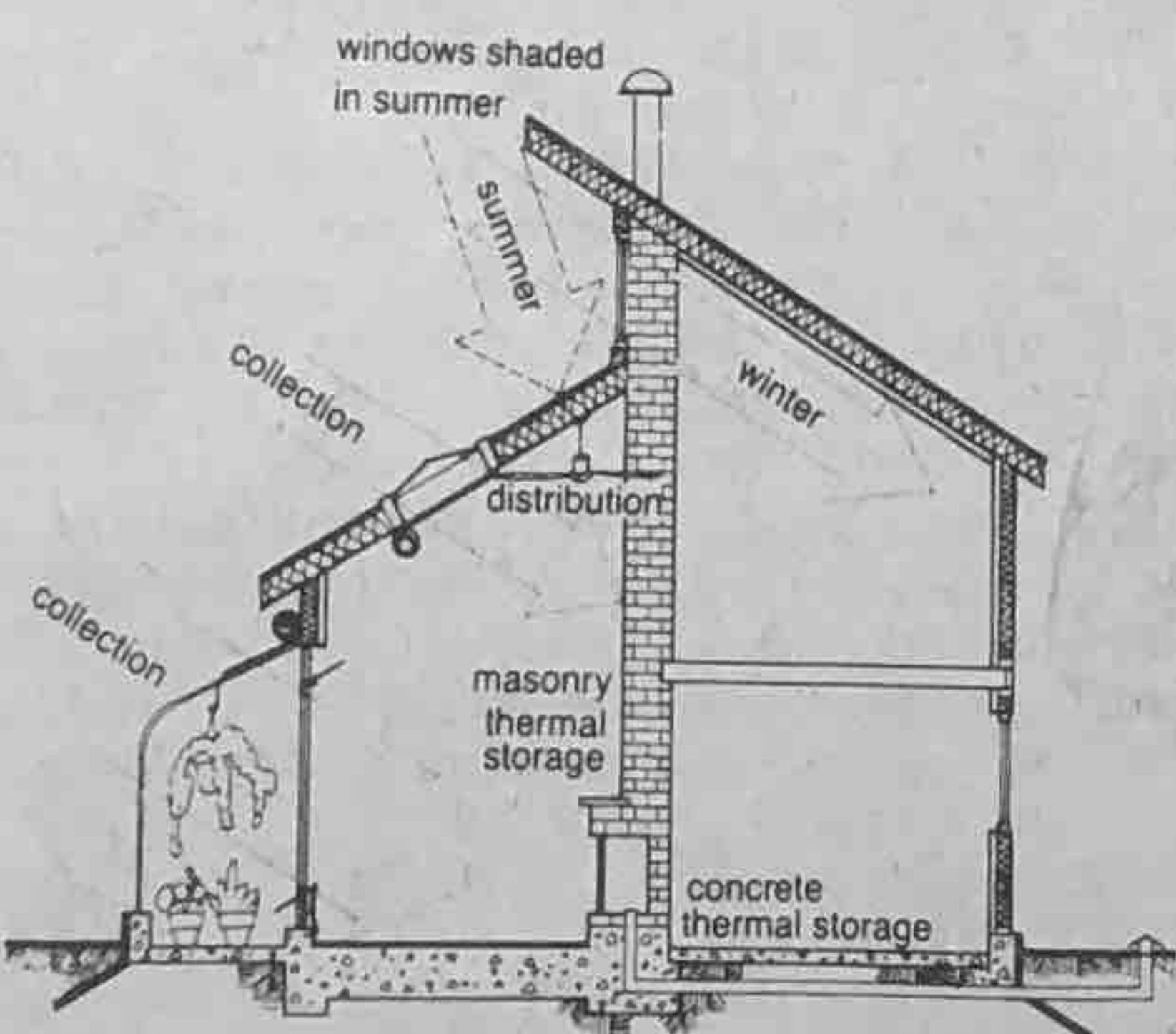
Manitoba environmental activist, puts it, with both the U.S. and Canada setting their sites on the North-Central region, we face the prospect of becoming the continent's nuclear waste 'sacrifice area'.

For us at this point, nuclear waste could easily be seen as simply a 'not in my backyard' issue. However, it is important to remember that it goes far beyond the backyard, the region, or for that matter, even the nation. Nuclear reactors all over the world are producing high-level radioactive wastes, and temporary storage space is rapidly filling up. The industry's decision to pursue the 'out of sight, out of mind' option for disposing of wastes 'permanently' underground stems from an outdated, inappropriate and highly irresponsible attitude towards our earth and its natural resources.

Common sense and past experience tell us that what we put into the earth will someday return to us. And even industry personnel admit that there can never be any positive guarantee against radioactive contamination of groundwater from a nuclear repository. Groundwater resources are precious, and, once contaminated, irreplaceable. Therefore, our job is not only to keep nuclear waste out of the Red River Valley, but also to keep it out of the ground everywhere. More fundamentally, our job is to examine the mindset that results in the production of nuclear

Solar

Solar space heating systems are divided into two categories, active systems and passive systems. With passive systems the building itself is designed to collect, store, and distribute the radiant energy from the sun. With active systems, separate components are used to collect, store, and distribute solar energy, and a pump or blower is required to actively transfer the heat from collectors to storage and from storage to the building.



Passive Solar House

The Role of Citizen Groups

CITIZEN GROUPS KEY TO STOPPING DUMPS

Members of various citizen groups concerned about radioactive waste, and particularly nuclear waste repositories, have been successful in voicing their concerns and helping to, at least, delay the siting of repositories near them.

Representatives from citizen groups from Canada, Texas, and the United Kingdom spoke during the conference, describing experiences which seemed very similar, despite the distances which separate the various groups.

A spokesman from Bedfordshire, England, Dr. Andrew Blowers, led a citizen group in his area after suddenly discovering the government planned to locate a low-level waste site near his community. "We felt we had been ambushed," he said, describing the surprise of the community and the general secrecy surrounding the whole project.

At first, the citizens felt a sense of helplessness simply because of the gross imbalance between the nuclear industry and its opponents. They felt totally overpowered. A nuclear waste repository was being proposed with little research in the area, with problems regarding the hydro-geology of the location, and a community of 120,000 lay nearby.

However, 1983 seemed to be a year of transition in England. Two sites were announced; sea dumping was stopped by Greenpeace; and an international seminar took place on the issues.

The issue of nuclear waste production, he said, is now the new political issue with increasing public awareness of the risks involved.

The willingness of citizen groups to form, to educate, to picket, to protest and to keep informed has played a crucial role in England and, particularly in Bedfordshire, which to date does not have a waste dump near it.

AND IN TEXAS...

Delbert Devlin, who has written no books but many Congressmen in the past few years, have been instrumental in forming a Nuclear Waste Task Force with a membership of 150,000 people.

The group has been active in lobbying against the proposed first round dump site in Texas and in forming coalitions with other citizen groups facing similar problems.

IT'S POLITICAL...

According to Ben Rubin, author of Energy Probe, siting and production of nuclear waste are political issues. The decisions are political decisions and "the

motivations of the players are political."

Rubin feels that the system being forwarded in Canada which proposes a concept first be established, researched and approved prior to going to a site is simply avoiding the social pressure which is sure to occur.

He says that because of the social uproar and pressure of citizens, industry will tend to put off siting as long as possible. In Canada he feels this may be for several decades.

Rubin emphasizes that the public must push for the ethical considerations in nuclear waste production and disposal.

He says that not enough is being said about the toxicity of the substances being buried. "We have to keep this in mind when people say how careful they are going to be," he stated.

Rubin also said that the public is dealing with experts who are not credible. Referring to representatives of the nuclear industry, the DOE and Canada's AEC, Rubin feels that people do not trust them because they have a poor track record.

Consequently, the public is increasingly questioning their authority. "The issues," he said, "are generally not too complicated for us, but to simple for the experts to understand."

CHANGE DEPENDS ON POLITICAL PRESSURE

Canadian Ted Schraeker sees the chance of change in the future contingent upon "politicians driven by popular support and rage." He feels that nuclear issues must be put on the political agenda and the citizens, the voting public, must force their representatives to respond to their demands and concerns.

This, he felt, was witnessed in Sweden when the Swedish Power Referendum voted in a planned ten year phase-out of the nuclear industry in that country.

PULLING TOGETHER AND COALITION

Most all of the speakers at the conference felt the need for increased networking of concerned citizens. That means crossing state boundaries, crossing international boundaries, and reaching across the seas.

The issues are common and occurring simultaneously in pro-nuclear countries. The risks imposed on the public are the same. The world belongs to us all and the problems of radioactivity do not stay within any boundaries imposed by man, as witnessed lately through Chernobyl.

There is a tremendous need for citizens globally to form a coalition, unite and say a resounding "no" to the nuclear risk.



Citizens Concerned About Radioactive Waste, CCARW, is a regional citizen's group active in nuclear issues. CCARW co-sponsored the Protect the Earth Rally this summer.



Wisconsin Citizen's Rally at Mole Lake

The concept of joining hands to defend our environment was forwarded at the August 31st "Protect the Earth Rally at the Mole Lake Reservation, as Indian and non-Indian people as well as representatives from a variety of organizations addressed the critical problems facing us as citizens of Wisconsin, the United States, the earth.

Issues of primary concern were the adverse impacts of mining, particularly relating to EXXON's proposed mine site near the Mole Lake Reservation and nuclear waste, both its production and its disposal.

James Schlender, chairman of Citizens Concerned About Radioactive Waste (CCARW) and Executive Director of the Great Lakes Indian Fish and Wildlife Commission (GLIFWC) said that the Department of Energy's decision to "indefinitely postpone" the second siting process prompted the organization of the rally.

Schlender feels that the DOE's postponement of the siting process was a "cold and calculating move to ally concerns and fears of the citizens." He also feels that the postponement will only last until elections are over.

He said the intent of the rally was to "keep the issue of nuclear waste in the forefront, and to

inform and educate the public." Schlender also feels that it is important to realize that the treaty rights of the Chippewa provide northern Wisconsin with some extra measure of protection against a nuclear waste site, as the Chippewa also have a right to assure that the resources reserved in those treaties are not damaged.

During the course of the afternoon, numerous speakers and entertainers took turns at the podium, which stood in the outdoor arena of Mole Lake's Blue Grass Festival Grounds. Entertainers such as Floyd Westerman, Larry Long, Georgia Wetlin-Larson, and Bill Miller alternated with a variety of political speakers or persons representing environmental organizations.

Al Gedicks, Center for Alternative Mining Policy Development, praised EXXON in opposing the mine site. Gedicks noted that Wisconsin's smallest tribe has been successful, along with several environmental groups, in preventing the world's largest mine corporation, EXXON, from initiating mining activities for a ten year period.

Gedicks said that to stop such corporate giants their weak spots must be located and the fight must be relentless. He noted that the Mole Lake Tribe has amassed the technical information necessary to continue forcing EXXON to

return to the drawing table.

The difference, Gedicks emphasized, is to how many people are opposing the mining effort, but that those who do are here and will continue to be here.

Gedicks also warned that the problems facing Mole Lake extends to all tribes, and in fact a good portion of northern Wisconsin. He noted that several other corporations are waiting in the sidelines, watching the dispute while holding 400,000 acres in mineral leases, ready to act when EXXON receives its permit. Essentially, Gedicks feels the gate will be opened for more mining endeavors. Consequently, he views Mole Lake and the Crandon area as the battleground for the Lake Superior Region.

DOE UNRELIABLE

David Siegler, policy analyst for GLIFWC, provided remarks based on his research while preparing commentary on the DOE's Draft Area Recommendation Report (DARR).

Essentially Siegler indicated that DOE has proven itself unreliable and to date, has not been capable of responsibly managing nuclear sites. Siegler cited an error in DOE's calculations when narrowing the first round repository sites down from 5 to 3 proposed areas. During the process

they made a \$1 billion error between the least and most expensive site. Later, when this was brought to their attention, it was simply explained as a "typo".

Siegler also criticized the DOE for burning all the documents which they used to make their decision on the last three potential sites for the first round.

Several nuclear plants, one in Georgia and one in Ohio, were mentioned by Siegler as being improperly managed by the DOE currently. At the Georgia plant, for instance, the Environmental Protection Agency, has found that tritium being released has exceeded the standard by 1600 times.

However, despite the obvious dangers, Siegler says, the evidence of DOE's incompetency has not been getting to the mainstream press.

MINE SIMILAR TO NUKE DUMP

According to Alan Ruger, GLIFWC environmental biologist, several parallels may be made between the proposed nuclear repository in Wisconsin and the propose EXXON mine. Both would be about 2000 feet deep, with shafts over 20 feet in diameter, and the site would have to stop highly toxic wastes from entering an environment which contains abundant surface and ground

waters. A nuclear repository must contain ionizing radiation while the EXXON mine must segregate mercury, lead, zinc, copper, and arsenic for long periods of time, he said.

Ruger noted, that even the Department of Interior in their formal comments on the DEIS, states "We find some major shortcomings with the DEIS. There is a consistent pattern of failure to deal with the long-term potential impact of this project on the biota and natural resources of the area. In most instances, the planning horizon does not extend past getting the mine to a steady level of production. A clear commitment to long-term environmental protection should be an integral part of the mine development plan. From the standpoint of the nearby Indian Reservation at Mole Lake, the impacts to the water resources are a major consideration."

Ruger feels that Governor Earl's positions on the EXXON mine and the DOE's repository reflect an inconsistency as to environmental policy. He said Governor Earl in January of this year met with EXXON and later said he was satisfied the mine would be good for Wisconsin. He promised the "lean on" the DNR to finish the DEIS. "EXXON is a good corporate interest. They have not asked the state for a thing, yet they have committed \$60 million to mining development. We're close enough where I hope my urging will have the DNR get this done very quickly." Whereas, in April

while speaking before the US Congress about the possibility of a nuclear repository in Wisconsin, Governor Earl said the Wolf River area was unsuitable because of extensive surface water and wetland coverage, flood potential, presence of threatened and endangered species, Native American Reservations, and potential for contamination of the Great Lakes.

Ruger noted that even EXXON says the topography of bogs, swamps, trout streams, rivers, and lakes made it one of the most difficult areas in the would to mine.

"It seems that a double standard is being used to make decisions on the quality of Wisconsin's environment which will effect future generations," Ruger commented.

He feels it may not be possible to operate the mine and protect the environment and that it may well be that the interests of Wisconsin are best served by not developing the ore body. "At the least, EXXON and Wisconsin must consider the interests of the Tribes and include them in planning responsible monitoring and mitigation plans, Ruger concluded.

The Protect the Earth Rally was sponsored jointly by several groups including the Great Lakes Indian Fish & Wildlife Commission, the Northwoods Alliance, CCARW, Dovetails-Images of Peace, Badger Safe Energy Alliance, and all of the Wisconsin Tribes.

(Comments from the Rally reflect the views of the speakers not GLIFWC.)

GLIFWC Appeals on Behalf of Tribal Courts

BY DAVID SIEGLER
GLIFWC
POLICY ANALYST

On September 16, the Commission submitted its contract appeal to Assistant Secretary Ross Swimmer in defense of individual tribal courts. The Commission's appeal asks Mr. Swimmer to reverse the Minneapolis Area Office's decision to cut \$51,000 from the tribal court proposal and \$20,000 from the budget altogether, which they propose withholding to fund a new Bureau administration position.

The first several sections of the appeal's argument address the various fiscal arguments the Area Office has made to support a single circuit-riding court over individual courts for each tribe. The next section discusses policy reasons for supporting individual tribal courts. It is reproduced below:

This Argument has shown that there is probably an insignificant cost differential between funding seven individual tribal courts and a single circuit court. The Argument has demonstrated that a cost-per-case analysis is inappropriate and that individual courts are, in many ways, more efficient than a single circuit court. And the Argument has pointed out that the tribes have reasonably concluded that \$51,000 could not be used to better effect in law enforcement than in judicial services, and that the Area Office has never presented sound arguments in contradiction. Even were none of this so, sound policy reasons still

exist to favor individual tribal courts over a circuit court.

The court is the conscience of the community, whether it be a county or a state, a nation or a tribe. The moral authority of a court derives from its closeness to the people whose affairs it adjudicates. Indeed, one of the grievances cited on July 4, 1776 by the Colonists against King George was the trial of colonial subjects before courts not their own. A court, if it is to be more than a mere automaton, must mete out justice in accordance with the temper of the community.

Few would agree that a New York court could adjudicate a Minneapolis dispute with a true feel for the community expectations and mores of that city. Fewer still would feel the weight and presence of the law if they realized that its dispensers were mere transient visitors with no roots in the locale. Certainly circuit courts functioned on the frontier, but no one has ever held up frontier law as a model to be emulated; the frontier is long past and as soon as communities could establish their own courts, they did.

Courts are prime attributes of sovereignty. Their powers to compel performance are perhaps one of the most visible attributes of sovereignty in a civilized society. A functioning tribal court commands respect for all of tribal government by proclaiming "This is a real government with real powers." A visiting court cannot make the same proclamation, cannot imbue tribal

government with the same authority.

Yet sovereignty is more than power. Talk of tribal sovereignty is often talk of tribal uniqueness. To discuss the sovereignty of a tribe is to focus on its singularity: because each tribe possesses an aspect of sovereignty, it is free to pursue its own interests by its own lights. The court, as an instrument and as an emblem of the tribe's sovereignty, must be part of that pursuit. That pursuit will not be the same at St. Croix as it is at Lac du Flambeau, not the same as Red Cliff as it is at Lac Courte Oreilles. A court riding the circuit among the tribes will never become an integral part of the social fabric of any of the tribes.

Felix S. Cohen, past Associate Solicitor for the Department of the Interior, expressed the meaning of tribal sovereignty well when he wrote:

Indian Bureau government...starts from the basic premise that government is a matter of knowledge or wisdom... Government is not primarily a matter of wisdom or technique or efficiency. Government is a matter chiefly of human purpose and of justice, which depends on human purpose. And each of us is a more faithful champion of his own purposes than any expert... That is why America...has insisted upon self government rather than "good government."

F.S. Cohen, "Indian Self Government" in *The Legal Conscience* 313 (1960). Is it really the Bureau's place to insist otherwise?



This drummer at the St. Croix Wild Rice Pow Wow gets into the spirit of the dance.

BIA Signs Off on 1987 Contracts

The Great Lakes Agency of the Bureau of Indian Affairs (BIA) concluded contracts with the tribes for fiscal year 1987 at a ceremony at the agency's office in Ashland on Tuesday afternoon.

The majority of the grants awarded by the BIA fell in the area of education for the upcoming year. This covers grants for programs such as Johnson O'Malley, Chapter I, school operations, higher education, and special education and the handicapped.

Joseph Mooney, education specialist with the BIA, was instrumental

in working through the many education contracts with the ten tribes served by the Great Lakes Agency.

Other areas in which contracts were awarded include adult vocational training; forest management, forestry aides, and natural resources, according to Frank Larson, supervisory field services representative.

Tribal chairmen, or their delegates, were present for the signing of the contracts as was John Martinsen, grants officer with the Minneapolis Area Office of the BIA. Martinsen commended the agency for developing the Agency's Field

Larson, is responsible for contract-grant administration and monitoring and management systems review. They also provide technical assistance to the tribes and either provide or coordinate training at the tribal level regarding contract administration and review.

The Great Lakes Agency was the first to develop a Field Services Unit which brought the contracting process to a more local level and provided a means to work more closely with the individual tribes. Service Unit, which is being emulated by other agencies of the BIA.

The Field Services Unit, as explained by



This dancer was one of many elaborately costumed dancers at St. Croix's annual Wild Rice Pow Wow.



Participating in the contract signing at the Great Lakes Agency of the BIA, Ashland were, from the left, Frank Larson, BIA supervisory field services representative; Joseph Mooney, BIA education specialist; Robert St. Arnold, supervisor of the Great Lakes Agency of the BIA; John Quaderer, Lac Courte Oreilles tribal council; John Martinsen, BIA area office grants officer; Mike Allen, Lac du Flambeau Tribal Chairman, and Richard Gurnoe, Red Cliff Tribal Chairman.

Nuclear Waste

What Are Nuclear Wastes

Wastes are produced at every stage of the nuclear fuel cycle, from the mining of uranium to the fissioning of uranium fuel in a reactor to produce electricity. These wastes contain varying levels or intensities of radioactivity.

1 Mining, Milling, & Refining Wastes

Uranium is one of the more common heavy elements in the earth's crust. It is present in most rocks and soil, as well as in rivers, lakes, and oceans. It is naturally radioactive and undergoes a series of fourteen transformations or decay steps, each involving the emission of radiation[†], before reaching a stable form, lead. The radiations emitted from uranium are part of the natural background radiation we all experience every day. Uranium and its decay products are widely and nonuniformly distributed. Higher concentrations give rise to higher local exposures depending on how much uranium is exposed at the earth's surface.

Concentrations of uranium great enough to be worth mining are considered to be "ore" bodies.

† Uranium is always associated with its fourteen radioactive decay products of which the best known are radium and radon gas. Natural radium is present in building materials such as stone, brick, and concrete. Radon gas, which arises from the decay of radium, is present in the houses and office buildings that utilize these materials. Even ploughing the land releases radioactive radon gas into the atmosphere. The radiation hazard to man arises mainly from the possibility of inhaling radon gas.

These are found at various depths under rock and soil which offer protection from the radiations emitted. When uranium-bearing rock is mined the radioactive materials are made more available to the environment. Much of the mined rock contains only small concentrations of uranium and is considered to be a waste. It is usually kept in waste rock piles at the mine and any radiations emitted are contained by covering the waste rock with earth and vegetation. The remainder of the mined uranium-bearing rock is processed at uranium mills to extract the uranium which is refined and made into fuel.

In this process, the ore is crushed and ground into a fine sand, and chemicals are added to dissolve the uranium. The uranium-bearing solution is then separated from the wastes and further chemical treatment extracts the uranium from the solution. The uranium concentrate is filtered and dried to a form known as "yellowcake."

The milling process produces large volumes of naturally radioactive wastes called "mill tailings." These are discharged from the mill as a slurry containing the finely-ground sand left over after the uranium has been extracted, together with some process chemicals and water containing dissolved radium.

Mill tailings are stored at the mill sites, and in some cases steps have been taken to initiate disposal. Although the methods vary from mine to mine depending on local geographical and atmospheric conditions the objective is the same — to contain the potentially harmful elements in the tailings and prevent dispersal of the tailings material.

Uranium mill tailings contain various elements present in the original ore, such as arsenic and selenium, and the natural radioactive materials arising from the uranium decay chain. Management practices depend on the design and use of well engineered barriers. These barriers are designed to hold back the solid wastes and prevent the seepage of liquids into surrounding ground or watercourses; in addition they control the amount of radon gas that is released into the atmosphere.

Surface storage is commonly used in current tailings management systems. Where topography permits, tailings are generally deposited in natural, rock-rimmed basins or valleys, with dams provided as required to close gaps in the basin perimeters. Today, the largest Canadian uranium tailings dams are about 20 metres high. Care must be taken that the barrier dam controls any seepage of

harmful waste liquids. Radon emanations and dust emissions must also be controlled and this is being done by covering the tailings with soil, clay, or rock.

In the late 1950s and early 1960s many tailings piles associated with uranium mining and milling operations were not well managed. During the 1960s the iron pyrites impurity in the abandoned tailings at Elliot Lake oxidized to produce sulfuric acid. This acid seeped from the tailings into the Serpent River causing environmental damage to the river system. This has since been cleaned up. With tailings management practices now in use, the Serpent River fish population is recovering.

Yellowcake produced at the mills is sent to Blind River where it is refined by Eldorado Resources Limited to produce uranium trioxide (UO₃). The waste material from the refining process is called raffinate. This waste is returned to the uranium mills. There, any uranium content is recovered and the other constituents are disposed of as part of the mill tailings. Recycling raffinate means that most of the wastes from uranium mining, milling, and refining are consolidated at one site. This makes the task of waste management easier and more effective.

The uranium trioxide produced at Blind River is shipped by Eldorado to its facilities at Port Hope, Ontario where, at present, 20 percent of it is converted into uranium dioxide (UO₂) that is used to make nuclear fuel for Canada's CANDU heavy-water reactors. The remainder of the UO₃ is converted into uranium hexafluoride (UF₆) the material used in the production of enriched uranium fuel for other countries' light-water reactors.

The conversion of UO₃ to UO₂ creates a byproduct called ammonium nitrate. This was formerly considered to be a waste but is now sold as a commercial liquid fertilizer to local farmers to increase corn crop yields. This fertilizer contains less radium and uranium than many commercial fertilizers.

When UO₃ is converted to UF₆, calcium fluoride is left. This is a relatively insoluble material and is currently buried at a waste management site. In the future, however, this waste may be used by the steel industry as a fluxing agent in the production of steel. If this is successful all of Eldorado's refining and conversion process wastes will have become commercial byproducts.

In Canada all operations concerned with the wastes produced from the mining of uranium ore, its milling into yellowcake, the subsequent refining into uranium trioxide, and conversion into uranium dioxide and uranium hexafluoride are closely regulated and controlled by the Atomic Energy Control Board (AECB) and provincial regulatory authorities.

During the early years (1933 to 1953) of Eldorado's operations in Port Hope, the company refined ore to produce radium. The disposal of process wastes and the imperfect control of contaminated material from decommissioned radium facilities resulted in some contamination.

Process wastes were disposed of at three designated chemical dump sites within the town until 1948. Groundwater leaching through some of this material, coupled with the burial of contaminated garbage at municipal garbage sites and the private use of radium-contaminated rubble and salvaged building materials, resulted in radioactive contamination in some parts of Port Hope. About 10 percent of the residential properties were affected. These were subsequently cleaned up after a Task Force was formed in 1975 by the AECB.

2 Reactor Wastes

The day-to-day operation of nuclear power stations produces radioactive waste materials. Some of these are the small quantities of radioactive materials that are released to the environment in liquid or airborne effluents. These releases are monitored and controlled according to AECB regulations so that the radiation dose that a



Sunshine, music and speakers, plus informational booths made the Protect the Earth Rally both enjoyable and educational.

member of the public in the vicinity of the station receives is a very small fraction of the natural radiation that we all receive.

Reactor operation and maintenance also produce solid wastes with low or moderate radioactivity. These are called "low-" and "intermediate-level" wastes. Low-level wastes such as contaminated mops, plastic sheeting, and protective

clothing are reduced in volume by incineration or compaction and the packaged wastes are stored in monitored concrete trenches or above-ground concrete warehouse-type buildings.

Intermediate-level wastes, such as used parts of the reactor system and ion-exchange resins and filters used to purify contaminated water, are stored in above-ground and below-ground concrete structures. Ontario Hydro has centralized storage for its low- and intermediate-level reactor wastes at the Bruce Nuclear Power Development site. Hydro Quebec and the New Brunswick Electric Power Commission have similar facilities at their Gently and Point Lepreau nuclear generating stations.

These reactor wastes contain much less radioactivity than high-activity nuclear fuel wastes and decay to harmless materials much sooner, usually in less than 200 years. Methods for storing low- and intermediate-level wastes are well developed. Experience shows that the methods are safe and could be satisfactory for as long as necessary. However, permanent disposal methods are also being developed to remove the need for continued attention by future generations. The main consideration of both storage and disposal methods is to minimize the release of radioactive material into the environment.

Additional low- and intermediate-level wastes will be produced when reactors are decommissioned. Methods for handling these wastes from reactor dismantling are not dissimilar from those required for operating and maintenance wastes.

3 Medical and Industrial Wastes

Nuclear reactors make possible the low-cost production of large quantities of radioisotopes such as cobalt-60, which has been used to treat cancer for 30 years, and molybdenum-99, one of the most important radioisotopes used for medical diagnosis in hospitals around the world.

Some residue from medical and research procedures contains trivial concentrations of radioactivity, particularly after several months decay, and this is disposed of in local landfill facilities. The remainder, as well as radioactive materials from other industrial uses of radioisotopes such as radiographic cameras for testing welds and geological testing equipment, are also classified as low- and intermediate-level wastes.

Safe storage for these wastes is provided at AECL's Chalk River Nuclear Laboratories (CRNL) in Ontario. Wastes generated at AECL's research reactors (Chalk River Nuclear Laboratories and Whiteshell Nuclear Research Establishment) are stored at the reactor sites. Permanent disposal of some low- and intermediate-level wastes is also being developed at Chalk River. A Low-Level Radioactive Waste Management Office has recently been established within AECL to ensure that the federal government's ultimate responsibility for the disposal of low-level wastes is carried out quickly and economically.

4 Nuclear Fuel Wastes

Nuclear fuel wastes consist of the used fuel bundles taken from the reactors or the waste that would be left over if the used fuel were processed (called "reprocessing") to extract its fissionable material and used again in the reactor as fuel ("recycled"). The steps that lead to the production of these wastes are as follows.

Uranium fuel is fabricated from refined uranium dioxide by Canadian manufacturers who press and sinter it into fuel pellets which are sealed inside metal (zirconium alloy) tubes. Many tubes grouped together make up a fuel bundle and several thousand of these bundles are used as fuel in a CANDU reactor.

During the operation of the reactor the nuclei of some of the uranium-235 atoms in the fuel pellets absorb neutrons and fission or split, releasing large amounts of energy. The fissioning produces heat and radiation and releases other neutrons which cause fission in more uranium atoms in a chain reaction. The heat produced by this continuous fission process is used to generate electricity.

A fuel bundle is kept in the reactor for about a year and a half until about 70 percent of its uranium-235 is used up. During this time new radioactive elements called fission products and actinides are being formed inside the fuel rods. These fission products and actinides are called "high-level" or "nuclear fuel" wastes. An actinide is an element heavier than uranium and is created when a uranium atom absorbs a neutron but does not fission.

(taken from "Nuclear Fuel Waste Management Protecting the Future," by Robert Lyon and Marvis Tutiah, Whiteshell Nuclear Research Establishment, Atomic Energy of Canada Limited)

Red Cliff WCC Tackles Major Project



Red Cliff WCC crew are busy erecting pads and vanity fences for a containerized garbage disposal system on the Red Cliff Reservation.

The construction of 40 units to hold a containerized garbage system on the Red Cliff Reservation has been begun by the Wisconsin Conservation Corps (WCC) Crew who started work August 4.

The seven-member crew, led by Bob Nelson, has a comprehensive work schedule for the next year which includes numerous enhancement projects for both Red Cliff and the Town of Clover.

Construction of six-foot by eight-foot cement pads plus the vanity fences for each of 40 containerized units, however, is probably the most ambitious and unique part of the project. The units, including one six-foot by 10-foot pad near the Red Cliff Bingo Hall, will be distributed throughout the reservation. The

vanity fences around the units will ultimately provide for a convenient yet attractive means of containing garbage until it is picked up and hauled away.

Other projects upcoming for the WCC crew include landscaping at the Red Cliff Tribal Park, as well as grading campsites and constructing fire pits. At the Point Detour Campground they will also be grading and landscaping as well as making a wildlife opening at the perimeter of the parking area.

In fact many areas of the reservation will be given a perk by the WCC with tree planting and landscaping scheduled for the Buffalo Art Center, the fishery building and the tribal administration building.

The crew will also be out at the Sand Bay and

Raspberry deer yards working on tree and plant regeneration, particularly red osier, dogwood, birch and aspen.

Other projects include assisting with the fish sampling in Lake Superior and improving community sidewalks.

In the town of Clover, the WCC will be brushing and thinning out the town park and recreational campground as well as constructing camping pads and improving the service roads. At Cornell Park they will be constructing an interpretive walkway.

All in all, it looks like a busy year ahead for WCC. The deadline for the year's projects is July 31, 1987, so by next summer the communities of Red Cliff and Clover should see some nice "face lifts" around the area.

Interstate Council Supports Local Government Dialogue

Below is a press release from the Governor's Interstate Indian Council (GIIC) Conference attended by two Wisconsin delegates, Paul DeMain, Indian Policy Advisor to the Governor and Steve Dodge, Bureau of Environmental Analysis at the Department of Natural Resources.

The GIIC is made up of gubernatorial appointees from both Democratic and Republican states, Indians and non-Indians and representatives of the states with the largest Indian populations.

While Wisconsin has a progressive record in legislation and inter-governmental relations, we heard reports from states indicating that many treaty resource/jurisdictional issues had been resolved in their states in an amicable way.

In view of the political posturing of several anti-Indian/abrogation candidates, I find it interesting that in other states with Republican/Democratic administrations the experience of inter-governmental dialogue has led to positive resolution of the same type of issues Wisconsin is now facing.

Those issues include off-reservation resource gathering

exercises and state/tribal enhancement projects, settlement of land and boundary claims, establishing jobs and economic development opportunities, cooperative law enforcement/reciprocity agreements and joint commissions to oversee licensing and taxing issues within reservation boundaries.

DENVER, CO - The Governors' Interstate Indian Council, an organization created by the National Governors' conference to analyze and make recommendations on state/tribal policy 37 years ago, wrapped up its annual conference today (8/15/86) after passing several significant resolutions and holding workshops in the areas of crisis management, state/tribal issues, effects of the Gramm-Rudman-Hollings Bill on tribal communities, legislative update and the 1990 census.

Mr. Raymond Apodaca, Executive Director of the Texas Indian Commission and President of the Governor's Interstate Indian Council said he was pleased with the growing strength of the organization which represents 24 states with significant Indian populations. 41 delegates, who represented those states, were appointed by their respective state Governors for this year's conference.

"I think the growing numbers of states each

year underscores the recognition by state Governors of the need to examine and address state/tribal issues through inter-governmental dialogue," said Apodaca. He further stated, "We heard state reports by delegates of states where there are recognized problems but great progress is being made in negotiated settlements on water rights, jurisdiction, resource protection and basic human service delivery."

A key mission statement of the Governor's Interstate Indian Council is the support and encouragement of state, tribal and local government dialogue.

Delegates passed 9 resolutions covering state/tribal issues and including opposition to the Indian health service's proposed regulations to restrict service to Indian communities through imposition of a federal definition of "Indian", a move the Governors' Interstate Indian Council called simply shifting the burden of services from federal authorities to state or local government; opposition to establishing a Presidential Commission to study Indian Treaties; opposition to cut-backs in job training programs for states, tribes and urban communities; and a request to the United States Civil Rights Commission, Department of Interior and state agencies to assist in public education about the political nature of tribal government, treaties and protected resource rights and progress in inter-governmental dialogue to resolve issues of joint concern.

The Governors' Interstate Indian Council delegates also condemned the antics of several anti-Indian treaty abrogation groups, calling their campaign of misinformation and emotional rhetoric, not in the best interest of tribes or state government.

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GLIFWC Wardens Plan for Hunting Seasons



GLIFWC wardens met at the commission's office to discuss the upcoming fall hunting seasons.

GLIFWC Wardens held a staff meeting at the Commission offices on September 8. They met to discuss the 1986 off-reservation deer, bear and waterfowl hunting seasons.

Jon Gilbert, wildlife biologist, instructed the wardens on the tagging and permit systems for both bear and deer. Gilbert also discussed the migratory bird hunt.

This is the first year a bear hunt has been

negotiated for the tribes. Although the bear ordinance is much like the deer ordinance, there are some differences, and the wardens must know every angle of every ordinance passed by the tribes.

GLIFWC wardens will be re-working their schedules, covering more ground, and putting in many extra hours in order to better enforce the hunting seasons.

During the meeting Mike Cardinal, supervisory warden, stated that a radio system is being set up at the Bad River Firehall. A dispatcher will be on duty weekdays and early evening hours. Cardinal hopes to have the radio system in place before the start of the hunting season.

Work schedules, vehicles, the upcoming physical fitness test and other routine problems were also discussed.

Press Conference on '86 Fall Hunting Seasons: Deer, Bear, Waterfowl

The fourth negotiated tribal deer season for Wisconsin's Chippewa Indians was announced Tuesday along with bear and waterfowl seasons, and a tribal spokesman said they show the sky isn't falling.

James Schlender, executive administrator, of the Great Lakes Indian Fish and Wildlife Commission (GLIFWC), pointed to the low turnout at a news conference announcing the seasons as an indication that tribal hunting is becoming less and less controversial in northern Wisconsin.



"First it was deer, then fish, then tourism. Everybody who has made dire predictions (about the exercise of Chippewa treaty rights) has been like Chicken Little," Schlender said.

George Meyer, chief state negotiator with the tribes, said the most important elements of the deer season are that it bans road hunting and there will be no tribal hunting before the state big game seasons begin with bear season later this month.

He commended tribal negotiators for accepting what for them was a politically difficult road-hunting ban.

Last fall, the ban was imposed on the Chippewa part way through their tribal hunting season when negotiators agreed to abide by whatever rules applied to handicapped hunters, and the Legislature hastily approved a bill limiting handicapped hunting to vehicles parked at least 50 feet from the center of a road.

This year's Chippewa gun deer season will last 87 days, beginning Sept. 13 and running through Nov. 16, reopening Nov. 22 and running through Dec. 13. Last year the tribal season was 85 days. Meyer said that the extra two days, Nov. 15 and 16, were wrung from the state in return for other concessions.

It was the fourth deer season negotiated by the Department of Natural Resources and Chippewa tribal leaders since a 1983 federal appellate court ruling that the tribes retained traditional hunting, fishing and

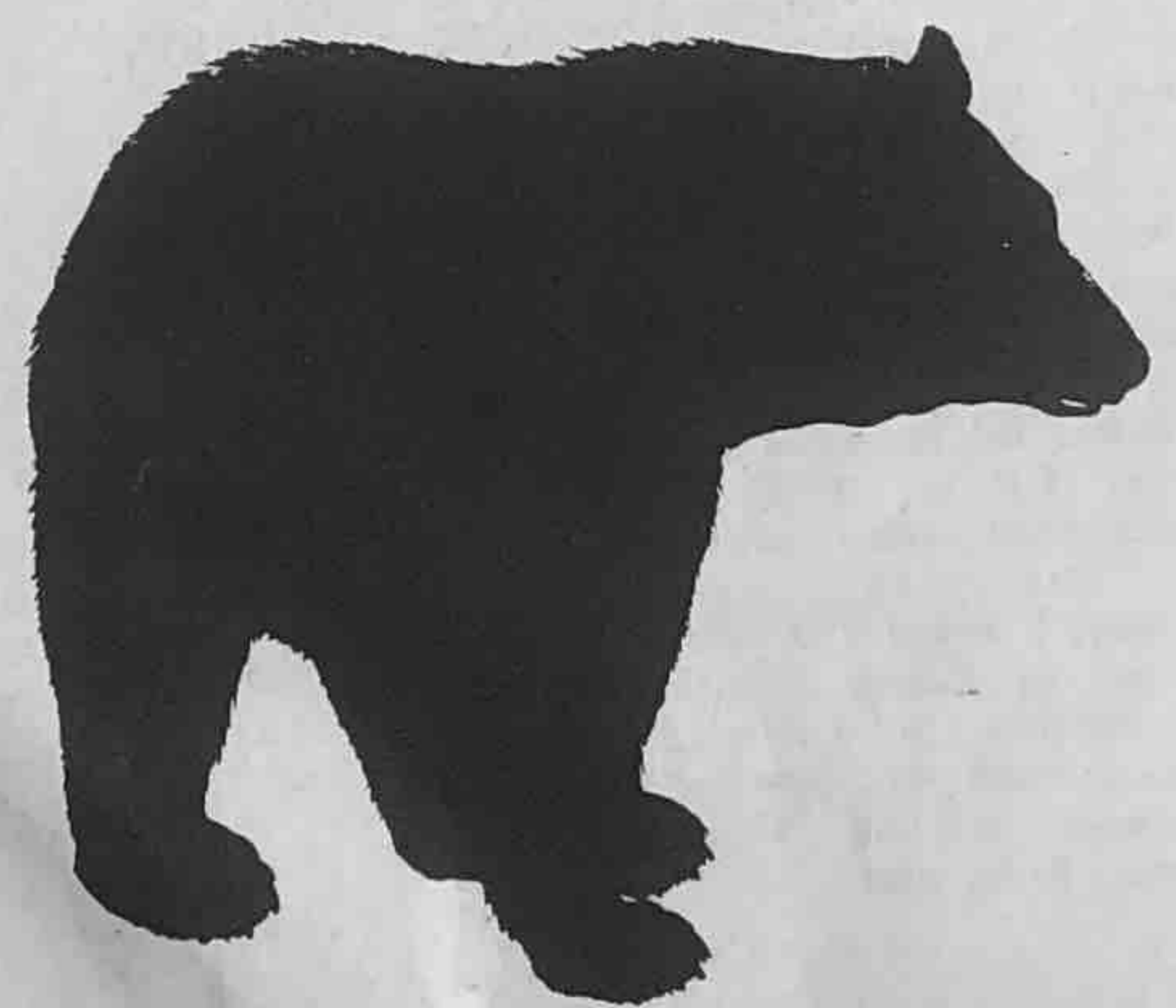
gathering rights under mid-19th century treaties with the federal government.

Under the agreement, Chippewa Indians will be allowed to harvest up to 1,766 antlerless deer, compared with 1,331 last year 2,825 in 1984 and 6,250 in 1983.

That will result in fewer hunters choice permits available to other hunters in northern Wisconsin this fall, but hunters choice is not as hot a program in the north as it is in central Wisconsin. Hunters choice permits allow hunting of either buck or does.

The treaty bow season opens Sept. 13, a week earlier than the state bow season.

This article was reprinted from the Daily Press, Wednesday, September 3.



Lamprey Study Successful



A population estimate of 20,934 sea lamprey for 14 rivers which feed into Lake Superior has been estimated from a mark-recapture study of lamprey this summer.

The project which was jointly sponsored by the Wisconsin Department of Natural Resources (DNR), and the U.S. Fish and Wildlife Service (USFWS) Sea Lamprey Control Program ran for a three month period from May-July this year.

According to biologists John Heinrich (USFWS) and Mark Ebener (GLIFWC), a total of 8,731 adult spawning-phase lamprey were trapped in the 14 rivers, with 80% of those captured in the Brule River barrier dam.

Heinrich and Ebener say that through further extrapolation, estimates were calculated on populations in other lamprey-producing rivers. From this an estimate of 61,700 adult spawning-phase lamprey was calculated in the United States waters of Lake Superior. The estimate does not include Canadian waters.

Since this was the first time a lakewide estimate has ever been made for any of the Great Lakes, Heinrich says that the population estimate of 61,700 is considered a major accomplishment by the USFWS Sea Lamprey Control Program.

The trapping project and population estimates will be carried out again in 1987, increasing the number of rivers to be trapped.

Heinrich stated that the Sea Lamprey Control Program considers population estimates essential for implementing new control techniques.

One new lamprey control method, he said, is the sterile male technique. This involves capturing male spawning-phase lamprey, sterilizing them and then releasing them so that female eggs will not be fertilized during spawning with sterile males.

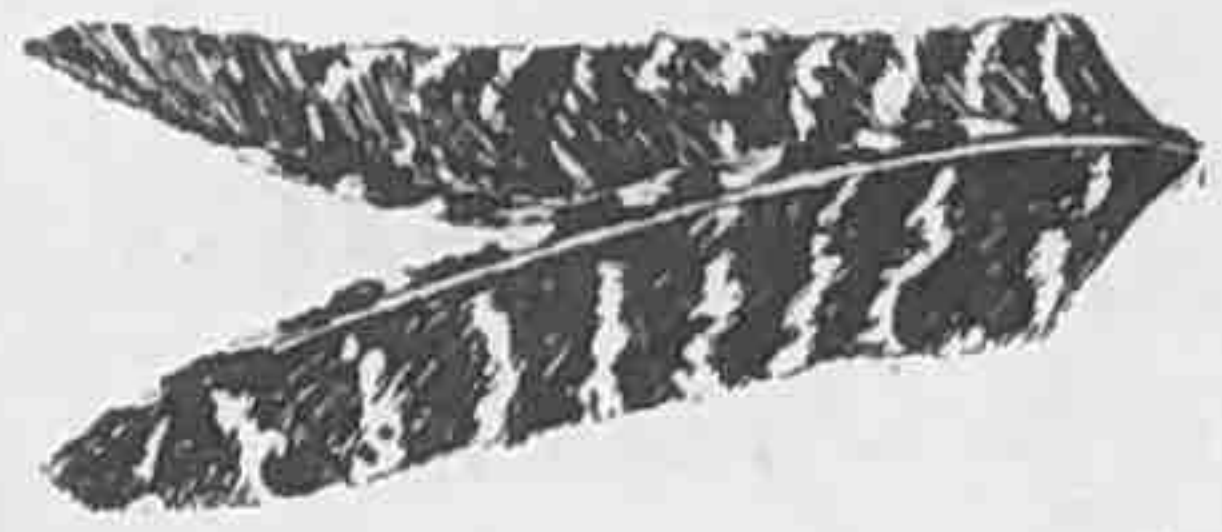
However, he emphasized that the ability to estimate population size is necessary in order to determine the effectiveness of any new

control method being implemented.

The rivers trapped during the 1986 season included the Arrowhead River, the Middle River, Poplar River, Brule River, Bad River, Misery River, Silver River, Iron River, Big Garlic River, Rock River, Miners River, Sucker River, Betsy River, and Tahquamenon River.



News from Elsewhere



INDIAN JUDGE TAKES ON CIVIL RIGHTS HEAD

RAPID CITY, SD (IPN) - The Chief Judge of the Oglala Sioux has filed an affidavit asking for the removal of the Chairman of the U.S. Civil Rights Commission, charging prejudice toward Indian people.

Robert Fast Horse filed the affidavit against Clarence Pendleton because of comments attributed to him in a Washington Post article. Pendleton was quoted as saying after his return from SD, "I was shocked. There is no equal protection for people (at Rosebud and Cheyenne River). There is no due process for people..."

Pendleton chaired a commission hearing looking into the enforcement of the Indian Civil Rights Act on Indian reservations.

Chief Judge Melvin Garreau said there is a conflict between Indian law and the Indian Civil Rights Act.

"Indian law represents customs, traditions, religion and language," said Garreau. "It is passed from generation to generation, from elders to the young."

Garreau said in tribal court decisions he would apply Indian law over the Indian Civil Rights Act. The 1968 Indian Civil Rights Act has been controversial among Indians as a danger to long-standing tribal sovereignty from federal courts. A U.S. Supreme Court decision in 1972, *Martinez vs. Santa Ana Pueblo*, re-asserted tribal sovereignty and minimized the importance of the Indian Civil Rights Act.

Suzan Shown Harjo, executive director for the National Congress of American Indians, said Pendleton's commission is attacking tribal sovereignty.

Pendleton, claiming he is not attacking Indian tribal courts, was quoted as saying: "They've got something to hide."

Fast Horse said Pendleton could not be an impartial witness in civil rights hearings and asked he be removed from the commission.

Deputy General Counsel for the Commission William Howard said he would review the charges.

INDIAN NET FISHERY OPENS

OLYMPIA, WA (IPN) - The Indian net fishery began at 6 p.m. on September 13 at Elliot Bay, near downtown Seattle, when salmon fishing was reopened.

Fishing had been closed for about one month to protect chinook salmon bound for the Green River.

"We are managing the Green River chinook under a federal court order," said state Fisheries Director Bill Wilkerson. "We are protecting the stocks to allow the run a chance to rebound."

Barbless hooks were required for the Elliot Bay sport fishery, which is open until further notice.

Wilkerson said surveys would be conducted by fishery officials in October to determine the number of spawning salmon in the Upper Green River area.

TAX EXEMPTION AMENDMENT FOR NORTHWEST INDIANS

Reprinted from IPN WEEKLY REPORT

WASHINGTON, DC (IPN) - Sens. Bill Bradley (NJ) and Daniel Evans (WA) introduced an amendment on August 1 that would clarify the income tax exemption on Indian treaty fishing rights.

"The amendment will stop an attempt by the Internal Revenue Service to impose federal taxes on Pacific Northwest tribal fishermen on income derived from treaty designated waters," said Bradley.

The amendment states that "income derived by an Indian from fishing, whether for commercial or subsistence purposes, shall not be subject to, or taken into account in determining any income tax imposed by the Interior Revenue Code."

Evans said the amendment would correct a wrong which the Internal Revenue Service would impose on Northwest Indians "who have treaties with the United States and who have operated under those treaties for more than 130 years."

Evans said the Solicitor for the Interior Department disagreed with the IRS, but the Justice Department supports the IRS opinion.

INDIANS WILL USE CABLE TV TO FIGHT RACISM

GREEN BAY, WI (IPN) - A one-hour monthly program backed by six Wisconsin tribes will be aired starting in Sept., on Cablevision in Green Bay and other area cable stations around the state as part of a campaign against racism.

"When you see bumper stickers in the state of Wisconsin saying, 'Save a walleye, spear an Indian,' or 'Save a deer, shoot an Indian,' then we have a problem, a problem of ignorance," said Dana Wheeler, program director for NEW Media Cablevision.

Stanley Webster, executive director of the Wisconsin Indian Resource Council said the council has been trying to deal with the rising tide of racism since federal court decisions have enforced off-reservation hunting and fishing rights for Chippewa Indians. The Indian tribes who back the program are Oneida, Menominee, Potawatomi, Winnebago, Chippewa and Stockbridge-Munsee.

The show will outline topics ranging from the nuclear waste issue, mining, farming, and ecology to Indian spirituality and culture.

INDIANS' FIRST AMENDMENT RIGHTS WERE VIOLATED

SALEM, OR (IPN) - The Oregon Supreme Court upheld an Oregon Court of Appeals decision that the denial of unemployment benefits to two men who lost their jobs for taking peyote during a religious ceremony was unconstitutional.

Alfred L. Smith, 66 - a Klamath Indian, and Galen W. Black, 33, were fired in 1983 and 1984 from their jobs as counselors at the Douglas

County Council on Alcohol and Drug Abuse, after it was discovered they had participated in a Native American Church religious ceremony involving the use of peyote.

The men filed suit against the Unemployment Appeals Board after the board ruled the men were not eligible for benefits.

The court ruled the denial violates the free exercise clause of the First Amendment of the U.S. Constitution, which guarantees free exercise of religion.

An Attempt by the state Employment Division to convince the court to re-evaluate its earlier decision was thrown out.

JUDGE DISMISSES CHARGES AGAINST YAKIMA FISHERMEN

TOPPENISH, WA (IPN) - Charges of illegal fishing against six Yakima Nation Indian members who were involved in the federal government's "Salmoncam case," were dropped by a tribal judge.

Judge David Ward's ruling left several unanswered questions regarding the status of five defendants who also face federal prison terms for their 1983 convictions in a U.S. District Court for the same types of charges they face in tribal court.

Five of the Yakima fishermen were to begin serving federal prison sentences August 8, but were taken under tribal court jurisdiction instead. The case involves a highly respected traditional elder, David SoHappy, Sr., 71.

The fishermen were released by the tribal court, prior to the tribal court trial, but raids by the U.S. Marshall Service forced them to seek refuge in the tribal jail. The SoHappy family claimed the U.S. Marshalls raided their home at Cooks' Landing with guns drawn. "We turned ourselves in so the Marshalls won't raid our homes and scare our families," SoHappy, Sr. said.

After the dismissal on September 11, an attorney for five of the six defendants said he would try to find a way to appeal the ruling and try the men in a tribal court. It is not certain whether the men will remain under tribal jurisdiction during the appeal process.

The sixth man, Robert Root, also convicted in federal court but put on probation, sought the dismissal.

The dismissal was based on Ward's concurrence with an unclear statute of limitations which mandates that charges be filed within two years of the commission of a crime. The charges against the six allegedly happened on fishing between 1981 and 1982.

The men were convicted on charges based on a new federal law that incorporated tribal fishing regulations based on a 1855 treaty.

Ward will not be filing his written opinion until the week of September 15. SoHappy Sr., his son David SoHappy Jr., and Matthew McConville are expected to remain in the tribal jail at least until that time.



Labor Farm Candidate for attorney general, Richard Ackley, enjoys some time in the sun with Joe Bresette, Director of the Wisconsin Inter-Tribal Council, during the rally at Mole Lake.

During August 11 arguments on court motions, Thomas Keefe Jr. of Seattle, attorney for the five defendants, excluding Root, said the defendants wished to disassociate themselves from the motion to dismiss the charges against Root.

Keefe said David SoHappy Sr. believes the case belongs in a tribal court and that he is ready to be tried again on all charges, even those on which he had been acquitted.

Keefe said the Yakima Nation has been attempting to gain jurisdiction over the fishing charges since the government raids and arrests in 1982, but the federal government has refused to allow tribal jurisdiction.

When the men are released, federal detainees filed at the jail require notification of the U.S. Marshall Service.

Federal Marshalls and tribal police have sought Wilbur Slokish and Leroy Yocash since their bond on tribal charges was revoked August 26, but their attorney said they would appear for trial.



A good hunting season to everyone!

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