Cold Lake

There's a deposit of thick oil in Alberta, holding 160 billion barrels. The trouble is, until recently it has been too gummy to get out of the ground.

by Steve Lynett

Provincial highway 28 leaves Edmonton in a gentle northeasterward arc that leads to the shores of Cold Lake, 180 miles away. To a casual eye, the surrounding region is typical of Alberta's rural northland—a gently undulating blanket of birch, poplar and spruce punctuated by numerous lakes. But 1,600 feet below ground surface lies one of the largest oil deposits in Canada, and oilmen would like to recover the billions of barrels stored in the Cold Lake deposit.

But Cold Lake crude, a naturally-occurring hydrocarbon, is simply too thick to be recovered by conventional methods. Dumped on the ground, a barrel of it would hardly flow at all. In a test with a conventional oil well, little more than one barrel of the gummy liquid would come to the surface.

And so, in the last 10 years, Imperial Oil has spent about $17 million testing the Cold Lake deposit to find an economical method to bring out the oil. Researchers have found that steam, injected into the oil zone, will thin out some of the crude so that it can be pumped to the surface. Over the last two years a pilot project of 23 wells has been producing as much as 1,500 barrels of crude oil every day. In August, 1973, Imperial announced plans for an enlarged pilot test that would nearly triple the present output—a step to obtain more data and lead the company closer to establishing a large-scale, commercial plant which would probably be capable of producing about 100,000 barrels per day.

The Cold Lake reservoir, like the famous Athabasca tar sands 160 miles to the north of it, is one of several oil-rich sand deposits in northeastern Alberta. The Energy Resources Conservation Board of Alberta estimates the oil in place for all the heavy oil sands to be approximately 900 billion barrels. On its own, Cold Lake is thought to contain some 160 billion barrels of that total but not all of it will be recoverable. Imperial engineers hope that currently-developing technology will bring out at least 30 billion barrels. Only a fraction? Perhaps, but an impressive amount when compared to Canada's 10-billion-barrel reserve of recoverable conventional crude oil.

With the currently-producing tar sands of Alberta, Cold Lake will help meet Canada's future crude oil needs. But recovery of the highly-viscous Cold Lake oil depends on a number of factors, both economic and technical. For one thing, the heavy oil is more difficult to recover, and the costs are higher. This means that until crude oil prices rise they will not be sufficient to cover the higher production costs. In the past the price of crude oil has been too low to permit a costly development like Cold Lake.

During the 1960s the world's capacity
to produce crude oil was greater than its need. As a result, there was strong competition among oil companies looking for markets and this kept the price down. But by the start of this decade the situation had altered. Higher standards of living caused oil demand to rise rapidly because oil was the cheapest source of energy. At the same time, the growth in other energy sources was curtailed by various restrictions. Coal became subject to stringent sulfur emission standards, hydro was limited to sites that could be developed economically, and nuclear power development was slowed down by a combination of adverse public reaction and plant construction problems. Expanding industry, population increases and environmental pressures combined to increase the demand for oil and, as a result, world prices have begun to rise. Now, with higher prices, developments like Cold Lake are more likely to be undertaken.

"Cold Lake is not a bonanza but rather an additional source of crude," says John Nichols, Imperial's area superintendent of Cold Lake operations. "It can't compete with conventional crude and can only be produced at higher crude prices." But, if increases in the price of crude and sufficient markets can be assumed, the technology to produce Cold Lake remains the only major hurdle.

When it first became evident that Cold Lake was an important source of oil, the region attracted the interest of a number of oil companies who saw its potential for large future oil production. By 1964, five companies had begun to set up experimental projects to bring out the oil. By the end of 1972, at least 10 companies had made an effort to develop an economical operation. But in 1973, Imperial was the only company still carrying out a field pilot program to discover the secrets of producing the heavy oil at Cold Lake.

In the early years of the test development, Imperial went into Cold Lake with equipment and crews to investigate the lease lands that had been acquired. First efforts were directed at finding the oil zone and outlining its size. A number of exploration wells were drilled and in each case the core sample brought up
rich oil sand.

"As a result of the drilling, we knew we had a lot of oil down there," recalls John Nicholls, "but we weren’t sure just how we could recover it successfully."

Various methods have been tried to thin out the heavy oil at Cold Lake. Among the possible methods are steam injection, controlled underground fires and the use of thinners such as diesel oil. For Imperial, steam injection appears to hold the most promise. Alvin Winestock, a senior engineering specialist on the Cold Lake project, explains: 'Steam seems to be the best method of recover from the standpoint of both efficiency and economics. We’ve decided to stick with it and we feel that it’s the right move.'

The steam, at 600 degrees Fahrenheit, is driven into the oil zone for about a month at a pressure of 1,600 pounds per square inch. There it heats the oil – which reduces its viscosity – and provides additional pressure to drive the liquid to the well bore. Then a mixture of oil, water and gas is pumped out of the wells for about three months or until the amount of oil recovered is too small to continue. Then the cycle is repeated. This operation of pumping steam in and pumping oil out has been nicknamed 'huff and puff'.

During the first four years of field experiments at Cold Lake, a small number of wells were drilled and a portable generator produced the steam. In 1967, the pilot project was expanded. At this pilot, christened Ethel after nearby Ethel Lake, a four-generator steam plant was erected to power the wells, as well as those of the old wells that were still producing. Each of the generators, about the size of a railway boxcar, is capable of producing 43 million British thermal units of heat per hour; the four of them produce enough steam to heat all the houses in a city the size of Red Deer, Alta. Facilities were erected for separation of the oil and water and a loading rack was built so that the oil recovered from the pilot could be trucked away. All the additional structures, including a prefabricated office unit, are located on the crest of a hill overlooking the valley where the injection wells now are steaming and producing.

This pilot provided enough data for engineers to evaluate some of the effects of steam injection. 'What followed,' ex-

Nodding 'horsehead' pump lifts the oil to the surface after steam has been injected for a period sufficient to thin the heavy oil in the reservoir.

Steam for the Cold Lake project comes from these four generators. A new pilot plant with a capacity of 4,000 barrels per day is being built.

plains Winestock, 'was the nearby May pilot with 23 wells about 500 feet apart – about five acres per well. To build the May we took the first pilot results and our best ideas and combined them.'

Equipment began drilling the May pilot, named for May Lake, in the fall of 1971 on a 100-acre site from which only enough brush was cleared to provide working space around each of the wells. 'Most of the wells were started on steam injection during the coldest part of the winter,' says Winestock, 'and that was really tough work.' This pilot is still operating and is being run by 14 people, most of them residents of the town of Grand Centre, located on Highway 28 about 10 miles southeast of the test site.

In the fall of 1973, construction crews from the Cold Lake area had completed clearing for the new $12 million, 36-well test on a tract of land approximately four miles from the May site. On this site, named Lening, for the lake nearby, a new set of facilities will be installed including larger steam-producing and oil-water separation facilities as well as a more efficient truck-loading unit. When it comes into full production, the new pilot will be producing as much as 4,000 barrels of heavy oil per day. Its output will be used for asphalt and transformer oil production at Imperial’s new Strathcona refinery at Edmonton. The Lening pilot is expected to show what the Cold Lake wells can produce on a sustained basis. Both the May and Lening pilots, John Nicholls said, 'will permit a realistic judgment of the risks involved in making a future very large investment. This step-by-step development will give us a better understanding of the problems and the results we can expect.'

'We are confident that through continued improvements in producing technology and rising crude oil prices, Cold Lake will become a significant supply source in the future,' says Bob Peterson, operations manager, Cold Lake. But what’s it like to be part of a project that holds such importance? Says Alvin Winestock: 'It’s a great project for technical people because of the room for innovation. There can be a lot of problems and frustrations, but there is also great satisfaction from coming up with the right answer.'
Will success spoil the snow goose?

Conservation practices have brought this species back from the brink of extinction. Now, the problem is how to manage the surplus.

The world's population of greater snow geese is easy to keep track of. Every May and every October, most of it arrives in loud, ragged 'V's at the Cap Tourmente National Wildlife Area, 30 miles east of Quebec City. This year, biologists estimate 150,000 birds will make the twice-yearly visit to the 5,000-acre sanctuary.

But in 1906, when the count was taken, there were only 3,000. The big white birds with the black-tipped wings seemed ready to follow the passenger pigeon into extinction. The birds have made a comeback, and they owe their survival to hunters. Sportsmen had been coming to Cap Tourmente for years before 1906 to harvest the birds. The dwindling flocks saddened them, but no one else seemed to be interested. So, in 1906, they took on the job of saving the species themselves. Seven private hunting clubs leased the land that made up the birds' staging area at Cap Tourmente. They worked to preserve the habitat.

In 1969, there were 65,000 birds in the flock. In that year, the U.S. government joined the hunters in their fight to preserve the geese. Hunting the birds was banned in their winter range along the Carolina marshes and the population of greater snow geese grew more quickly. Because of these efforts, the greater snow goose population grew to about 10,000 birds by 1931.

They put strict controls on their own hunting.

By Douglas Scott, photos by Barry Ranford.
eminent took Cap Tourmente over from the hunting clubs and made it a national wildlife area. In announcing this move, The Honourable Jean Chrétien paid public tribute to the hunters for the part they had played in saving the snow goose.

With the establishment of the national wildlife area, the government began a long-range plan for the species. Biologists began probing the ecology of the Cap Tourmente forest, coastal plains and marshes. Other scientists worked to determine an adequate breeding population for the birds.

The first government studies were completed in 1972. They showed the greater snow goose was in no danger of early extinction. In fact, by May of 1972 their population had almost doubled: there were now an estimated 122,000 birds. Where the problem had once been too few birds for the species to survive, now there was real danger of there being too many.

One of the main reasons the birds have always come to Cap Tourmente is a grass-like water sedge that is plentiful in the marshes there. The geese feed off its lower stem and roots. But by 1972 there was an alarming decrease in the quantity of the plant. It was hard to understand. Because of the hunting ban, more and more birds were taking refuge in the wildlife area, and the sedge crop simply wasn’t big enough to feed them all. A growing number of the birds had to go elsewhere for food, and this created another problem: the greater snow geese were beginning to compete for forage with the wildlife that normally inhabit the salt-water cord-grass marshes of the lower St. Lawrence. A once-threatened species was now a threat to the habitat of other species.

The government made a decision. Hunters had worked to solve the snow goose population problem in 1908; hunters could help to solve the snow goose population problem in 1972. The annual hunt at Cap Tourmente was reintroduced. Drawing on the hunting clubs’ 60 years of experience in the area, the National Wildlife Service set up a controlled hunt that’s unique in North America.

Advertisements inviting applications to reach the blinds on the soggy marshes, the hunters ride out on a mud sleigh driven by a guide (above), who also sets out the decoys (below). The buildings in the background — once a seminary — now provide offices for the wildlife service.
The National Wildlife Service estimates that each hunter spends a total of $122.25, which includes things like transportation, lodging and food.

What does he get for his money? In 1972, the average hunter brought down 1.3 geese and 0.9 ducks. The wildlife service figured each recovered goose cost $193.62. Yet the shooters are happy. Following the 1972 hunt, 92 per cent of hunters responding to a questionnaire said they’d found the hunt satisfactory, despite the low take.

The low kill in 1972 is explained by Marcel Laperle, the man who runs Cap Tourmente for the federal government. It was a very poor breeding year. That meant there were very few juvenile birds to be taken, and juveniles normally make up the majority of the kill. We had to shorten the hunt, too, because the weather turned bad and, with ice forming on the St. Lawrence, the geese left early.”

The early closing of the 1972 hunt meant that only 448 of the 600 hunters entitled to shoot actually took part in the hunt. Only 526 greater snow geese were harvested.

The 1973 hunt has been more successful. In the first four weeks alone, 2,700 greater snow geese were taken. But, as Laperle points out, that won’t have much effect on the problem of overpopulation. “Hunting in Canada alone won’t reverse the population trends, or even slow the growth much. But we think we’ve succeeded in our immediate objective. Because of the hunt, the birds are no longer concentrating in the wildlife area in such overwhelming numbers, so there’s far less danger of their exhausting the habitat here.”

“The stem counts” of the waterfowl in 1973 bear out this optimistic view. The sedge is growing again, and that’s crucial to preserving the Cap Tourmente environment.

“We’ll maintain the hunting pressure here to preserve the marshes,” Laperle explains, “but we don’t pretend it’s any solution to the long-run question of over-population.”

As their numbers grow, the birds are expanding their range, not only in Canada, but along the marshes of the eastern United States where they winter. That kind of expansion worries ecologists like Marcel Laperle.

“Whenever a species moves into an area it has not traditionally used, there’s a danger of an imbalance being created. It may compete there with other species—endangering their survival—or the different environment may cause it to change its habits in a way that can do harm in the long run.”

One solution to the greater snow goose population explosion might be for the United States to lift its 42-year-old ban on hunting, at least within government-supervised sanctuaries where controlled hunts can be organized. But the Canadian hunt is helping to preserve the delicate balance of the Cap Tourmente marshes. And of course, Cap Tourmente is more than a hunting ground. Even during the hunting period, all shooting is suspended from noon Saturday until noon Monday, so that the thousands of tourists who visit the sanctuary can view the huge flocks of geese without disturbance. In 1972, the federal government opened a new wildlife centre at Cap Tourmente, to instruct the non-hunting visitors to the wildlife area on the delicate relationship between the big birds and their historical staging grounds.”
A lot of things are changing down at the shop. Did you know it's almost impossible to be late for work any more?

by Jean Martin/drawings by Dino Kotopoulos

To anyone who ever slept through the alarm clock, missed the morning bus, was ticked off for being late to work, or who yearned to knock off and see a movie in mid-afternoon, a certain 110 Imperial Oil employees seem to be living in the working stiff's paradise.

Some of them begin their jobs in the systems and computer services division of the Toronto head office at 7:30 a.m. and quit at 3:30 p.m. Others choose to start at 10 a.m. and work until six. Still others, on particularly trying days, just work from 10 a.m. to 3:30 p.m. and make up the missing hours later in the week.

They're all on flexible hours—a new kind of working day, as malleable as fun-dough, devised for people who hate regimentation in their jobs. In similar situations all over the western world, individuals are demanding and getting a personal say in how, when and where they work. It is part of a vast but quiet revolution: the liberation of the working person, be he or she a stenographer, executive, technician or laborer. And its effects on society will be as far-reaching as was the advent of trade unionism.

What's happening to the working day is part of a fundamental change in attitudes toward work and life.

"The work ethic is not dead," John A. Paré, a Montreal consultant on business organization, told a September annual meeting of the Canadian Chamber of Commerce. "It just isn't very well taken care of."

"The man whose father felt lucky to have a job in the 1930s now feels that his own job should be challenging as well as economically rewarding," points out Imperial President J.A. Armstrong.
‘And his son demands this.’

It doesn’t necessarily mean that people today prefer idleness or leisure to daily occupation, Armstrong adds. No matter how much we grumble about it, most of us like to work. Otherwise, why do some ‘moonlight’ on a second job? And why have so many married women with families entered the work force, when taxation and the high cost of child care and transportation, have removed much of the economic incentive for returning to work? ‘It’s just that they expect more from their jobs than they used to,’ Armstrong says. ‘And they feel more free to demand it from the companies that employ them.’

Armstrong calls it a ‘crisis of identity’—the frustration, bewilderment and sheer anger that individuals feel when society seems to ignore their needs and smooth their individuality. When a person is dwarfed by huge institutions, sees his hard-earned formal education becoming obsolete, and watches his future being shaped by strangers, he feels impotent and resentful.

That’s why a sharply questioning, critical attitude is showing up among employees and potential employees, beginning with the first job interviews. New employees used to be almost passive, says Bert Dickie of Imperial’s employee relations department. ‘Now they want to know about their long-range prospects—and not just salary but the avenues to advancement.’

John English of The Hudson’s Bay Company, and Gary Webb, personnel manager for North American Life Assurance Company, find the same hard-nosed stance, not only during recruitment but through the employees’ careers. Once, in most companies, if a man were offered a move he took it. Turning it down might not have got him fired but usually meant that chances of future promotion were almost nil. Not any more.

‘People turn down promotions all the time, and for non-economic reasons,’ says English of The Bay. ‘Maybe the kids are happy in the present school, or the wife is holding a job she loves. So, if a man is promotable and turns down a move to one city, we’re likely to offer him an alternative, or we’ll try to bring him ahead where he is.’

Imperial finds similar situations where, for instance, employees show an increasing reluctance to move to Toron-
to. They're cool toward its higher cost of living and its urban clutter, even though chances for rapid advancement might be better in head office, and they are not faulted for preferring smaller companies.

Coupled with this new insistence on personal values is a greater willingness to change employers. A quarter century ago employees might spend their entire working lives with the same firm, perhaps partly through insecurity and partly through loyalty. Today's company man is, above all, loyal to himself and his career. A systems analyst or engineer regards himself primarily as a member of that profession rather than as an employee of Imperial or The Bay.

Ten years ago employees rarely moved between, say, Eaton's and The Bay, says John English. 'Today they move in pretty significant numbers.'

Yet a stable productive employee is as essential to business as always. The trick, then, is to keep him or her happy and hence the new freedoms.

The most obvious and dramatic change is in the working day. Flexible hours isn't a new concept at Imperial. The company was one of the first in Canada to guarantee all employees two full days off every week (causing company officials to suggest that the corporate symbol, ESSO, stood for 'every Saturday and Sunday off'). For years, drilling and geological crews have worked long hours and consecutive days in the field, storing up time to be used as consecu- tive days of holiday on their regular trips home. In 1986, a number of company truck drivers arranged to work their 40 hours per week in the form of four days of 10 hours each.

Then in 1969, 59 employees of the company's Winnipeg refinery suggested that their five-day 40-hour week be transformed into a three-day-week based on 12-hour shifts. Imperial agreed. Its rule of thumb: try any such idea if a majority of employees support it and if it will result in no lost productivity or increased costs.

In Winnipeg the average number of hours per week worked dropped from 40 to 38.8 with a corresponding reduction in pay. But in other Imperial plants, variations on the pattern have increased the weekly work hours from 40 to 42.

'The important thing,' says company President Armstrong, 'is that the thrust of employee interest has centered not so much on working fewer hours as on having more control over the pattern of the work week itself.'

The latest, most intriguing experi-ment is flexible hours. Different compa- nies have applied the federal government's voluntary flexible hours system starts by defining the total number of hours of operation for the day, known as the 'band width'. For Imperial's head office systems and computer services employees, who went on flexible hours in December 1972, the band width is 7:30 a.m. to 6 p.m.

Next, the 'core hours' - hours during which activity when all employees must be at work - are defined. In the Imperial ex- periment, these are 10 a.m. to 3:30 p.m. Everyone in systems and comput- ers must be on hand during those hours, but they may make up the rest of their eight hours per day (less lunch time) by working the requisite number of hours within the band width on that day or on subsequent days. They must average the required number of hours per day over each pay period (every two weeks).

Within those limits, they work at their own discretion. Already widely used in Europe, flex- ible hours is being adopted by more and more Canadian firms. Gordon Harrison, a management consultant with Riddell, Stead and Associates Ltd., of Montreal has helped several companies set it up.

'People put in the same number of hours on flexible time,' he explains, 'and because they have a chance to ex- press their preferences, they probably do even more work during those hours.'

In practice, about 75 per cent of such employees tend to set regular hours for themselves, most of the time. Harrison tells of one 30-year service man who continued to work nine to five, even though flexible hours offered him an op- tion. Well, would he like his firm to go back to the old system, asked Harrison? 'I would not,' he snapped. 'I work nine to five because I like it - but I don't have to any more. Don't you understand how important that is?'

Even where the nature of company operations limits the options, em- ployees still like flexible hours. At the Taylor Instrument Companies of Cana- da Limited, in Toronto, the 'core is' 9 a.m. to 4 p.m., while the 'band is' 8 a.m. to 6:15 p.m. in the office, 7:30 to 4:45 in the factory.

'But even if it only means that an em- ployee stuck in traffic will still not be late for work, it has removed one area of pos- sible friction,' says personnel manager Ross Ellis. 'And that helps improve mor- ale.'

Flexible time is being tested in several departments of the federal government, and has become permanent for several hundred Ottawa employees of external affairs. Their core is 9:30 to 3:30 and the band is 7 a.m. to 6 p.m. According to W. E. Bauer, director of staff relations, morale is higher, efficiency is greater and parking lots, elevators and cafet- erias are less crowded. Employees keep track of their own hours on standardized forms, or by means of individual clock-like devices called time accumulators. And the times are verified by supervi- sors on a spot-check basis. Generally, say the supervisors, employees tend to work more rather than fewer of the necessary 37½ hours per week.

North American Life Assurance Com- pany devised a different pattern. It of- fers staggered hours, so that any em- ployee may choose to start an hour ear- lier or an hour later, and work a standard eight hours, less lunch time. But through additional options, NA staff may work an extra 45 minutes per day and take every fifth half-day off, or every tenth full day off.

'About 40 per cent of the work force has exercised the options,' reports Gary Webb. 'They all seem to appreciate the opportunity for choice. And there are surprisingly few problems, such as ev- eryone wanting Friday afternoon off. They seem to get together to decide who'll do what, making sure the public will still function. By helping shape something that has always been a man- agement decision, they accept part of management's responsibility.'

At The Bay, flexibility extends even to the thousands of part-time workers who staff the retail stores during peak periods. 'We used to hire and train a part-time saleswoman, then call and tell her when to come to work,' says John English. 'Now we ask if she'd like to come in on a certain day. If she doesn't, we try to arrange it for another day. It's tougher for us to organize, but we're getting used to it.'

Revolutionary as this new working day is, it's none too soon. So, companies are matching their explorations in time- bending with efforts to improve internal communications, in an attempt to make the individual feel less of a cipher. At North American Life, some 700 employees were divided into 70 groups, and each individual was inter- viewed personally by a member of man- agement (but never that individual's su- perc. Some of the talks can run four days. Out of this came the new work week op- tions, an improved grievance proce- dure, and a number of employee com- mittees devoted to making other specific recommendations for change.

'The committee members took their responsibilities seriously and didn't ask for impossible things,' says Gary Webb. 'They behaved like management, look- ing at the needs of the company as well as the desires of the employees.'

In 1972, Imperial likewise paid new heed to the employer/employee dia- logue, setting up a revised procedure for employee appraisal. It includes a dis- cussion that gets right to actual job per- formance, enabling an employee to know exactly how and why he is being evaluated. Each appraisal is reviewed, in most cases, by a formal committee, to make sure that fair, uniform standards are being applied. If a problem shows up, management is expected to find a remedy. Unless each appraisal includes

A firm plan to help each employee better his performance, the company consid- ers the procedure incomplete. The most significant point emerging from these changes is that companies are willing to change, and to discuss openly with employees subjects that were once regarded either as sac- rosanct, or as flouting traditional union policies.

'A better educated and more affluent work force is chafing under the unre- sponsive nature of the institutions they are part of: employer and union,' says Imperial President Armstrong. That means the time has come for those insti- tutions to change. Let's concentrate not only on the merits or disadvantages of a three-day or four-day week or of flexible time. Let's concentrate on becoming more flexible to the trends in society that affect how people want to work.'
The Cars of the 50s

They’re not old enough to be antiques, but they’re too classy for the used-car lot

by Robert Collins/photos by Barry Dunsley

It was a good year for being in and out of love. It was 1953, and on the new gadget called television, Doris Day was crooning the Academy-Award-winning song “Secret Love”, while Hank Williams was givin’ about “Your Cheatin’ Heart”. The handsome Senator John F. Kennedy was marryin’ the gorgeous Jacqueline Bouvier. The Liberals were wooing and winning the Canadian electorate for the fifth consecutive general election. Brunettes everywhere were hating Marilyn Monroe for making a movie called “Gentlemen Prefer Blondes”.

Out on the curbs of our nation, flocks of young guys, perched in rows like sparrows, were fondly caressin’ their ducktail haircuts and watching the girls and the cars go by, with equal affection. The dowdy wartime years were long past: automobiles were stylish again. And this was the year a
Toronto teenager named Mario Bartoletti fell in love with the Buick Skylark convertible.

Such a car! It was Buick’s custom-built golden anniversary special, equipped like no previous Buick in history. Its body flowed in an elegant sinuous line from chrome-encrusted grill to double-bubble taillights. Its standard equipment included automatic transmission, power brakes, power steering, power windows, power seat, power aerial and a foot-controlled signal-seeking radio. You could have your name engraved on a golden emblem plate on the hub of the steering wheel.

Ogling the magazine advertisements, Mario could almost see Bartoletti on one of those name plates. But, although his father was a Buick fancier, this one at $7,000 was a bit much for most wallets. Mario never really expected to own one, or that the ’53 Skylark would become a bona fide antique.

A 1953 antique? But surely antique cars are ancient with spindly fenders rising above the wheels like arched eyebrows, and great brass-trimmed goggle-eyed head lamps, and horns that croak AHROOAH! That’s how it used to be.

Trouble is, the country is running out of old widows with mint-condition McLaughlin’s or 1912 Model T’s locked away in their garages. Where such cars exist, their prices run into tens of thousands. So, 10 years ago, the Antique and Classic Car Club of Canada invented a new category: the Postwar Thoroughbred. It was instant nostalgia for all the middle-aged men of today. Suddenly their boyhood cars, or some of them, were collectors’ items.

Other clubs around the world eagerly embraced the idea. Not any old Ford or Chevy will qualify, but special cars of the period as designated by the clubs are now coming out of junkyards and dusty garages, to be pampered, polished and treated as objects d’art. Such a car is Mario Bartoletti’s Skylark convertible.

In 1959 after a stint in the Navy, Bartoletti was married, father of a baby girl, studying psychology at the University of Connecticut and driving an undistinguished ’52 Buick coupe. One day, passing a used-car lot, he saw it, bedraggled but unmistakable: a Skylark convertible! Six hundred dollars, the dealer said. They settled for $300 and the trade-in.

“I don’t think he knew what he had.” Bartoletti says now, speaking in capital letters as though referring to the Holy Grail. “He didn’t realize he had a Golden Anniversary Skylark.

The used-car dealer was not alone in his ignorance. Many worthwhile cars were ending up as scrap metal.

“I’ve never forgotten a picture I saw of a beautiful old DuPont phaeton, sitting in a wrecking yard,” says Peter Wealth, a dapper young lawyer, editor of the ACCC’s magazine, The Reflector, and a moving spirit behind the new classification. “Truly beautiful cars are fine art, regardless of year. They don’t have a cut-off point.”

Nevertheless, most of today’s antique car clubs, founded in the 1950s, set 1942 as the cut-off year for an ‘antique’, and were reluctant to change. Yet newer members were more interested in cars they’d coveted as teenagers, rather than vintage specimens they couldn’t find or afford.

So in 1964, after much soul-searching, the ACCC established the thoroughbred class for cars 12 years old or older (but nothing prior to 1942), of ‘exceptional merit’ and restored to near-mint condition.

“High price, quality of construction, custom body, rarity of
body style, and a low production run are some of the features we look for," says Weatherhead. "But we also consider function, meaning that if the car was not particularly high priced, but was perfectly suited for the job it had to do, it would have a chance of joining this group."

The 1953 7,700 custom-built Skylark, with a production run of only 1,990, certainly qualified on all counts. But Mario Bartolotti regarded it as a friend more than a collector's item.

"After a couple of years my wife and I knew we were nuts about it and would never sell it. So we never allowed it to become run down. It was our only car for several years, and was like a member of the family. The kids even gave it a nickname: 'Little Peep'. Because it's a Skylark, you see."

Other clubs quickly adopted the new classification. Lord Montague of Beaulieu picked it up for England, where he is proprietor of a national auto museum and a guiding force behind the country's old-car movement. In the United States, the Milestone Car Society is a nationwide club entirely devoted to postwar thoroughbreds, thanks to Canada's lead. But in the founding ACCC, older members greeted the postwar class with a sneer. Some were 'afraid of turning the club into a used-car lot.' Others complained that the postwar models didn't look old enough.

"Certainly many of them are so well styled they don't look very different from today's car," admits Weatherhead. "They're not as vastly different as the styles of the 1920s or '30s, but they can be faulted for that. If anything, it's a tribute to their designers."

Gingerly, the ACCC singled out a few special models from the membership: a 1954 Corvette roadster, for instance; a 1949 Chrysler Town and Country convertible; a 1950 Jaguar XK120; a 1953 Kaiser Dragoon. In all cases the owner must persuade the selection committee that his car is worthy of the official nod. Even today only about 15 postwar models have qualified.

"But I hope more owners will come forward, now that the idea is catching on," says Weatherhead, who has a custom built 1954 Riviera in his garage, waiting to be refurbished. "This category is something like early Christianity: when it's accepted, more of us will come out of hiding!"

But Little Peep never had to worry about being thrown to the lions. It was always the Bartolotti's family pet. Newer cars came and went but Little Peep stayed on, going out every summer for maybe 600-700 miles of family driving. As its odometer went over 100,000 miles the three Bartolotti daughters merely loved it all the more. One night they sat down around the piano and wrote a song:

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<th>One time back in '59</th>
</tr>
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<tbody>
<tr>
<td>While in a used-car lot</td>
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<tr>
<td>Daddy stopped and looked at her</td>
</tr>
<tr>
<td>And bought her on the spot.</td>
</tr>
<tr>
<td>He took her home and shined her up</td>
</tr>
<tr>
<td>As pretty as can be.</td>
</tr>
<tr>
<td>And even though she was so old</td>
</tr>
<tr>
<td>Little Peep looked quite lovely.</td>
</tr>
<tr>
<td>(Chorus)</td>
</tr>
<tr>
<td>Beep beep goes Little Peep</td>
</tr>
<tr>
<td>As merrily we drive along.</td>
</tr>
<tr>
<td>Beep beep goes Little Peep</td>
</tr>
<tr>
<td>Singing a happy Skylark song.</td>
</tr>
</tbody>
</table>

Sentiment is one thing but Mario Bartolotti is also a practical man. For years he prudently gathered spare parts from junkyards and flea markets. Keeping a postwar thoroughbred isn't easy. Whereas some collectors specialize in complete replacement parts for, say, 1920s Fords, there is no such service for postwar models. And while you could simply bolt a new fender on to an early car, it's not that simple with the moulded auto bodies of the 1930s.

"I respect immensely anyone who gets into this category," says Weatherhead. "It's difficult and expensive. It takes real dedication."

Club member Peter Simms, a Jaguar addict who works for Proctor & Gamble in Alberta, is the classic example of dedication. In December 1964, while living in Toronto, he got a hot tip: a beat-up 1950 Jaguar XK120 roadster was for sale. Simms found it in a crumbling garage, the bare bones of what had once been a magnificent car, perched drunkenly on four oil drums. I had already been told the car was 'stripped,' but 'gutted' would have been a truer description.

The windscreen, bumpers and upholstery were gone. The engine was dismantled and the car had been ravaged by fire. Simms bought it, and a bonanza of spare parts, for $75. He hauled the wreck home and went to work.

By the spring of 1967 the Jaguar was reassembled, sand-ed, partially painted and re-wired. Simms was determined to show his prize in the ACCC's autumn 'Concours d'Elegance'- the antique car show of the year. He worked all summer at the lacquering.

With the Concours a week away, every remaining job was allotted to a specific number of evening hours. Simms worked until four a.m. the first night, three a.m. the second night, then decided to take the rest of the week out of his annual vacation. He worked right through the last night, re-upholstering.

Red-eyed and weary on Concours morning, he discovered one mistake: the door on the driver's side wouldn't close. Simms refused to give up. Holding the door shut with one hand, he drove to Toronto's 401 on the Park and rode in the Concours - a postwar thoroughbred owner, fulfilled.


"Got it in Ohio," says owner Al Webster of Gormley, Ont., talking in bursts from the corner of his mouth, while he keeps on polishing. "Only 13,000 miles on it. Had one just like this in '59 when I was 25. So when I saw this I just bought it." He has since sold it to Reg Boate, of Toronto.

And, naturally, Little Peep is there. Mario Bartolotti, tall and affable with thinning hair, is Executive Director of the Markham Family Life Centre and Co-ordinator of York University's Family Life Program. But there he is with his head under the Skylark's hood, maneuvering the engine. His 13-year-old daughter, Anne, is helping. Little Peep's flanks are pure white; the red upholstery is perfect; the chrome trim blinds the eye.

The children are so fond of this car that my wife and I have made special provision for it in our wills," says Bartolotti. "If anything happens to the Skylark is willed to them, along with certain family heirlooms."

And Little Peep sits there twinkling in the sun, beloved and lovingly, a long long way from that 1958 junkyard.
ENERGY from the frontiers

The Canadian oil industry has been exploring off the coasts and in the Arctic since 1947. What have they found? What are the prospects? What risks do they still face?

The most unusual oil drilling site in Canada today is Inukmek B-48 in the northwestern Arctic. It's a little man-made island, a $5 million blip of frozen gravel in shallow Mackenzie Bay, 12 miles offshore from the delta of the Mackenzie River.

Why build an island? Because the prospects for gas or oil appear good just offshore from the Mackenzie Delta but shallow water and the unpredictable movement of pack ice rule out an offshore rig of the type used, say, off the Atlantic coast. So Inukmek is really a permanent drilling platform. Imperial dredged it out of the sea bed in 1972. Its came through the 1972-73 winter intact and its construction was completed by mid-1973. A rig began drilling from the island last September in the wind swept vastness on the brink of the Beaufort Sea: testimony to the particular ingenuity and expense that must go into Arctic exploration.

Companies have been exploring for oil and gas in the Canadian Arctic since the winter of 1947-48 when Imperial carried out a geological reconnaissance by dog sled. Industry began exploration off the Atlantic coast in 1960. At one time or another, more than a hundred companies have taken part in the search, either directly with their own equipment and crews, or indirectly through participation with operating companies. So far, they have spent more than $800 million in the Arctic and another $300 million off the east coast.

The reason for it all is energy.

Despite the accelerated research into the development of nuclear power, into economical and environmentally acceptable ways to use coal, into ways to harness the power of the sun — conventional oil and natural gas are the world’s major sources of energy, and likely will remain so for the predictable future. But oil and gas consumption is increasing rapidly, and concern over future shortages of these essential fuels has caused a worldwide acceleration of the search for new reserves.

Do undiscovered reserves of oil exist in the frontiers? All the evidence indicates they do. The amount of undiscovered oil in Canada has been estimated by the Geological Survey of Canada to be about 84 billion barrels — more than five times as much as has already been discovered in all Canada. About four billion barrels of this lies in the western provinces, in small pools widely scattered throughout the area and consequently difficult and expensive to find.

By far the largest potential — some 80 billion barrels — lies in the frontier areas, primarily the Arctic and Atlantic basins. And of this potential, about 80 per cent — 63 billion barrels — lies offshore, much of it in areas where the technology to drill for and develop the resources does not yet exist. Yet the need for energy is so pressing that the search for these potential reserves has been carried forward intensively for more than a decade, at costs
that have already surpassed a billion dollars. Canada's production of oil and gas will begin to decline within 10 years, and new supplies must be available if shortages are to be avoided. It is this urgency that infuses the frontier search.

The risks the oil and gas industry face are in keeping with the size of the reserves and the costs of finding and producing them. One of the risks is inherent in the nature of exploration; oil in the earth occurs in pools, widely scattered and of various sizes. Despite all the expertise of geological science, you don't know if there's any oil in any particular place. It will hurry to your knowledge of the region, but luck and perseverance will play large parts in oil exploration. The conditions of the hunt are such that a few companies can expect to be successful, and a few more will break even. Most will be unsuccessful. In the western Canada basin, for example, there are about 800 oil pools, but more than half of the basin's reserves lie in just 15 pools. It is the expectation of finding the big pools that attracts investors and pays the costs of the search.

Explorers face other risks that have nothing to do with the distance or the geology of the frontier basins, but are just as real - prices, markets and government share of the resource.

The price of oil and gas is a risk for everyone, the explorer in the sense that it places a lower limit on the size of the pool they must find to be successful. If the price rises, smaller, less prolific pools become more profitable. But if it falls, the explorer must consider the venture a failure, for it would cost him more to produce and deliver the oil than he could sell it for, and he would go bankrupt.

Another risk is marketability. It does an explorer no good to discover a large, prolific pool if he cannot sell the oil or gas. Transportation costs and the economies of scale require large markets if the costs per barrel are to be economic, and this means that export markets for oil and gas that is surplus to Canadian needs must be available. The natural export market for Canadian oil and gas is the United States; if this market can be relied upon, development in the frontiers can go ahead; if not, the frontier search will be delayed, for the revenue from Canadian sales alone would not cover the costs of frontier oil and gas.

The third uncertainty facing explorers is government share in discoveries. The oil industry contributes to the federal government mainly through income taxes and royalties on production. When a discovery is made the government also benefits from the portions of the lease that revert to public ownership for subsequent development or sale. The size of the total government share has a bearing on the size of the pool that can be developed economically, just as price and market do. If the share is too large, or if government intentions about its share are uncertain, explorers are inhibited and development of the necessary reserves becomes unsure.

Price, market availability, and government share are matters that can be determined by public policy. The risks from these sources can be increased or diminished by government decisions. Ironically, such actions cannot do much to hasten a discovery in the frontiers, but by creating uncertainty about prices, markets and government share, they can slow the pace of exploration. Despite these risks, the oil industry is deeply involved in the search for oil and gas in Canada's frontier areas. It can take 10 years or more to transform a discovery into production, and since you can't predict when a discovery will be made, you have to start searching long before the need for raw reserves is upon you.

What has the industry found? The Canadian Arctic provides two prospective producing areas: the Beaufort area (the mainland around the Mackenzie River Delta and the adjacent shallow waters of the Beaufort Sea) and the Arctic Islands (the islands of the high Arctic and the waters between them).

In the Beaufort area, the industry has drilled a total of 60 wells, of which four found oil and 11 found gas; all were dry. During the first round of the 1973-74 season, more wells will be drilled, including Imperial's on Immerk Island.

The success rate of Imperial and associates in this area has been relatively good. Besides the initial oil discovery at Atkinson Point in 1970, Imperial found oil at Mayagiak, six miles east of Tiktoyaktuk, in 1971, and at Ivik, also in the Mackenzie Delta, in 1972. At Atkinson Point a medium-gravity, low-sulfur crude flowed to the surface from a depth of 5,700 feet. Mayagiak produced a light-gravity crude from 9,400 feet, while medium-gravity crude and natural gas flowed from 6,100 feet at Ivik.

Imperial has drilled four gas wells at Tago and one at Mallik, and, with partners, six wells at Tiltak and at Reindeer. Other companies have also drilled gas wells in the Beaufort area: two at Parson's Lake and one each at Ya Ya and Niglingak.

The oil found so far is insufficient to warrant commercial development, but the gas fields are described as "significant" by Imperial President J. A. Armstrong. At the end of September a team of geological consultants - J. C. Sproule and Associates of Calgary, and D. Gelper and McNaughton of Dallas, Texas - reported that the reserves of recoverable natural gas discovered in the Mackenzie River Delta then amounted to seven trillion cubic feet, and that the potential reserves were about 55 trillion cubic feet.

In the high Arctic, all the discoveries so far have been in the Sverdrup Basin, which underlies the northern half of the Arctic Islands, north of Viscount Melville and Lancaster Sounds. Sixty-seven wells have been drilled. Two, drilled by...
Panarctic (which is 63 per cent owned by the Canadian government) on Ellesmere Island and Thor Island, showed oil but were suspended. Neither is rated significant. However, 12 gas wells have been drilled and have indicated six significant gas pools.

Panarctic's activities in this area are on farmed-in acreage from Panarctic in the eastern islands. The company has drilled and abandoned four wells at Devon, Hoodoo, Mekka and East Amund and participated in the drilling of a fifth unsuccessful well at Depot Point. A sixth is being drilled near Sherwood at the southern tip of Axel Heiberg Island.

Panarctic is currently drilling the deepest and one of the most expensive exploratory wells in the North: to 18,000 feet in the Drake Point gas field on northeastern Melville Island, at an estimated cost of $5 million. Meanwhile, in the Sverdrup basin, geologists believe that much of the potential lies offshore, which poses a tremendous challenge. A means must be found to drill in water deeper than 600 feet and covered by ice most of the year.

The discovery rate off the Atlantic coast has been lower. Of 69 wells drilled, 63 were dry. Six gas and oil wells have been drilled on and near Sable Island. Imperial is participating in a drilling program in the Grand Banks region.

Other areas being explored include the Labrador-Raffein Shelf (where icebergs interfered with the first attempt to drill), the Gulf of St. Lawrence, the Scotia Shelf off Nova Scotia, which includes Sable Island, and the continental slope where water depths are as great as 12,000 feet.

The technology for drilling in water of this depth is still evolving. Nowhere in the world to date has exploration drilling been carried out in water depths exceeding 1,000 feet, and off the eastern Canadian coast, no deeper than 450 feet.

Meanwhile, back in the Arctic, Imperial continues its island-building ways. It has built another island, about 19 miles southwest from Imm-er-ker. It was built with a chanshell dredge, with a gravel outer dyke enclosing an area 130 feet by 600 feet, which was then filled with plentiful silt. Imm-er-ker Island was built with a written dredge, and almost exclusively from gravel dredged from an underwater deposit nearby. A well, Adgo C-38, will be drilled this winter from the now artificial island.

Panarctic's second oil discovery in the Arctic was at Mayeguash in 1971

On Richards Island in the Mackenzie Delta
Imperial found gas at Taglu C-42 in 1972

Trailing a seismic cable, an Imperial crew explores underwater sediments off the east coast. A pair of these ships cost $20,000 per day to operate.

Helicopter-borne surveyors measure water depth for a possible harbor at Axel Heiberg Island.

Experiments in iceberg-mowing work to eliminate this hazard to Atlantic drilling operations.