The Canadian and Australian mining industries have much in common. In this the first of a new series on the countries with which Australia competes for minerals markets, the Canadian High Commissioner in Australia, Mr A. BEESLEY and his First Secretary, Metals, Minerals and Energy, JEAN-YVES TREMBLAY, outline the role of the mining industry in the Canadian economy, cover relations with Australia and present a brief outlook for the future.

Healthy growth forecast

Fierce, but friendly, competition with Australia

Historical Background

ON THE BANKS of the St. Lawrence, more than 400 years ago, the French explorer Jacques Cartier heard Indians tell of gold and precious stones that abounded in this New World. Cartier was disappointed. The stones he took back to France turned out to be "fool's gold" — iron pyrite, but with traces of gold in it.

The same disappointment was experienced a few years later in the 16th century by the Arctic explorer Martin Frobisher. He carried tons of rock from Baffin Island back to England only to find it was worthless. But while neither Cartier nor Frobisher lived to know it, the tales of Canada's mineral riches were prophetic as Canada is today the world's largest trader in minerals.

Samuel de Champlain, early in the 17th century, brought a mining engineer, Master Simon, with him on his second journey to the St. Lawrence; this expedition discovered silver and copper occurrences although neither was significant. These and subsequent discoveries led to early settlement and development efforts but mining developments came slowly in those days.

In the 1700's, the coal deposits of Cape Breton began to be worked. Iron was found, mined and smelted for local use in what is now Quebec. Silver, lead and copper discoveries were made in what is now Northern Ontario. The comprehensive reports of Samuel Hearne on vast stretches of the Northwest Territories for the Hudson's Bay Company from 1769 to 1772 were later to spur mineral-hunting in these regions.

After the turn of the 19th century, mining boomed in Northern Ontario where earlier blasting operations in the building of the Canadian Pacific Railway accidentally led to the great nickel-copper deposits of the Sudbury Basin. Other areas where mining activity boomed were in North-western Quebec copper-gold area, at Cobalt in 1903 where rich deposits of silver were found as a result of accidental blasting by a railway construction crew also. By 1920 coal and iron ore mines were supporting a steel industry, and zinc and nickel refining began in Ontario. Development of the copper-zinc discoveries at Flin Flon began. In 1929, Canada was producing 90 percent of the world's nickel.

MR BEESLEY

MR TREMBLAY

A pause occurred (except for gold) during the depression. Then radium and uranium were found at Great Bear Lake. Canada's mines were then called on to supply a large part of the Allied requirements in World War II. Vast iron ore reserves were discovered and major developments took place in the Quebec-Labrador area; uranium developments in Ontario and Saskatchewan catapulted Canada to the top rank in atomic metal; scores of base metal mines were opened up across the country, including a large lead-zinc mine at Pine Point in the Northwest Territories and a second major nickel complex in Manitoba.

The Economic Significance of the Mining Industry Today

There are about 300 operating mines some 230 mills, 16 smelters and 15 refineries in Canada, producing more than 60 different commodities. The mining industry accounts for about 8 percent of all new capital investment in Canada. Crude minerals account for about half of all rail freight tonnage and half of all inland waterway freight. The 1979 value of Canadian mineral production was $27 billion, equal to about 8.5 percent of the Gross National Product. Minerals and their fabricated products are shipped to some 100 countries, the United States taking over 60 percent of the total value of exports which was $13.6 billion in 1978 (equivalent to about 26 percent of the total Canadian commodity export value).

The average weekly wage and salary in the mining sector was $374.73 in 1978, the second highest among all major industries. These wages and salaries were paid to approximately 120,000 Canadians employed directly in the mining industry.

Continued next page

for the new autonomy talks, and state department officials are angry that their chief, Alexander Haig, will be unable to attend—he will be meeting other foreign ministers in New York for the UN General Assembly session. "The most we can hope for," said one U.S. diplomat, "is that Reagan will get another lesson in the complexities of the Middle East. His education has a long way to go."

So have the Egyptian-Israeli autonomy talks. All the unpleasant, political questions remain: will an elected Palestinian council for the occupied West Bank and Gaza strip have legislative or merely administrative powers? Will Israel have a right to intervene if the council declares its independence? Who will control development land and water resources? How much freedom of operation will the Israeli garrison retain? Will the 100,000 East Jerusalem Arabs have a vote for the council even though they were annexed to Israel after the 1967 war?

The answers, or the lack of them, will determine whether autonomy is a stage on the road to Palestinian independence or to an Israeli protectorate. Only then will it be clear whether the Alexandria summit was a breakthrough or merely an excuse to join the holidaymakers by the sea. —ERIC SILVER

With files from William Lowther in Washington.

Geneva

Eyeball to eyeball

Was the treaty afloat and heading for harbor, or was it sinking fast after a Reagan broadside? There was no shortage of apt metaphors as the latest session of the Law of the Sea talks drew to a close in Geneva at week's end. No one was prepared to bet on the outcome, after one of the most dramatic sessions since negotiations began in Caracas back in 1973.

The massive sea treaty represents a careful balance between the demands of coastal states and the need to maintain freedom of navigation. It also establishes an international "authority" and an array of subsidiary bodies to regulate deep-sea mining. But the talks had been thrown into confusion last March by President Ronald Reagan's decision to "review" the treaty, many of whose key provisions had been negotiated by Henry Kissinger and former president Richard Nixon's attorney-general, Elliot Richardson. And despite two obvious indicators of its relevance—the recent clash between Libyan and U.S. fighters and the upcoming hearing at the International Court of Justice of Canada's old dispute with the U.S. over Georges Bank—the Geneva session ended with the Third World and the U.S. eyeball to eyeball. The Americans would give no promises—either to attend the wrap-up session in New York next month or the formal signing of the treaty, set for Caracas next September. The Third World seemed determined to forge ahead. "We intend to bring this conference to a successful close next spring," said Chairman Tommy Koh of Singapore.

Many delegates felt the treaty would be crippled if the U.S. abstained: apart from anything else, the cost of establishing the deep-sea mining authority is put at anything up to $1.6 billion (U.S.).

SLOAN/NEWSWEEK

Deep-sea mining device: stalled

From Russia, with smiles

Nikolai Firyubin is the highest-ranking Soviet official to visit Pakistan since the invasion of neighboring Afghanistan 20 months ago. But since when is a deputy foreign minister treated with the courtesies usually reserved for prime ministers? Eastern bloc diplomats were amused at Firyubin's reception by Gen. Zia ul-Haq's military government last week. One commented privately, "James Buckley [U.S. undersecretary for security assistance] is his equal in rank, but he wasn't feted like this in July."

The reason for Pakistan's eagerness to flatter was that Firyubin was expected to smash a mailed fist on the table—the words of a senior Western diplomat in Islamabad—and Pakistan had nothing to offer Moscow on the Afghan issue. At the same time, a $3-billion (U.S.) arms-and-aid package has not yet been finally sealed by the United States. So there was extra reason for caution.

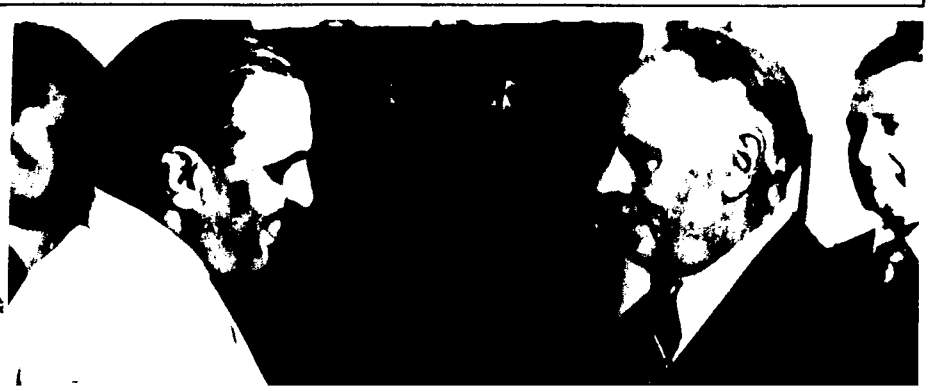
However, Firyubin's three days of talks with a Pakistani team led by Foreign Minister Agha Shahi went off smoothly. Firyubin trod with care, emphasizing Moscow's wish for closer relations with Pakistan rather than repeating threats made by other Soviet bloc diplomats: that if Pakistan continues to allow the Afghan Mujahideen to operate across the frontier, it risks further cross-border attacks by Soviet and Afghan forces, or attempts by Babrak Karmal's regime to stir up trouble in Pakistan's restless province of Baluchistan, or the revival of Afghan claims to large areas of Pakistan.

Firyubin, however, merely called for a settlement of problems on the basis of goodwill and political realism. For their part, the Pakistanis told him they lacked the ability to stop rebels operating across the 2,450-km frontier and were not tempted by a suggestion from Kabul for talks involving Washington and Moscow.

This stand reassured Western diplomats. But how much longer a nervous Pakistan will remain resolute will depend, among other things, on the speed with which Washington provides F-16 fighters for Zia's badly equipped air force. As Firyubin flew out, in came Peter McPherson, U.S. aid administrator, to discuss the economic package. At week's end he was followed by Jeane Kirkpatrick, U.S. ambassador to the United Nations. She was the first Reaganite of cabinet rank to visit the country and, among other things, diplomats were interested to compare her reception with that accorded Firyubin.

—PETER NIESEWAND

Zia and Firyubin: the mailed fist wasn't pounded on the table



But they were simply not prepared to set aside eight years of hard slogging to meet Reagan's fear that the treaty embodies such dire concepts as "world government" and curbs U.S. access to the minerals.

Whether the U.S. can go it alone may depend on how other Western countries line up. West Germany, which shared U.S. doubts about the deep-sea mining authority, has been wooed away by a conference decision to give it one of the subsidiary mining watchdog bodies. Britain, too, appears to be distancing itself from the Americans—partly because, holding the current European Community presidency, it has come under pressure from the Danes, Irish and Dutch, who all want a treaty, and

Beesley: a worried group of Canadians

JILL KREMENTZ

partly because the treaty confirms its claim to North Sea oil.

But no country stands to lose as much as Canada, whose delegates were miffed to find themselves lumped together by Reagan with Zaire and Zimbabwe as "unreliable" mineral producers. The treaty gives Canada use of its wide continental shelf far beyond 200 miles and also allows her to take tough action against pollution threats. Canada has won agreement for a ceiling on the production of seabed minerals, so as to protect the country's land-based nickel industry. And one effect of a compromise reached last week on maritime boundaries could be to favor those, like Canada, that advocate drawing a median line out to sea. Delegation head Alan Beesley, significantly, was silent when other countries condemned Libyan leader Moammar Khadafy's claim to the Gulf of Sirte. The notion that Reagan might send a fleet to test ambiguous claims stunned the Canadians, particularly since a peaceful alternative exists in the sea law treaty. It was, in short, a worried group that left for Ottawa, well aware not just that Canada loses out if the treaty collapses but that will face an angry, isolated Reagan, determined to challenge the treaty if, as seems probable, the talks continue without the United States.

—IAIN GUEST

U.S.A.

For Reagan, the unkindest cut of all

More spending cuts, including defence, are in store

AP

Weinberger (right) and Meese on their way to see Reagan: bad news

By William Lowther

Looking tanned, robust and relaxed, President Ronald Reagan took an hour out from cutting firewood and clearing brush on vacation at his luxurious California ranch last week to hear the bad news from his sad-faced budget director, David Stockman. It takes a lot these days to drag Reagan away from his trail horses back to the harness of state. The week before, aides waited six hours before bothering him with news of the Libyan fighter incident. Last week they waited 8½ hours, until after breakfast, to tell him that North Korea had fired a missile at an American plane. So the Stockman meeting had to be serious. In the event it was. After shuffling the figures for months, Stockman finally had to admit that there was no way Reagan could continue with his multi-billion-dollar military buildup and hope to keep his election promise to balance the federal budget by 1984.

Something had to give—and it did. By week's end the president's tactics were becoming apparent: ever deeper cuts in 1982 social programs—$500 million (U.S.) from energy assistance to the poor, said Stockman, a further $2 billion from the already heavily pruned education aid to ghetto and inner-city chil-

'Blackbird' spy plane: breakfast first

AP

UNITED NATIONS

A Constitution for the Seas

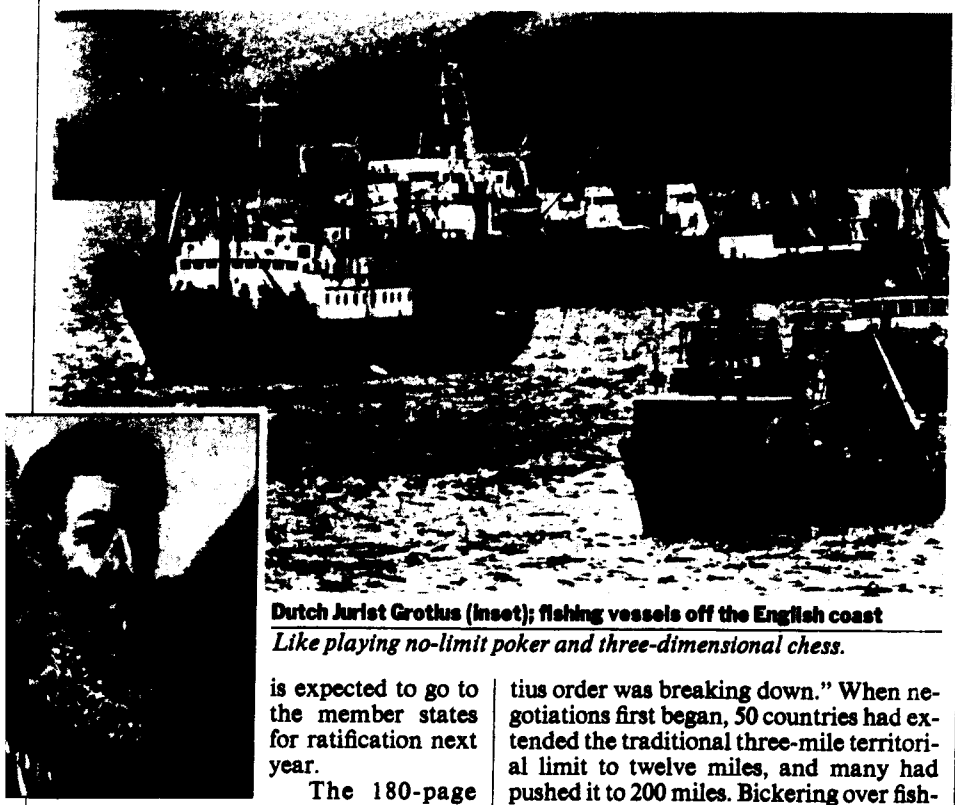
At long last, a treaty sets the rules for the world's waters

By any measure, it was a monumental achievement. "I've served in nine presidential-appointed offices, but nothing was as tough and complex as this," said Elliot Richardson, the chief U.S. delegate to the Third U.N. Conference on the Law of the Sea. "It was like playing no-limit poker and three-dimensional chess at the same time." Richardson, who served as both Secretary of Defense and Secretary of Health, Education and Welfare during the Nixon Administration, was talking about the negotiations for a Law of the Sea treaty, which came to a virtual conclusion last week after six years of deliberations. The climactic conference, at the Palais des Nations in Geneva, approved a draft of the treaty that is expected to go to the member states for ratification next year.

The 180-page document, with more than 300 articles and eight annexes, definitively covers every conceivable issue dealing with the seas, from the definition of what constitutes an island* to the jurisdiction over fish that live in fresh water but spawn in the ocean. Most remarkable of all is the fact that each question was decided by consensus, thus enhancing prospects that the treaty will win approval when it comes up for ratification.

"There is nothing comparable to it in diplomatic history," said Venezuelan Delegate Andrés Aguilar, who recalled that delegates originally expected it would be a labor of a few months. But the complexities, and the delegations, grew. By last week there was a cast of thousands: 460 registered delegates from 156 participating countries and 24 nongovernmental organizations—the Sierra Club and the Friends of the Earth, for example—and back-up staff of 2,000. The result, said Canada's J. Alan Beesley, chairman of the drafting committee, is "the most significant achievement in international relations since the U.N. charter. It is indeed a constitution for the seas."

The treaty, in effect, consecrates the dictum laid down by Dutch Jurist Hugo Grotius in 1609 that the oceans of the world belong to everyone. The problem, says Richardson, was that "the old Grotius order was breaking down." When negotiations first began, 50 countries had extended the traditional three-mile territorial limit to twelve miles, and many had pushed it to 200 miles. Bickering over fishing rights had even flared into gun battles. Freedom of passage through strategic straits was jeopardized. The discovery of mineral nodules on the seabed raised questions never defined in international law. The draft treaty attempts to settle these questions once and for all. Its main conclusions:



CAMERA PRESS

Dutch Jurist Grotius (inset); fishing vessels off the English coast

Like playing no-limit poker and three-dimensional chess.

BOUNDARIES. The treaty recognizes the twelve-mile territorial limit, and also acknowledges a 200-mile "exclusive economic zone" for each coastal nation. Coastal states have jurisdiction over marine resources in their economic zones and on the continental shelves beyond 200 miles.

OCEAN TRANSIT. The treaty reaffirms the right of passage on the high seas, as well as within the twelve-mile limits under certain conditions. It also guarantees unimpeded transit through straits used for international navigation for all ships.

SEABED MINING. The treaty sets up a complicated system for both private and international exploitation of the seabed minerals. The mining issue was a sticking point between the developing nations and those industrialized countries that have a technological advantage for such exploration. The treaty provides for a U.N.-chartered mining company, called the Enterprise, to share in exploration and mining. Revenues will be reallocated among developing countries.

FISHING. The treaty awards coastal states absolute control over the fish in their economic zones and the right to sell fishing interests to other nations as they choose.

MARINE ENVIRONMENT. The treaty paves the way for environmental safeguards to protect the seas from contamination, even if it originates in polluted inland waterways. Pollution by ships will be prohibited, and fines levied on violators.

JURISDICTIONAL AGENCIES. The treaty provides for the establishment of two governing units: 1) the International Seabed Authority, which will control and manage the exploration and exploitation of deep seabed resources. In addition to the Enterprise, it will contain a policymaking Assembly and a 36-member executive Council that will make sure the policies comply with the treaty's provisions; 2) a supranational Law of the Sea Tribunal, which will arbitrate disputes.

The long negotiations produced shifting and sometimes curious alignments between nations. The superpowers' mutual interest in preserving maneuverability for their navies kept the U.S. and the Soviet Union cooperating most of the time. They clashed when U.S. negotiators tried to protect the fish stocks that straddle the 200-mile American economic zone from Soviet trawlers that "vacuum" the fish beds. The U.S. apparently succeeded in gaining some protection.

The kaleidoscope of shifting interests made it impossible to sort out the "winners" and "losers." The major industrialized states managed to retain considerable control over underwater oil and gas exploration and most seabed mining, but only at a price. They had to commit themselves to a systematic transfer of technology, as well as compensatory payments to the less developed countries. In some of these provisions, in fact, many observers thought they saw the first glimmerings of the "new economic order" for which many Third World countries have long been clamoring. *—By Marguerite Johnson. Reported by Bruce van Voorst/Geneva*

*"An island is a naturally formed area of land, surrounded by water, which is above water at high tide."

Secret plots to control the seas

By the time it closed last week, the Sea-Law conference at the United Nations had become a melodrama ivalling anything playing on Broadway. t carried a plot twisted by deception nd double cross, and the cast of characers included the old and cunning Soviet lelegate, Semyon Kozyrev; Ronald Reaan's ambassador, James Malone, in the illain's role; and Canadian Ambassaor Alan Beesley, with the patience of a cholar, the conviction of a priest and a irate's eye for tactical advantage. But his was no fiction. It was a real and ometimes ferocious contest for power nd wealth, and the treaty adopted ast week after a decade of talks 'ill have vast consequences for ecades to come.

In years of laborious negotiation the ontroversy had been wrung out of lany of the treaty's terms. The extenion of coastal states' territorial seas to 2 miles from three was widely acepted, as was the 200-mile economic one already declared by Canada and lany other countries. For the big naval nd shipping powers there was a new uarantee for freedom of navigation. anada benefits from a grant of seabed esources out to the edge of the contiental shelf—far beyond even the 200ile limit in some places—and the right set anti-pollution standards over rctic waters.

Arduous and even audacious diploacy had achieved a fragile balance on l these issues. What almost killed the nole treaty was the dispute over the eaming prospect of seabed minerals—lions of dollars worth of fist-sized nodes rich in nickel, cobalt, copper and nganese. For rich industrial counes, the ocean floor was a potentially ure source of needed resources. For or, developing countries, it was a mising source of new wealth. At is were their conflicting claims for trol over those resources.

By early last year, a settlement been rich and poor seemed to be at id. The draft treaty called for a spe- UN authority to regulate seabed ing and charge royalty-like fees for istribution to poor countries. In adon, a new UN enterprise would have ght to join private consortia or state panies in seabed mining ventures. the plot thickened when Ronald gan took over the presidency in hington and quickly announced a plete review of the deal by the ed States. Last January, Washingdeclared its new demands: private orations (mostly American) must a freer run at seabed exploitation, with less hindrance from the UN.

Meanwhile, the Americans spent last summer quietly canvassing other metal consumers—Japan and European powers—about ditching the UN treaty altogether in favor of a mini-treaty among themselves to carve up the likeliest mine sites before anyone else could even put to sea with their own projects. Hence, the suspense when the Sea-Law meetings resumed in New York this spring: what concessions would it take to persuade the Americans to stay with the UN treaty? Would the caucus of underdeveloped countries—the so-called Group of 77—stand for such concessions? And how many allies would follow the Americans if they rejected the compromises of the past decade?

As if scripted, the plot remained a mystery until the final hours. Having set Friday as their deadline for decision, the conference began with a marathon closed-door session Monday. Among the interlocking issues at play was a Canadian provision governing fish stocks that straddle the 200-mile limit. Beesley's concern was with foreign fleets that honor the letter of the 200-mile law but over-fish just beyond the line of Canadian control. He was opposed by Kozyrev of the Soviet Union. In the end, Canada withdrew its amendment, thus avoiding the risk of spawning votes on other issues that could divide and wreck the conference.

By then, however, a greater threat to the project had arisen. The Soviet Union—long a proponent of the Sea-Law treaty and critic of the capitalist instincts of Washington and the Western Europeans—had suddenly and secretly asked itself into the club of mini-treaty states. On the floor of the conference, Kozyrev was attacking the treaty on the grounds that it favored the United States. Behind the scenes, he was asking Malone for a piece of the mini-treaty action. It was far from being the only case of diplomatic deception during the conference, but it *was* among the most startling. When news leaked out, Western delegations could only surmise that Moscow—sensing a Washington pull-out—decided it did not want to be left in the UN authority as its largest financial contributor. Indeed, Kozyrev openly complained that with Washington outside the treaty, only the smaller European countries with seabed mining programs would be left to finance the authority and the UN's own mining enterprise.

The Group of 77—actually now more than 100 countries—continued to offer concessions to the Europeans and Americans in the closing days, some based on compromises drafted by Canada and other middle powers. The Americans, however, stolidly refused to swing behind the treaty. Then, on the night before the final day, word emerged that Malone was ready to negotiate on the basis of one of the middle-power compromises.

In the morning, Beesley took up this last hope and urged both sides to reconsider the compromise formula. In a tantalizing reply, Malone called that "something to be considered." But Peru's Alvaro de Soto, spokesman for the 77, turned the gesture aside. It was too late, he declared, "to rescue what is beyond rescuing."

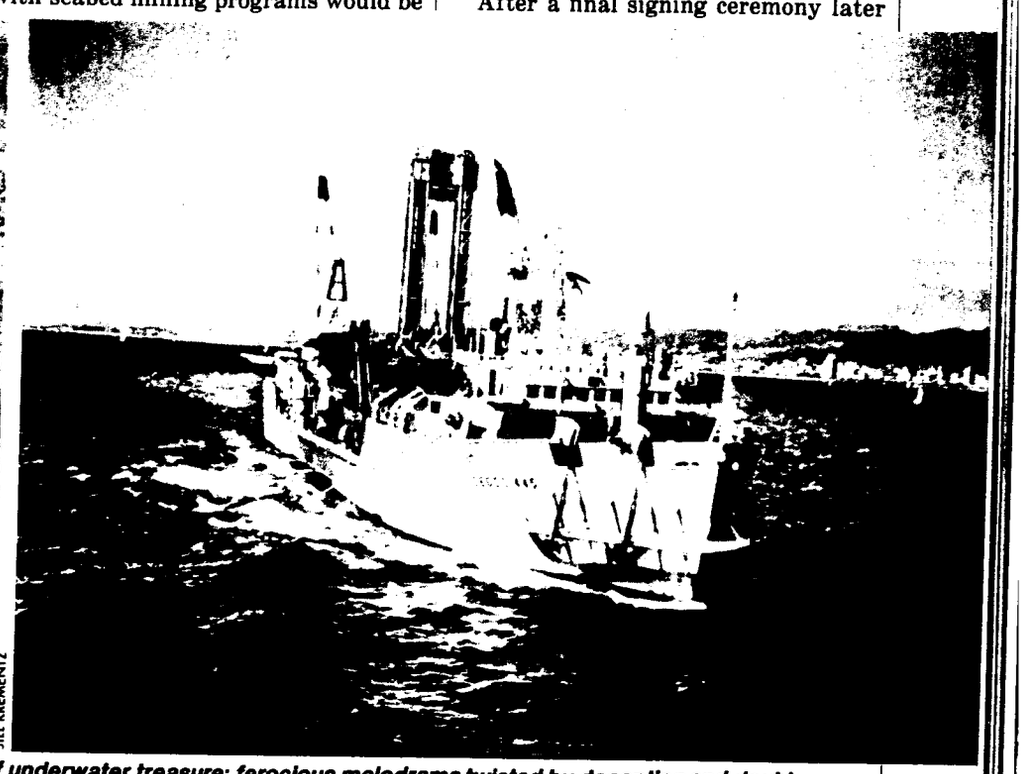
In the roll-call vote that followed, the treaty was approved 130-4, with 17 abstentions—most of those from the Soviet bloc along with Britain, West Germany, Italy and the Netherlands. The United States, Venezuela, Israel and Turkey voted against.

Throughout the seabed dispute, Canada balanced its own conflicting interests. As the world's largest land-based nickel producer, it pressed for controls on excessive seabed production. But it also had to defend the interests of Inco and Noranda, which belong to seabed consortia. In any event, seabed mining is not likely to become commercial until the turn of the century.

After a final signing ceremony later this year, the omnibus treaty will take effect when 60 countries have ratified it. The impact of the U.S. absence from the treaty at this point is problematic. Since most countries already honor the treaty, Washington might be forced to seek bilateral agreements with them to cover such points as U.S. naval access to straits choked off by 12-mile limits. Beesley doubts any U.S. firms will embark on seabed mining until their bankers can be sure their investments will be safe from legal challenges either in U.S. courts or in the International Court of Justice. Ultimately, this or a future U.S. administration may find it better to be part of an imperfect treaty than to be a pariah with its free-enterprise principles intact.

—JOHN HAY *in New York.*

JILL KREMENTZ



Contestant Beesley and SEDCO 445 in search of underwater treasure: ferocious melodrama twisted by deception and double cross

to the most sensational murder trial in years—and which has become, as well, a signal event in Toronto's moral history.

For all its grisly revelations, the trial of construction worker Saul David Betesh, 27, and bodyrub-parlor bouncers Werner Gruener, 29, Robert Wayne Kribs, 29, and Josef Woods, 27, will not easily equal the high drama of the Passion Play acted in the streets of Toronto last August. Eight days after the body of the 12-year-old Portuguese-Canadian was found in a green plastic bag on the roof of Charlie's Angels, a Yonge Street bodyrub parlor, some 15,000 people, mostly of Portuguese descent, marched on City Hall and the provincial legislature. They demanded official action to snuff out what they declared was a festering marketplace of massage parlors and nude-encounter emporia that had overrun the south end of the city's main drag. The boy's death also provoked closet vigilantes who heaped misdirected abuse on the city's entire homosexual community.

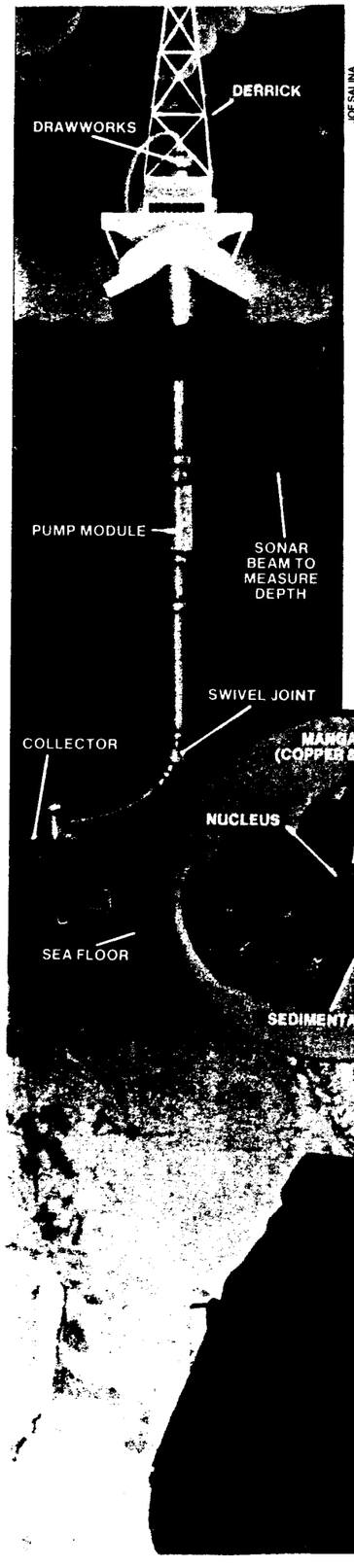
It was hardly surprising that four days and 147 candidates were needed to select a jury. Dozens summoned had already reached a verdict. Others were disqualified when they admitted blanket prejudice against homosexuals or people who work in bodyrub parlors. Finally eight men and four women were selected for the distasteful task ahead, and were sent home for 10 days while lawyers argued in closed, or *voir dire*, hearings about admissibility of evidence. And at 245 Yonge Street, public outrage had done its work. Like nearly all of its 40 sexploitive kin, Charlie's Angels was no more. CHERYL HAWKES

Sunken treasures

Far beyond the ocean shores, three miles beneath the waves, lie abyssal plains long considered wasteland—inhabited only by mud-roving sea spiders, anemones and bristle worms. Then two decades ago, an exciting scheme surfaced for mining "nodules"—mineral-rich, potato-sized rocks clustered on the seabed. Suddenly, the barren depths became a vast cornucopia. Although technology today still doesn't exist to harvest significant quantities of nodules, American-based mining consortia are racing for solutions—and nations are immersed in debate over who should own the deep-sea wealth.

Early in February, a special two-week session of the United Nations Law of the Sea Conference (LOS) will open in New York, with 150 nation-participants trying to resolve the vexing question. The meetings have special implications for Canada, since nodule mining could become major competition for our land-based nickel operations that produce 40% of the world's supply. The February session is a prelude to the seventh Law of the Sea Conference in March in Geneva. The upcoming talks are crucial since, after nearly five years of snail-paced debate, consensus has been reached on almost all key issues—the 200-mile limit, freedom of navigation, scientific research in coastal waters, and pollution controls—save the major impasse of deep-sea mining. Many nations are now growing restless with the endless talk, and failure to resolve the remaining issue could mean no world treaty at all, which would seriously undermine the credibility of the UN as a forum for discussion.

Dissent within the UN over deep-sea mining involves two camps: the so-called Group of 77, which now includes 110 mainly developing countries; and the industrial countries of the West, including the United States, France, West Germany, Japan and the USSR. The Group of 77 favors setting up an International Seabed Authority to mine the nodules and share the revenues among them. Their claim is based on a resolution passed by the UN in 1969 decreeing sea-floor resources "the common heritage of mankind." Meanwhile, major American companies have invested more than $100 million in researching nodule mining and steadfastly



JOE SALINA

An artist's rendition of both an undersea mining operation and the interior of a nodule, and Beesley (below): who rules the seabed?

The case of the not-so-fine kettle of fish

The sight of a native fisherman poised to spear his prey or working his nets in the rivers of northern British Columbia is a common one, a legacy from centuries ago when Indians depended on salmon for both food and currency. Now, however, such pastoral scenes are blotched by turmoil and resentment in a community near Hazelton, BC, where 12 natives from the Gitksan and Carrier bands have been charged with illegally selling their catch.

Although Indians may only take salmon to feed themselves, they have customarily ignored the ban on selling the fish, and enforcement had been nominal until last summer when the federal fisheries department—claiming that illegal selling was endangering some species—sent five undercover agents into Hazelton on a six-week operation. As well as the 12 Indians they netted a non-native "poaching ring" that had been buying eight-pound salmon by the truckload for one dollar each and selling them in BC and Alberta for as much as two dollars a pound. The two white men pleaded guilty and were fined $700 each (maximum penalty is $5,000 or a year in jail), but the natives decided to fight and hired Vancouver lawyer Stuart Rush, former counsel for American Indian fugitive Leonard Peltier. Late last month he had won one acquittal, because the undercover agent was too zealous in laying the charge, and lost one conviction, which he plans to appeal.


DOUG MARTIN

Ultimately, the tribal council wants the law changed. They point to a 65% unemployment rate and a yearly social assistance bill of more than one million dollars as proof of the need for commercial fishery and perhaps a cannery. Fisheries officials say investment in the coastal commercial fleet is already high, and the quality of salmon low, but the 4,200 Indians are counting on a trump card of their own design. Last November they declared sovereignty over 22,000 square miles and all the resources therein—including, of course, the resources that swim. KEITH WATT

guard their technological know-how in carrying out the task. The United States and several other countries favor the common-heritage concept in principle, but also insist on privately owned mining sites. So determined are the Americans in defending this stance that, at the close of the sixth Law of the Sea session last July, U.S. representative Elliot Richardson called for a comprehensive review of U.S. interest in LOS and threatened to pull out, after a contentious negotiating text on deep-sea mining had been drawn up without American approval.

Canada's stance on deep-sea mining lies somewhere in the middle. Although industrialized, Canada sides with the Group of 77, wanting strict controls over ocean resources established so its mineral exports won't be threatened by seabed mining. But Canada must also protect the private interests of such Canadian companies as INCO and Noranda Mines, both actively involved with the American-based nodule consortia.

The scramble for nodule mining should begin in earnest around the mid-1980s. Initial sites will probably be in the tropical Pacific Ocean, where nodule fields are the richest. There, each black, misshapen nodule contains some 30 different minerals, including four that evoke keen industrial interest: nickel, copper, cobalt and manganese. Over millions of years, nodules have formed after minerals collect on the sea floor and clump together through a complex chemical process around a nucleus—a shark's tooth, for instance, or most likely a fragment of another nodule—much as pearls develop.

Nodules were first discovered by the British HMS Challenger expedition, the first oceanographic research cruise back in 1872-76, but it was not until 1958 that nodules were recognized for their potential profits. It was a bright, young California marine student, John Mero, who first proposed nodule mining in his PhD thesis. Today, six international mining consortia are competing for nodules, and Mero has acted as consultant for all of them. Competition is stiff, since no one consortium is in the lead. "It's like a horse race," Mero says. "The players may change position many times."

Late last month, a converted drill ship, SEDCO 445, set off for a secret destination near Hawaii, where its crew planned to test nodule mining at a three-mile depth—a first in mining research. The ship belongs to Ocean Management Inc., 25% owned by INCO Ltd. A highly sophisticated "vacuum cleaner" will suck nodules from the seabed.

Canadian delegates at Geneva will be led by a veteran of LOS sessions, Alan Beesley, now Canada's High Commissioner in Australia. He and External Affairs Minister Don Jamieson, a Newfoundlander with an avid interest in sea affairs, will suggest limits for nickel production in the deep sea based on 100% of the annual rise in total world demand for the mineral during the first seven years of operations, and 50% thereafter (the Informal Composite Negotiating Text produced at the last session set a limit of 60% after seven years). Canadians will also insist that deep-sea mining not be heavily subsidized, which would result in unfair competition for our land-based operations.

From
'Maclean's
Feb 6, 1978

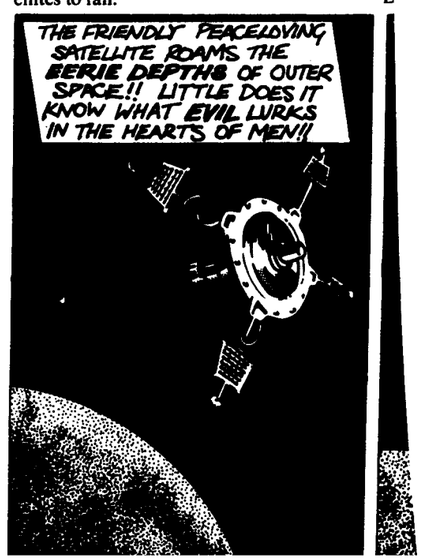
Predicting possible breakdown of LOS negotiations, countries such as the United States, France and Japan are prepared to invoke unilateral legislation on deep-sea mining. But passing such legislation is a last-resort tactic, and the upcoming Geneva sessions might agree on a Canadian suggestion: a "parallel system" of deep-sea mining that would split nodule sites on a 50:50 basis between the International Seabed Authority and private interests.

Should talks break down, the developing countries stand to suffer most—not necessarily in terms of instant wealth (during the initial years the authority would probably make less than a billion dollars) but in access to technology that would take them years to duplicate on their own. At worst, many diplomats fear, lack of treaty agreement could result in a chaotic ocean-grab with all the attendant tumult and shouting of 19th-century colonialism—an unseemly fate for "the common heritage of mankind." JULIANNE LABRECHE

It came from outer space

The seeds of Star Wars were nourished anew late last month when the Soviet Cosmos 954 satellite with its nuclear reactor hurtled down over Canada. Not that a ray gun had been fired in anger, but the intense military interest that came from Washington and Moscow was enough to warm the heart of Darth Vader himself.

The cooperation between the superpowers, the scientific sympathy over "one of theirs gone wrong," was almost touching. But there was a curious lack of concern for potential victims, and there was a definite impression in private conversations between *Maclean's* and the Pentagon that not only would it be pointless for Canada to complain, it might even be considered unsporting—even though the five-ton Cosmos could be just the first of many spy satellites to fall.



The World

Despite what you read, the UN still works well

by John Holmes

In its thirtieth year the United Nations is not expiring. It is, in fact, living through one of its most creative phases. What's more, the Canadian contribution is as effective and constructive as it has ever been. That, admittedly, is not the conventional wisdom. The UN is said to be in a precarious state, and Canada's part in it is seen as that of an ineffectual observer relegated to third-class status. The "golden decade" after the war, when the UN really worked and Canada was heeded, is regarded either with nostalgia as a busted dream or as an overrated *tour de force* remote from the real interests of the country.

People who talk that way are looking in the wrong direction. They are obsessed by particular issues or mired in traditional values of the Cold War. Paradoxically, those who cling most doggedly to the Cold War perspectives are those who think they have opposed them most vigorously. The Cold War provided the mindless Left and Right with their point of reference, their one sure indication of goodness and badness. A UN no longer dominated by the Cold War or even by *détente* is hard for them to cope with. No wonder; it is hard for anyone to cope with, and the temptation is strong to throw up our hands. The posture of the cynic is always tempting. Its uncompromising stance so easily disguises its essential naiveté. It is easier to holler "Doom" than to think through the complex ways of avoiding it. Articulate Canadians are incurable denouncers.

But the UN is always most creative when it is most dangerously challenged. The world issues of 1975—food, population, pollution, the seas, and outer space—cannot be avoided. Governments are just beginning to cope with them in the established UN organs and agencies and by special conferences on resources, population, food, and the law of the sea. If the UN did not exist, something like it would have to be invented.

It has been said of peace that it is no longer a "whether" question; it is a "how" question. The same is true of the equalization of economic advantage. One value of the UN forum is that in the end it induces pragmatism and reveals the irrelevance of the closeted doctrinaires, capitalist or Marxist. Nobody foresaw the world we are in. Flogging our guilt complexes, avoiding thought and sacrifice by blaming OPEC or the CIA or Kurt Waldheim may be fun, but they are distractions we cannot afford.

In the circumstances of this period one favourite scapegoat is the bureaucracy—paralysed, it is said, by inertia and its effortless preference for the status quo. Such a generalization would be a gross misjudgement in Canada at the present time. The agenda of the UN, more than ever before, occupies the attention not just of the department of external affairs but of a dozen Canadian ministries. The best kept secret in Canada is the extraordinary degree of successful initiative Canadians have taken in recent years in the most fruitful area of UN activity: extending international law and regulation.

The subjects may seem more mundane than those dealt with by the Great Powers in the Security Council, or than the Suez crisis in which Canada gained respect in 1956. But are they less important to people? There was, for example, the Canadian-Swedish initiative to get UN consideration of the effects of direct satellite broadcasting, and the Canadian initiative to get international action on the sensing of earth resources by satellites. These steps are essential for an international community in a new age and for the defence of Canadian culture, economy, and sovereignty. Canada, concerned over the role of multi-national corporations but realizing that this was a world-wide and not just a Canada-United States issue, was responsible for getting a discussion of the legal aspects under way in the United Nations Committee on International Trade Law. It has also co-sponsored proposals in various UN organs to cope with hijacking.

These are only a few of the activities in which Canadians have been actively engaged. Compounded, they are a calculated and well-reasoned campaign. It is closely related to the national interests of Canadians but it reaffirms the traditional Canadian conviction that the interests of Canada, an inescapably international country, are best protected by the development of world order and the extension of international rules.

The main Canadian thrust in the UN has shifted from the highly visible issues of the General Assembly or the Security Council. It is master-minded by a remarkably able team of international lawyers, abetted by the collaboration and criticism of their academic colleagues across Canada. The most notable of these has been J. Alan Beesley, former legal adviser and at present ambassador in Vienna. (More and more it is Geneva and Vienna rather than New York where the fabric of the United Nations is being woven.) When Geoffrey Stevens of the Toronto *Globe and Mail* went to the Law of the Sea Conference in Caracas last summer, he said of Beesley, "Brilliant would not be too extravagant a word to describe his performance." Beesley had been made chairman

Illustration by Mike Constable

dependent Conference had little more than a week. Some issues were virtually dropped from the UN agenda long before the conference because it was impossible to achieve any sort of consensus, whereas the Dai Dong delegates continued throughout their short time together to argue and debate them hotly. In the much smaller and more intimate forum of the Dai Dong conference, where discussion was to be free from national posturing, consensus was rare, compromise always difficult and sometimes impossible, schisms between the so-called developed and underdeveloped nations frequent, and personal confrontation sometimes unpleasant, particularly on the issues of population, sovereignty and violence. The result was an independent statement, duly presented to the UN conference and now to be widely distributed around the world in many languages, which contains a number of strong and worthwhile statements but falls short of the directness and clarity of its parent, the original message from Menton.

Perhaps the strongest inference that emerged from the Dai Dong conference was that the developed countries are the main culprits in environmental degradation. Social technologies and the like, are such threats, why do the developed countries not have honest internal policies on such questions? Why are such gluttonous libertines urging abstinence in the developing countries? As one Dai Dong delegate related, he can easily raise funds from Western nations for 20 birth-control clinics in Kenya but not one penny for a school.

It is far too soon, of course, to judge accurately the full value of all the activities associated with the United Nations Stockholm conference to Canada, let alone to the world community. Mr. Strong acquitted himself well and the conference may have accomplished much more than its rather modest objectives. Canadians emerged as realistic analysts of environmental problems and as skilful negotiators. And the participants in the independent conference contributed to global awareness of the magnitude and complexity of the environmental problems that confront us. The world community must now capitalize on these steps, resolve its differences regarding the environment and, on this foundation, develop international co-operative programs to restore and preserve its quality.

'An accelerating threat to the environment . . .'

"We consider that there is a fundamental need for an environment which permits the fullest enjoyment of the basic human rights reflected in the Universal Declaration of Human Rights, including, in particular, the rights to life itself . . . .

"We recognize that life on the planet Earth is dependent on the land, the earth, the water and the sun and upon other forms of life on Earth.

"We are aware that human life is also dependent upon the maintenance of the ecological balance of the biosphere . . . .

"We are increasingly aware that human life is affected by environmental processes and influences which are in turn affected by human activities . . . .

"We are conscious that economic and social development and the quality of the environment are interdependent . . . .

"We accept that the limited resources of the biosphere, including in particular land, air and water, require rational utilization . . . .

"We recognize that there is cause for concern that irrational utilization of these resources is posing an accelerating threat to the environment . . . .

"It is the firm position of the Canadian Government and people that environmental problems are the concern of all human beings and all peoples irrespective of their social or political systems, geographic situation or state of economic development . . . .

"It is the equally firm position of the Canadian Government and the Canadian people that all human beings and all peoples have equal rights to an environment adequate to their needs . . . ."

(Excerpts from a statement delivered at the Stockholm Conference by J. A. Beesley, legal adviser to the Department of External Affairs, in which he noted that the concepts he had set out were reflected in the Draft Declaration on the Human Environment.)

Farewell Message from High Commissioner

I shall be leaving Australia, in December together with my wife Ruth, my daughter Terry and my son Alan to go to New York, to take up my appointment as Canada's Ambassador to the Law of the Sea Conference and Chairman of the Drafting Committee of the Conference. The draft convention already produced by the Law of the Sea Conference is widely regarded as the most significant diplomatic achievement since the U.N. Charter, and it is for this reason that I have felt obliged to accept the assignment, which I can no longer fulfil from Canberra.

Normally, when a diplomat leaves a country in which he has lived for several years it is with mixed feelings of anticipation concerning the new duties he is to assume and regret over the friends he and his family must leave behind. In this case my feelings and those of my family are much more those of regret than anticipation, not because my new assignment or New York will be uninteresting, but because we have enjoyed Australia so much.

Three years ago, in the September 1977 issue of "Image Canada" I expressed my firm belief in the "mutuality of interests" between Canada and Australia, and stated that I considered that one of my major responsibilities as High Commissioner in Australia would be to "raise public awareness of the growing inter-dependence of the two countries on a wide range of crucial economic and political issues". In that same article I stressed that there is "an increasing need for consultation, cooperation and awareness of one another's interests ... because ... in the future even more than now ... we will be involved in issues which will be important on a global scale, arising out of world demands for increasingly scarce natural resources; the need for stability of markets for primary products; the threats to all countries from nuclear weapons proliferation; and the requirement to respond together to demands for changes, particularly from developing countries in the conditions — and even the legal basis — upon which world order is founded."

I went on to say in that same article "In the uncertain world in which we live, we have no option. We must stand together or we will face the consequences of being divided by the tremendous economic pressures facing us. It is no longer merely a desirable objective, but an over-riding imperative that Canada and Australia work together, now and in the future, to protect our common interests."

It is a source of considerable satisfaction that Cabinet Ministers and other spokesmen of both countries have recently expressed similar views. For example, the Honourable E. C. Lumley, Minister of State for Trade, stated in Perth on May 19, 1980: "Neither of us is a member of any major economic bloc at a time when economic blocs are consolidating themselves around the world. Indeed Australia and Canada are the only two major industrialized countries without unhampered access to a market of at least 100 million people. This in itself would suggest the need for closer forms of consultation and cooperation ...

Perhaps the greatest problem between us is the lack of awareness of each other's capabilities ... Only in this way can we fully explore opportunities of mutual satisfaction."

My family and I shall leave Australia with feelings of affection and gratitude toward the many Australians we have met during the past three years, who have invariably treated us as members of a larger family. We were made to feel at home from the first day. Our posting here has been one of the most pleasant we have ever experienced. We leave with the hope and expectation that we will continue to cross paths with the many friends we leave behind.

J. Alan Beesley, Q.C.

Fishing and Farming

Canada's first known resource consisted of the fishing grounds off its Atlantic coast. By the third quarter of this century, Canada's fish harvest was declining and the industry was in danger of disappearing, although Canada has the longest coastline in the world, with over 52,000 islands. However, with the establishment of a 200 mile fishing zone in 1977, the value of the fishing industry rose dramatically with the result that Canada is now the world's leading exporter of fish and fish products. The annual catch exceeds 1.2 million tonnes and approaches $500 million in landed value. Much of the fish caught in Canadian waters is exported to the USA and EEC countries. There are some 64,000 Canadians employed in the fishing industry sailing 36,000 vessels on both the Atlantic and Pacific Oceans. They receive substantial support services from the Federal Government which is responsible for management of Canada's ocean resources.

The first farmers to till Canadian soil were French peasants who arrived in the seventeenth century and settled on the banks of the St. Lawrence River. After the American Revolution both political and economic refugees from the USA and the British Isles opened up new frontiers in Ontario and Quebec. By the end of the nineteenth century Canada was busily populating its newly acquired western territory by promising cheap land to settlers from continental Europe eager to establish their own farms. Today Canada is the world's second largest exporter of grains and oilseeds thanks in no small measure to the sacrifices of those early pioneers and those from many countries who have since followed them to Canada.

Of Canada's land area, which is 25% greater than that of Australia, 11% is suitable for agricultural production. Of this area only 46 million hectares is capable of supporting crop production. Nearly 86% of Canada's crop land is located in Alberta, Saskatchewan, Manitoba and Ontario. There are currently 300,000 farms in Canada. While their number has been decreasing, average farm size has increased from 216 hectares to over 224 hectares during the past decade. (At one time one single ranch, the Gang Ranch, covered over half a million hectares.) Farms that are owned and operated by farm families dominate the agricultural picture in all parts of Canada.

taken from "Canada" Image Volume 4 No 4

Approximately 5% of Canada's labour force is employed in farming. The disappearance of farm labour as rural populations migrated to developing urban centres resulted in an extensive mechanization of agriculture. As a consequence of this and of the relatively rapid acceptance of new technology by farmers, productivity per worker increased in agriculture at a more rapid rate than in non-agricultural industries. From 1960 to 1975, for example, output per worker in agriculture increased by 54%, compared with 44% in other industries. The average current output of one Canadian farm worker provides food for over 50 people.

There are many types of farms in Canada, but most may be roughly classified as one of the following: grain, dairy, livestock, combination grain and livestock, and specialty crops. Specialty crops include fruits, tobacco, potatoes, and vegetables. Total farm cash receipts exceed $11,000 million. Of this total over half comes from livestock and animal products. By individual product, cattle are the largest source of income at $2,000 million followed by wheat at $1,700 million and dairy products $1,500 million.

Canada is a net exporter of agricultural products. In 1977, the value of agricultural exports was Canadian $4,260 million compared to imports of Canadian $3,560 million. Agricultural exports account for about 11% of all Canadian exports. The leading exports are wheat, barley, rapeseed, furs, live cattle, and animal feeds; the principal markets are the European Economic Community, Japan, the United States, China and the USSR. The leading imports are fruits and nuts, tea and coffee, vegetables, meats, and sugar; the principal suppliers are the United States, the European Economic Community and Australia.

This brief glimpse of Canada's fisheries and agricultural resources provided further evidence of the many interests shared by Canada and Australia, and helps explain why the two countries are both competitors and allies in the global effort to supply scarce commodities on a stable economic basis.

The Mining Industry

by J. Alan Beesley and J. Y. Tremblay

Historical Background

On the banks of the St. Lawrence, more than 400 years ago, the French explorer Jacques Cartier heard Indians tell of gold and precious stones that abounded in this New World. Cartier was disappointed. The stones he took back to France turned out to be "fool's gold" — iron pyrite, but with traces of gold in it.

The same disappointment was experienced a few years later in the 16th century by the Arctic explorer Martin Frobisher. He carried tons of rock from Baffin Island back to England only to find it was worthless. But while neither Cartier nor Frobisher lived to know it, the tales of Canada's mineral riches were prophetic as Canada is today the world's largest trader in minerals.

Samuel de Champlain, early in the 17th century, brought a mining engineer, Master Simon, with him on his second journey to the St. Lawrence; this expedition discovered silver and copper occurrences although neither was significant. These and subsequent discoveries led to early settlement and development efforts but mining developments came slowly in those days.

In the 1700's, the coal deposits of Cape Breton began to be worked. Iron was found, mined and smelted for local use in what is now Quebec. Silver, lead and

copper discoveries were made in what is now Northern Ontario. The comprehensive reports of Samuel Hearne on vast stretches of the Northwest Territories for the Hudson's Bay Company from 1769 to 1772 were later to spur mineral-hunting in these regions.

After the turn of the 19th century, mining boomed in Northern Ontario where earlier blasting operations in the building of the Canadian Pacific Railway accidentally led to the great nickel-copper deposits of the Sudbury Basin. Other areas where mining activity boomed were in the North-western Quebec copper-gold area and at Cobalt in 1903 where rich deposits of silver were found as a result of accidental blasting by a railway construction crew also. By 1920 coal and iron ore mines were supporting a steel industry, and zinc and nickel refining began in Ontario. Development of the copper-zinc discoveries at Flin Flon began. In 1929, Canada was producing 90 percent of the world's nickel.

A pause occurred (except for gold) during the depression. Then radium and uranium were found at Great Bear Lake. Canada's mines were then called on to supply a large part of the Allied requirements in World War II. Vast iron ore reserves were discovered and major developments took place in the Quebec-Labrador area; uranium developments in Ontario and Saskatchewan catapulted Canada to the top rank in atomic metal; scores of base metal mines were opened up across the country, including a large lead-zinc mine at Pine Point in the Northwest Territories and a second major nickel complex in Manitoba.

The Economic Significance of the Mining Industry Today

There are about 300 operating mines, some 230 mills, 16 smelters and 15 refineries in Canada, producing more than 60 different commodities. The mining industry accounts for about 8 percent of all new capital investment in Canada. Crude minerals account for about half of all rail freight tonnage and half of all inland waterway freight. The 1979 value of Canadian mineral production was $27 billion, equal to about 8.5 percent of the Gross National Product. Minerals and their fabricated products are shipped to some 100 countries, the United States taking over 60 percent of the total value of exports which was $13.6 billion in 1978 (equivalent to about 26 percent of the total Canadian commodity export value).

The average weekly wage and salary in the mining sector was $374.73 in 1978, the second highest among all major industries. These wages and salaries were paid to approximately 120,000 Canadians employed directly in the mining industry.

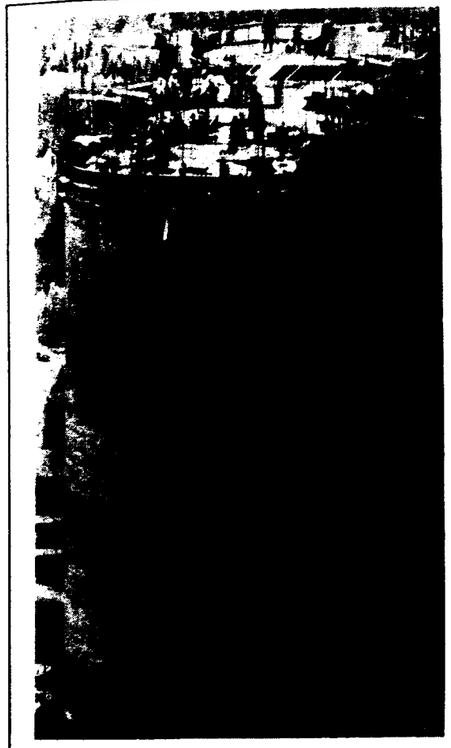
The Canadian Mining Industry and the World

Canada ranks first on a per capita basis, and third on an absolute basis among the major mineral producing countries. It is the western world's leading producer of asbestos, nepheline syenite, nickel, potash and zinc and ranks second as a producer of columbium, gold, gypsum, molybdenum, selenium, silver, titanium and uranium.

Because of a limited domestic market, the Canadian mineral industry depends to a great extent on foreign markets. Non-fuel minerals and metals exports during 1978 were valued at $8.6 billion while imports were estimated at nearly $3.2 billion. However, the relative importance of mineral exports as contributors to the balance of trade is diminishing.

Canada's mineral prosperity is tied primarily to the North American continent. The U.S.A. is Canada's major trading partner in minerals, receiving about 61 percent of our exports and supplying 60 percent of our imports. The U.S.A. is of particular importance as a market for our semi-manufactured mineral products, taking 82 percent of such exports. Some persons on both sides of the border have recently advocated some kind of common market for resources between Canada and the USA; in point of fact the majority of mineral products already cross the border with little or no tariff.

Although Canada produces some 60 different minerals, it is nevertheless dependent on imports for about 15 percent of its oil



Kaiser Coal's storage silos under construction in British Columbia

consumption and for minerals such as phosphate rock, bauxite, tin, chromium and manganese.

Governments and the Canadian Mining Industry

a) Jurisdictions

The Federal Government has broad powers in fiscal and monetary policies, trade and external affairs. It also has responsibility for mineral affairs in the Yukon and Northwest Territories and other areas falling under its jurisdiction.

The provincial governments own the mineral resources within their boundaries, and have broad powers that affect the management and rate of development of these resources.

While concensus on all policy issues is difficult, the trend has been towards increasing consultation between the two levels of government: consultations at ministerial level have been intense in recent years, notably over the areas of taxation and petroleum pricing.

b) Taxation

Fiscal policy towards the mineral industry in Canada is fairly complex and has been a most controversial item of debate between the provincial and federal governments.

There are three kinds of taxes applying to the mining industry: federal income tax, provincial or territorial income tax and provincial or territorial mining tax. The first two are levied on the income up to and including the prime metal stage, while the third is levied on the income from mining only.

The effective Federal Income tax rate is 27 percent, while provincial rates and royalties vary from province to province and mineral to mineral. The Federal legislation provides for writing off exploration expenditures and development costs at a rate of 30 percent per annum. It also provides for an earned depletion deduction of $1 for every $3 of eligible expenditures (exploration, development and depreciable assets for a new mine or expansion). In most provinces the effective rate is around 9 to 11 percent. Some provinces provide a processing allowance between 9 and 25 percent to encourage mining companies to upgrade their output by smelting and refining their minerals.

In recent years, the Federal Government reduced its rate of corporate income tax to provide more room for provincial income taxes. Since 1974, provincial mining taxes and royalties are no longer deductible for federal tax purposes. The change was introduced to counteract a trend which would have led to a serious erosion of the federal tax base. Unfortunately, the mining

industry in some provinces in particular was seriously affected by these changes.

Policies

Canadian mineral policy has focussed on one area in particular; further processing. A great deal of effort took place in the early 1970's to elaborate mineral policy goals and objectives. The principal goal was defined as optimum benefit for Canada from the use of minerals. A set of objectives was spelled out; and the most important in terms of economics, are: security of supplies for domestic requirements, contribution to regional development, increased returns from exports, opportunities for further processing and promoting increased Canadian ownership and control of the industry.

Needless to say, the spectrum of mineral policy objectives required intense consultations with provincial governments and the industry. However, the problems recently faced by most of the mining industry in terms of depressed world prices and markets, made it difficult for governments to concentrate on the policy objectives enunciated earlier; massive lay offs, under-utilisation of capacity and the like, took priority in terms of problems requiring government attention. Nevertheless, some sectors of the industry have and should continue to improve as a result of stricter environmental legislation in the U S.A. (notably in the case of zinc and copper) where it is becoming increasingly difficult to engage in smelting activities and in Japan which has been hit particularly hard by the escalation of oil prices. Aluminium smelting in Canada is also an activity which should benefit from shortages of electric power in some areas of the U.S.A.

Sector Profiles of the Industry

It would not be realistic to attempt to present a comprehensive description of the Canadian mining industry in this brief paper. The following sector profiles were selected because of their economic significance for Canada and Australia, one of our major competitors.

Coal

Canada is the world's sixth largest exporter of coal with some 40% of production exported. In recent years, approximately 90% of Canada's metallurgical coal exports has been shipped to Japan. Canadian production of all types of coal in 1979 was 33 million tonnes worth $858 million, bituminous coal accounting for about 17 million tonnes. Alberta and British Columbia in Western Canada together produced some 73% of total Canadian output. Approximately 85% of all coal is produced by surface methods.

However, Canada is a net importer of coal; these imports (15 million tonnes in 1978) from West Virginia and Pennsylvania, are shipped mostly to Ontario for use in power generation and steelmaking. High transportation costs and inadequate terminal facilities for Western Canadian coal have so far prevented the large-scale development of this market.

Coal is used to produce 11% of the total energy supply in Canada. Thermal coal exports have so far been limited but should assume a growing importance as consumer nations begin to diversify away from oil as an energy source.

Although Canada possesses only about 1% of the world's known coal resources, this small percentage represents hundreds of billions of tonnes, and should support domestic needs and exports for centuries.

Uranium

Canada's six operating uranium mines produced some 20% of total world output in 1978, i.e. 6,800 tonnes U. (One metric ton of elemental uranium (tonne U) = 1,299 short tons of uranium oxide or yellow cake (U308).) Of this total, only some 800 tonnes of U were required for domestic use. Most material for export is processed to the form of uranium hexafluoride (UF6) prior to export.

Canadian uranium is mostly marketed on the basis of long-term contracts for supply at prices that are renegotiated annually. All such contracts and prices must be reviewed by the Atomic Energy Control Board, taking into account such things as adequate safeguards against non-peaceful use and the long term domestic requirements. The majority of deliveries recently have been destined for Europe and Japan but the material is generally delivered to the U.S.A. for enrichment.

Mountain top mining at the Cassiar Asbestos Corporation property in northern British Columbia

Exploration for uranium in Canada has expanded significantly over the past six years to a level where some $90 million was spent in 1978. About half of these expenditures have occurred in Saskatchewan, where several significant discoveries have been made. It has been reported that the discoveries made in the province have an average grade of 30 pounds a ton compared with world average commerical deposits of 3 pounds a ton. They even surpass the important discoveries of the Northern Territory of Australia where grade is around 8 pounds per ton. With the exception of Midwest Lake, none of the deposits discovered on the south-east rim of the Lake Athabaska basin is more than 500 feet deep. According to private sources, capital and operating costs could be as low as $10 per pound of uranium oxide which should at least be on par with Northern Territory operations and could be bettered only by South African producers for whom uranium is a by-product of gold.

Iron Ore

In normal circumstances, producers shipments of iron ore average about 60 million tonnes in Canada of which exports are about 45 million tonnes. The U.S.A., Western Europe and Japan respectively take around 59%, 32% and 7% of our total exports. However, new iron ore demand in Canada is being met by imports from the United States where investments were made in the mid 70's by the major Canadian steel producers. This situation results from the fact that the major production facilities in north east Canada are captive sources of iron ore for the U.S. steel industry. Being captive sources has the advantage that our iron ore industry has been relatively well sheltered from the vagaries of world iron ore markets. For example, the price for pel-

lets to North American consumers increased 22% (from 54.6 to 66.71 cents a unit c.i.f.Lake Erie) between the end of 1977 and August 1979. In European and Japanese markets, the prices of iron ore increased by only 5 to 9% in 1979 due to the competitive nature of these markets.

A number of mines have closed in Ontario over the last few years: these mines are not being replaced and as a result, some 300 iron ore workers lost their jobs in 1978 and another 1,300 will lose their jobs by the end of 1980. These closures are due to the depletion of reserves, surpluses in production or the threat posed by increasing world demand for direct shipping ore such as that found in plentiful quantities in Brazil and Western Australia.

Nickel

Canada's long held position as the world's leading nickel producer is based entirely on deposits of the sulphide type. The nickel industry consists of three major companies that mine and process ore through to the refined metal stage and some small producers that ship concentrates to the major producers for treatment. Inco is the largest producer of nickel and is also a major producer of copper and precious metals. The company accounts for about 80% of Canada's nickel production and has some 15 mines in Ontario and 4 in Manitoba.

Canadian nickel production usually averages between 230,000 and 275,000 tonnes of metal but a drastic decline of 46% was recorded in 1978 because of a strike that lasted almost 9 months at Sudbury, Ontario, a dispute that cost Canada more lost man-hours than any strike in its history. Production is almost entirely exported as domestic consumption only amounts to some 10,000 tonnes a year. Exports are in the form of refined metal, nickel oxide and unrefined products such as matte. Our major clients are the U.S. (refined and oxides), U.K. and Norway (matte for refining).

By mid-year 1978 employment at Canadian nickel mines had decreased to about 21,500 from the 26,000 level of mid-1977.

Canadian production of nickel in all forms is expected to increase to 390,000 short tons by the year 2000. Reserves in 1975 were 7.9 million short tons.

Aluminium

Canadian production of primary aluminium ingot was 1,048,469 tonnes in 1978. The industry employs about 20,000 people. Alcan is the largest producer and operates four smelters in Quebec and British Columbia. It operates a 1,258,000 tonne alumina plant at Jonquiere, which supplies 70% of company smelter requirements; the balance is imported primarily from Australia and Jamaica.

Canada has no sources of bauxite and is totally dependent on imports for raw materials. However, Alcan and Pechiney completed a test program in 1978 and have started a feasibility study on a pilot plant to extract alumina from sources such as clay. The Canada Centre for Mineral and Energy Technology has examined potential domestic raw material sources and has identified promising candidates such as coal mining wastes, anorthosite and ash from coal fired power plants.

Rising energy costs will greatly enhance the competitive advantage of aluminium producers such as Australia and Canada where abundant sources of coal or hydroelectric power are available.

Lead

Canadian mine production of lead in 1979 was 316,000 tonnes. Domestic consumption is about 110,000 tonnes a year (partly from secondary sources) and exports amount to about 300,000 tonnes a year, of which half is in the form of ores and concentrates. Ores and concentrates go mostly to Japan and the main markets for refined lead are the U.S.A. and the U.K.

Employment at mines, smelters and refineries producing lead is approximately 11,000.

Zinc

25 to 30% of all zinc consumed in the western world comes from Canadian mines,

which in turn makes Canada 90% reliant on foreign markets. Refining capacity is currently sufficient to process 50% of domestic mine production. Total employment in the zinc industry is roughly 8,000 at mines and 2,000 at refineries.

There were 29 mine-mill operations in Canada in 1979 producing lead and zinc concentrates; 4 smelters are currently in operation and Cyprus-Anvil Corporation is conducting a feasibility study for a new smelter at its properties in the Yukon. In addition, 11 mining properties are under consideration.

In 1979 Canadian mine production was 1,148,000 tonnes and metal production was around 495,000 tonnes. Record levels of zinc metal can be anticipated over the next few years as domestic processing increases. This expected increase in processing is made possible by events in consuming countries like Japan where an increase of 50% in the cost of electric power is expected and where power accounts for 70% of the cost of zinc refining (4,500 Kwh per tonne of metal). In the U.S.A. domestic zinc processing capacity has been reduced by 50% and imports of zinc metal have increased by 80% over the last few years.

Canadian Mineral Interests in Australia

A number of large Canadian corporations have fairly substantial interests in Australia. Amongst the most important are Alcan, Cominco, Noranda and Placer Development.

Alcan of Australia Limited, 70% owned by Alcan Aluminium operates a smelter at Kurri Kurri where capacity will be increased to 130,000 tonnes a year. Alcan also owns 21.4% of Queensland Alumina through Alcan Queensland Pty. Ltd.

Cominco's presence in Australia is represented by Aberfoyle Limited which is involved in tin mining and diamond exploration.

Noranda Australia is currently conducting studies on its Koongarra uranium deposit in the Northern Territory.

Recent Trends

Both the mining and mineral processing industries in Canada enjoyed one of the best years of the decade in terms of operating revenues and net profits in 1979, even though volume of output dropped for a number of major metals. Total value of production reached an all-time high of $27 billion. The most startling changes of the year occurred in the gold industry where long abandoned mines were reopened and existing mines were expanded. The price trend was welcomed as Canada is the western world's second largest gold producer.

Mineral exports, which represented 30.9% of total domestic exports in 1970 represented only 28.7% in 1979, even though many metals experienced a price boom. Crude mineral exports as a percentage of total mineral exports increased from 54.6% in 1970 to 61.8% in 1979, indicating a smaller share of exports in fabricated forms where value and benefits to Canadians would be greater.

Relations with Australia

Canada and Australia, both former British colonies, have a great deal in common. One of the important common features of our countries is that both are the major exporters of minerals to world markets. The competitive nature of this important economic activity is well illustrated by the fact that both countries have established mineral specialist positions at their respective diplomatic missions in Canberra and Ottawa. However, the competition, although fierce, is very frank and friendly. In multilateral fora such as UNCTAD, the International Energy Agency and the OECD, our respective delegates have adopted fairly similar positions on various issues such as commodity agreements, energy and mineral policies. This situation results from the fact that both nations are developed exporters amongst participants which for the most part are either developing countries, exporters of raw materials or industrialised importing countries.

Brief Outlook

Forecasters expect skyrocketing capital expenditures in the Canadian mining industry. Warnings of economic recession seem to do little to dampen the plans of the industry, particularly in the energy fields — coal, uranium and oil sands. Mining companies have recently indicated intentions to spend some $18 billion through 1985. Investment intentions and recent financial reports surely reflect the health and the confidence of the industry as it seems to recover well from the stagnation of the previous few years. A recent survey indicated that profits of base metal companies rose by 160% in 1979. The decline in the value of the Canadian dollar was surely an important factor in the recovery of this heavily export oriented sector, as well as more encouraging taxation policies by governments and improving markets in general.

The impact of the Law of the Sea Conference

A recent development which could have serious long-term adverse implications for Canada and other exporters of nickel, manganese and cobalt (as well as copper) relates to the likelihood of subsidized competition in the early 90's from "mining" of manganese nodules on the deep ocean seabed beyond the limits of national jurisdiction. The advent of new technology, coupled with the near completion of a draft UN treaty regime applicable to the deep ocean seabed, could provide the basis of competition from a new source for the markets of existing and potential land-based producers of these minerals. The major concern of Canada and various other "land-based producers" arises out of the determination of the major consuming countries (who together account for 80 to 90 percent of the consumption of the four main minerals found in manganese nodules) to become the major miners of the seabed, and thus their own suppliers of these minerals. A serious dispute has arisen in the Law of the Sea Conference over the demand of the major consumer countries for the inclusion in the proposed treaty of a nickel production "floor", which would constitute a guaranteed treaty right for seabed miners to produce up to a stated level of nickel tonnage during specified periods, irrespective of market conditions. If, through this device, the major consumer/seabed miner states are able to become their own major suppliers in a relatively short time span, there could be a dislocation of international markets, and an adverse effect upon existing and future land-based producers of these minerals.

It was hoped that a compromise could be negotiated in the last session of the Law of the Sea Conference (held in Geneva during the month of August) on the basis of a lower and thus more realistic guaranteed "floor" (as proposed by certain land-based producers, including Canada), which would have provided a less arbitrary basis for competition between land-based mineral producers and seabed mining countries, (i.e. one which would respond more closely to market conditions). As a consequence of the inability to reach agreement on a generally acceptable "floor", it was proposed by a group of land-based producers and accepted by the Conference in its closing session at Geneva, that the United Nations Secretariat produce a study of the effects of the nickel production formula (now included in the Draft Convention) upon land-based producers, particularly during low market growth periods. The study is to be completed prior to the opening of the 10th and final session of the Conference to be held in New York March 9 to April 17. It is hoped that the final outcome on this issue will be based on the results of that study. In light however, of the rejection by the major consumer countries — who are also the future seabed miners — of proposals by Australia and Canada and other land-based producers for an anti-subsidization clause and an effective unfair practices provision, there is reason for real concern about the effects of sea-bed mining upon land-based producer countries. Indeed, if the efforts of the land-based producers to achieve an equitable accommodation on these several issues are unsuccessful, the consequences could be extremely serious for those countries which export nickel, cobalt and manganese, with some adverse consequences also for those exporting copper.

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Following service in the Royal Canadian Air Force, Mr Tremblay graduated from McGill University, Montreal with a Bachelor of Applied Science Degree (Mining Engineering) and later studied Economics at the University of Ottawa whilst working as a mineral economist with the Department of Energy, Mines and Resources.

Prior to taking up his position in Canberra, Mr Tremblay was in charge of the commercial policy aspects relating to mineral commodities in the Department of External Affairs, Ottawa.