The shops are full of the love-liest toys—

N O E L

The soldiers, and engines, and trumpets,
Let's Be Practical About Energy Control

In October 1957 the Government of Canada appointed a Royal Commission on Energy. Its broad reference was to report on matters concerning the production, distribution, export and import of all kinds of energy, and to recommend on the constitution and functions of a National Energy Board. The Commission held hearings across Canada and its first report to the Government was released by the Prime Minister on October 27 last as this issue of the Review was about to go to press.

The report has caused dismay among investors and other people engaged in the oil and gas industries. They feel that much of the expert technical and economic advice submitted at the Commission's hearings has been ignored, and that the report's far-reaching proposals are inconsistent with the performance and growth of Canada's petroleum industry. They feel also that many of its recommendations are unworkable, and that efforts to implement them would be very harmful.

A basic weakness of the report seems to lie in an effort to place all energy industries under a single control. This fails to recognize fundamental differences in the nature and uses of the various energies that would make universal controls impractical. The fallacy of regarding all sources and uses of energy as amenable to a single control system is illustrated by the report's recommendation of some identical controls for both oil and gas pipe lines. In their economic aspects and social implications, oil pipe lines and gas pipe lines have little in common.

Seemingly, stock profits that accrued to some sponsors of gas pipe lines had a considerable influence on the Commission's attitude towards all pipe lines. Whether or not this is so, it is appropriate to emphasize that no profits of this kind were realized in financing the trunk oil pipe lines which are mentioned in the report.

In considering the desirability of a common authority over all Canadian development and use of energy, it is well to remember that this was not resorted to even in the period of most extensive wartime controls. It is also worth noting that the United States, which is the world's largest producer and consumer of energy, has no such set up. The vastly different conditions of development, transportation and end use in such diverse fields as atomic energy, hydro-electric power, solar energy, gas, oil and coal make it highly improbable that policies suitable for any one of these would be suitable for any other.

When he released the report, Prime Minister Diefenbaker said he was giving no indication of how its recommendations would be dealt with by the Government. It is to be hoped that mature and careful consideration will prevent the adoption of any measures that would be harmful to a continued development of essential resource industries and the long-term interests of the country.

Imperial Oil Review
Ulcers? Not me! Nerves of steel? Well, hardly. But my friends think I must have one or the other to have survived 40 years of teaching beginners how to drive.

By Fred Willey as told to Sidney Katz

"How's that?" TV comedienne Barbara Hamilton asks Willey. Actually, he says, most women are good students.
teach all this. There's no pat answer because the capabilities of every student vary. Let's put it this way: about half my pupils take about 12 lessons to be ready for their test. Twenty years ago, when there was much less traffic, half that number of lessons was sufficient.

I've had teen-agers who have become good drivers in six lessons. Their vision, muscular reflexes and co-ordination are something to marvel at.

On the other hand, some students of various ages lack what we call "road sense," and trying to teach them to drive is like trying to make a ballet dancer out of a rhinoceros. I've had students who have taken more than the average number of lessons. The most persistent student I know of has already taken dozens of lessons, failed his test three times and is still trying.

I was told of another tough case—a highly intelligent woman in her fifties. She held a high position with a national organization and simply had to drive a car in her job. Once she got in the driver's seat, she couldn't do anything right. Her feet scrambled nervously for the brake and gas as if nobody had ever told her where they were located. Stop signs and traffic lights seemed to be invisible to her.

She spent hours in oral lessons, learning the rules of the road. She was given books to read and she supplemented them with written notes of her own. She ran through a succession of instructors. Finally, after four instructors and dozens of lessons, she got her license. She'll never be a first-rate driver but I think she'll be a safe one.

This lady proved what most of us in the driving instruction business already know: high intelligence is no proof that a person is going to be a good student. In fact the opposite is usually true. If you were to ask me to list the most difficult students I've had, occupation, it would go something like this: teachers and professors, doctors, lawyers and dentists.

The trouble is they violate the basic requirement of safe motoring—they won't concentrate on the road. The doctor is generally thinking about his last patient, while the lawyer is mentally rehearsing the case he's got scheduled in court the next day. I know of a very prominent physician who has already had 50 lessons and has failed two tests.

In contrast, some of the ablest students I've had were men of little education and low intelligence. With little to divert them, they pay attention to everything you tell them and try hard to become expert drivers.

I've also learned that age is an important factor in training a person to drive. There'd be no doubt about it that the much-maligned teen-agers, as a group, are the best potential drivers in any community. As I've said before, they possess superb physical equipment so it's usually quite simple to show them how to handle a car. I generally concentrate on trying to teach them courtesy and caution. Many of the youngsters like to go too fast, honk their horns, drive with one hand and whistle at the girls as they go by.

But these are faults which can be corrected. This has been proven over and over again in both Canada and the United States wherever driving instruction has been made available to high school students. As a matter of fact in some American states, teen-age driving graduates have been entrusted with school buses and their records have been unusually good.

As people grow older they're harder to teach. Their reaction time is slowed down and they tend to be overly cautious. Sometimes they amble along so far below the speed limit that they're positively dangerous. I had one gentleman of 65 who always slowed down to five miles when he approached a green light "just in case it changes."

But I have made first-rate drivers out of many oldsters, like the 70-year-old woman who got her license after 11 hours of instruction. Older people usually rate high in judgment and courtesy—two of the essential ingredients of safe driving.

But perhaps more important than the matter of age is the student's personality and attitude towards life. I had one burly man of 40 who epitomized everything an instructor doesn't like in a pupil. He'd argue over everything I tried to tell him.

One day, after a few minor verbal tussles, I said to him, "You better slow down—we're approaching a red light."

He grunted and then proceeded to drive through the light. I grabbed the wheel, turned into the curb and jammed on the brakes.

"What's the big idea?" I asked. "We could have been killed."

In reply, he launched into a long diatribe against me, ending with, "I'm not taking orders from you or anybody else. I'll stop when I want to."

I'm a reasonable man but this was too much. The brief and heated discussion

"Imagine! Me driving!"

"Hold it, Miss Hamilton, that's not the great shift..."

"Really, these lessons can get rather tedious..."

"I've seen truck drivers do this..."

"Rules, rules, rules..."
Judging from what I see on the road every day, my impression is that experienced drivers tend to get sloppy. Here are some ways that I would like to re-mind them of:

Don’t absent-mindedly dangle your left hand on the steering wheel—it confuses the drivers behind you.

Don’t forget to watch for traffic behind you when changing lanes.

Don’t follow cars too closely on the highway; you need plenty of room to stop in an emergency if you’re going at a high speed.

And finally, maintain your vehicle in good condition, particularly the brakes, steering mechanism, lights, windshield wipers and tires.

However, I guess it’s up to safety educators to keep tabs on the people who already have their driving licenses. My job is with the beginners who say to me, “Isn’t it a strain teaching people how to drive, year after year?”

By way of an answer I point out that, after 40 years in the business, I’m in excellent shape. If you’re a person who easily becomes rattled you quickly graduate to the rank of ex-instructor. On the other side of the ledger, the job itself is interesting, challenging one. You’re always meeting new people and no two of them behave exactly the same behind the wheel. And you have to be prepared for the unexpected. For example, there was an instructor with a student who was following a truck loaded high with cardboard boxes.

“On the truck making the turn,” the student said. “What’ll happen if the whole thing topples down on us?”

The instructor answered him, “You beginners are always looking for things to worry about,” he said. “I’ve been driving for 20 years and no such thing has ever happened.”

Hardly had the words left his mouth when an available of cardboard boxes, with women’s hats flying in all directions, came tumbling down. The student threw up his hands, ready to cover while the instructor grabbed the wheel and jammed on the brakes.

Yes, it’s anything but a dull life! Our Mr. Kott is an associate editor of Maclean’s Magazine.

The silent compliment

When Eva Snider was gathering information for her story, THE AMAZING NEW FABRIC IN HAUTE COUTURE (Page 23), she discovered that an easy way to speak Hungarian (her native tongue) can come in handy even in predominantly French-speaking Montreal.

Eva, who could pass as French, arrived by train, signalled for a cab and gave the driver instructions in French. At Dominion Square, as they waited for a traffic light to change, another cab drew up beside them. The two drivers glanced at one another, then began mincing a conversation, exaggerating their lip movements so as to be understood through their two closed windows. Just as the light changed, the driver of the other cab首都 the describes as “a fat wink” at the other hacky, and the two cabs sped on their separate ways.

Eva leaned forward. “Do you happen to be Hungarian?” she asked.

The driver blanched as though she’d pushed a gun into his back. From then on, he couldn’t apologize enough, for the silent “conversation” had been in Hungarian and Eva hadn’t missed a word of it. She says it went this way:

Other driver: “Where are you going?”
Eva’s driver: “Hotel LaSalle.”
Other driver: “Cheap dils you have there.”
Eva’s driver: “JUST WINSKS.”
By the way,” adds Eva, “I gave him a 5-cent tip.”

Otters, junior grade

This may have happened before in other places, but we were quite impressed to hear, recently, that Review articles provided the basis for a prize-winning speech during the last annual competition at Ottawa’s Glashan School. The speaker was Bruce Giles, who won the grade seven trophy for a speech based on TRAFFIC ACCIDENTS COST EVERYONE MONEY (April, 1957) and TEENAGE DRIVING: A MATTER OF LIFE AND DEATH (February, 1958). And Bruce’s younger sister Edith took part in the grade ten competition with a speech called, “Gills, Old and New,” based on the article, PLEASE SANTA, SEND ME A JEEPS, which appeared in our December, 1955 issue.

Another colleague at Maclean’s, Edith, has just completed the final year of college and is now employed as a stenographer.

Mr. Kott is an associate editor of Maclean’s Magazine.
Management changes

John J. Rowan is the new manager of Imperial’s Montreal East refinery, succeeding Dr. J. L. Huggett, who has retired. A graduate of Ecole Polytechnique de Montreal and of the Massachusetts Institute of Technology, Mr. Rowan was assistant manager of the refinery for five years. Apart from five years with the company’s engineering division at Sarnia, he has worked at Montreal since joining the company in 1936.

Dr. Huggett first joined Imperial at Vancouver in 1914. After war service and several years of university study in Canada and abroad, he rejoined the company as a research chemist at Sarnia in 1929. Immediately before taking his post at Montreal, Dr. Huggett was manager of the company’s Sarnia refinery.

Harvey H. Clare has succeeded Mr. Rowan as assistant manager of the Montreal refinery. Mr. Clare joined Imperial at Calgary in 1942 and has been technical superintendent of the Montreal refinery and chief operations engineer in the engineering division, the position he held until his recent appointment.

A. G. Morston becomes chief operations engineer in the engineering division at Sarnia. A graduate of Queen’s University, he joined the company in 1947 as a process design engineer, and in 1955 was appointed technical superintendent of the company’s Edmonton refinery. Since 1956 he has been co-ordinator of production planning and control in the manufacturing department at Toronto.

John S. Poyen, formerly regional manager of the contracts and unitization department at Calgary, has been appointed assistant manager of the Edmonton division of the producing department. A law graduate of the University of Colorado, he joined Imperial in 1952.

John H. Hamlin, formerly manager of the London producing division, has succeeded Mr. Poyen at Calgary. A graduate in law of the University of Manitoba, Mr. Hamlin joined Imperial in 1949 as a solicitor in the western producing department.

New manager of the London division is George A. Baumann, formerly production manager of the division. He joined the company in 1949 after wide experience in oil production in Europe and South America.

By DERK DUNWOODY

No metal ever got off on a more humiliating start than platinum.

To 16th-century Spaniards platinum—or platino, as they called it—was about as popular as scurvy. Prospecting along Colombia’s Choco River, they frequently turned up valuable gold deposits only to find they contained sizeable quantities of worthless platinum. And nothing, neither acid nor fire nor the viens of curses, would separate the two metals.

In desperation, they shipped samples back to the king of Spain, who was reputed to know considerable about almost everything. After consultations with his scientists, the king decreed: “The solution is obvious. Platino is gold that hasn’t had time to mature. It is unripe. Throw it back into the same river, wait for a few years and you will have your pure gold.”

And so they did—only to find that platinum apparently had an average to royal decree. The silver-gray metal flatly refused to be changed into gold. Out of sheer perversity, it continued to defy the hottest fires and the most powerful acids. Just as nickel was once considered to be the evil spirit in copper, platinum was regarded by the conquistadors as the malignant spirit of the devil in gold. History points to only one early-day Spaniard imaginative enough to put platinum to profitable use. He was a counterfeiter who amassed a tidy fortune by turning out gold-plated platinum doorknobs and patting them off as solid gold.

If that same counterfeiter were alive today, he would find that the bogus platinum coin would be worth more than twice as much as the gold at current market price. If a golf ball were made of solid platinum it would weigh two pounds and cost $2,100. A ton of pure platinum is worth about $2 million. No other mineral—with the possible exception of uranium—has enjoyed such a spectacular rise in importance.

To a great degree, platinum owes its new-found prominence to its value in industry. The same properties that once caused the Spaniards—high melting point and resistance to acid—are the basis for a variety of industrial uses today. Platinum crucibles and laboratory apparatus find high favor with chemists who use the equipment to handle powerful acids. Dentists use platinum for the same reason—platinum bridge work remains uncorroded by digestive juices and other mouth acids. Because it melts only at extremely high temperatures and is a good conductor of electricity, manufacturers of telephone and telegraph equipment use platinum to make electrical contacts; the same properties gave platinum an important part to play in the evolution of the incandescent lamp, the X-ray tube and the ignition systems of early combustion engines.

Its weight makes it popular with sure-thing gamblers who “load” dice with platinum or platinum alloys. Jewelry makers like it for an entirely different reason—it flatters diamonds, makes them seem to sparkle more when used as a setting. Its chemical properties make it useful in the manufacture of such diverse products as concentrated sulphuric acid, high-octane gasoline, “wonder” drugs and chemical fertilizer.

It was not until almost that pushed the price of platinum to such dizzy heights. Useful or not, if platinum were found in the same quantities as, say, tin, it would sell for far less than it does. But platinum is scarce—30 times scarcer than gold, five million times rarer than iron. If all the platinum produced and sold in the free world last year were collected in one place, it could be crammed into a small clothes closet—all 95,000 precious ounces.

But these figures give little clue to the availability of platinum in the earth's
crust. For one thing, platinum mining companies produce "on order"—that is, they order production to demand. And then there's the Soviet Union. In the 1960s, they had a very significant platinum industry that was mined in northern and central Africa. Today it contributes itself to jumping in and out of the market, "dumping" when prices are high and stockpiling when prices are low. No one outside the Iron Curtain can make even an educated guess at Russia's annual production.

Russia's carefully timed raids on the market notwithstanding, Canada, South Africa and South America today mine most of the world's platinum. Until a year or two ago, Canadian platinum, which occurs with nickel at Sudbury, Ontario, dominated the world market. Recently, however, South Africa has replaced Canada as a very narrow margin—almost the entire platinum market. Spurred by heavy demands from the gasoline-manufacturing industry, the operators of a mine near Rustenburg in the Transvaal have increased production to edge out Canada as the world's number one platinum producer. Discovered in the 1920s, the Rustenburg mine is the only one in the world where platinum is mined for its own sake (at Sudbury, it's more of a by-product).

Just exactly what is platinum? And what's it got that other metals haven't got? Well, it's heavy—you can't lift a pull off the floor. It's extremely flexible—with proper processing, an ounce of platinum could be drawn into a fine, almost invisible wire that would reach from Montreal to Winnipeg (platinum wire one-fifth of an inch thick would be as thick as a human hair is used as core wires in telephones and microscopes). It can fight off the assaults of any acid except aqua regia, a mixture of nitric and hydrochloric acids. Platinum can be heated to a white heat without melting until it reaches 3,223 degrees Fahrenheit (iron melts at 2,795 degrees, aluminum at 1,220 degrees and gold at 1,945 degrees). For this reason, platinum thermometers are used to measure the temperature of molten steel. It is an excellent conductor of electricity, is malleable and attractive-looking and can be rendered 99.999 percent pure.

Demand for platinum has doubled over the last decade—mostly because of its value as a catalytic agent. The work of a catalyst has been likened to the effect of moonlight on young love—helps it react along without being changed or affected by the reaction. No one exactly understands why certain substances react chemically only in the presence of a catalyst, but they do.

Among the many reactions that depend on chemical "moonlight" for success is one that enables oil refineries to make high-octane gasoline from low-quality gasoline. The first catalyst used in this reforming process, as it is called, contained substances that tended to form easily. As the need for high-octane gasoline grew with the development of higher-compression automobile engines, refiners began casting about for a more efficient catalytic agent, a chemical that would not "stir" so quickly.

The answer was platinum. The first platinum catalyst reformer went on stream in 1949. Its acceptance by the industry was almost immediate. Today the majority of the world's catalytic reforming processes depend on platinum. Imperial Oil's first catalytic reforming unit —called a Powerformer—was built at Edmonton in 1955. Two winters ago, a second, larger unit was built at the Sarnia refinery for $5 million. Four other Powerformers have been constructed since—at Halifax, Montreal East, Win nip and Vancouver—and others are being built at Calgary and Regina. Total cost: $33 million.

Then there is the cost of the catalyst. Pure platinum, of course, is not used. When it is to be used in Powerforming, platinum is treated with hydrochloric acid to give chloroplatinic acid. A special artificial clay is impregnated with the acid and the treated clay, which contains a fraction of one percent platinum, is compressed into pellets the size of baby aspirins. At any given time, Imperial has some $3 million worth of these pellets on hand at its Powerformers across Canada.

A big advantage of the platinum catalyst is that it can be used over and over again. Every two or three days, the carbon deposited by the hot gasoline vapor is burned off and the catalyst put back to work again. After two or three years, the catalyst may run out of energy, but even then it isn't thrown away. Pure platinum can be recovered through electrolysis and be ready for use again.

This widespread adoption of platinum by the oil industry has had a significant effect on the world market. Before the advent of catalytic reforming, the yearly demand for platinum totaled about 500,000 troy ounces, 40 percent of which was used by the petroleum industry for other catalytic processes. The price then stood at around $80 an ounce. At catalytic reformers came into widespread use, the demand nearly doubled and the price of platinum rose to $110 an ounce. But once a unit is in operation, little more platinum catalyst is needed. As a result, demand has fallen off recently and the price has slipped back to $70.

But why, it might be asked, did the gasoline makers wait until 1949 before recognizing the possibilities of platinum as a catalyst? The answer is simple: it wasn't needed. Until the late 1940s, gasoline produced by simpler and less costly means was able to power most automobile engines. But, gradually, comprehension ratios of carburetors were stepped up to the point where gasoline made by conventional processes would not perform without "knocking".

Catalytic reforming, expensive as it is, was necessary to bring out gasolines with higher octane ratings—and platinum came into its own, however unwillingly. As one Toronto newspaper expressed it in a headline last year:

"PLATINUM DONS OVERALLS LIFE OF LEISURE OVER FOR MOST VALUED METAL"

In the first half of 1958, platinum prices for platinum tumbled to $155 per ounce. It was a hard blow to the world's moneyed men. In August, the price for platinum rallied to $210, a new high. The catalysts are back in the headlines, but the future of platinum is uncertain. The oil industry is still experimenting with catalytic reformers, but the future of platinum in the automotive field is uncertain. The oil industry is still experimenting with catalytic reformers, but the future of platinum in the automotive field is uncertain.

Pleasingly, platinum to don overall's was no easy task. It took centuries to break down platinum's resistance, to harness it for the use of mankind. The basic problem of course, was its fineness of an iron. An Italian named Julius Cesar Seiliger wrote in 1557 that platinum could not properly be defined as a metal because it refused to be melted by fire. He called it a "semi-metal".

Through the 16th and 17th centuries, platinum continued its obdurate ways, reducing metallurgists to tears and temerities. History records the experience of a French chemist experimenting with platinum in Madrid at the behest of the Spanish monarch, Francois Chabonneau, according to the story, finally lost all patience with platinum. He hurled his apparatus against the wall and ran out of his laboratory, shouting, "Away with it all! I'll smash the whole business! You'll never get me to touch the damned metal again!" The difficulty, it seemed, was that the furnace and crucible always melted before the platinum—a frustrating problem that was to continue vexing chemists until 1758.

Then on that date another Frenchman, Pierre-Joseph Macker, melted a small ingot of platinum by arranging a large, concave burning mirror over a tiny specimen of the metal. The sun accomplished what fire couldn't. At that, it was only a partial melting. It was not until 1783 that a complete melting—an entire ingot reduced to liquid—was managed. This was the help of a newly discovered gas called oxygen.

Shortly after the beginning of the 19th century, two English chemists, Dr. William H. Wollaston and Smithson Tennant, probed deeper and discovered that what they thought was platinum was not one metal but a group of metals now known as platinum, palladium, iridium, rhodium and osmium. Later a sixth member of the family was discovered—ruthenium. Melted by Frenchmen, broken down and defined by Englishmen, platinum, the Peck's Bad Boy of the metallurgical world, was ready for harvest.

In 1820, a platinum filament was used in an early effort to produce electric light. Thomas Edison found platinum admirably suited as a lead-in for his first incandescent lamps. Roentgen, discoverer of the X-ray tube, used platinum. The telephone would not have been invented when it was, had it not been for platinum; even today, the simplest local telephone call puts thousands of platinum contacts into action. Radar owes much of its success to platinum, used as grids in the tubes. Concentrated sulphuric acid wasn't possible before the platinum age, which is the only metal tough enough to contain it.

Every day new uses are discovered. Once considered the metal least likely to succeed, platinum can now be bent to serve many industries. When the Trans-Atlantic telephone cable was being laid, platinum contacts were put in. Its resistance to acid attack makes it invaluable to manufacturers of food-processing machinery. Lately, U.S. naval engineers have been experimenting with platinum anodes either fixed to the hulls of ships or trailing behind; it helps set up an electric current that counters undersea electrolysis corrosion. If industry continues finding important new uses for it—as seems likely—platinum could conceivably usurp uranium as the world's most strategically important metal.

"If you want to be a top banana," says the song, "you got to start at the bottom of the barrel." It could have been written for platinum.
Half a million square miles of Canadian territory are covered by a black, smelly, peaty muck that is the devil’s own trap for those who would develop our northland. But now northern pioneers say it will not always be so. FRANKLIN RUSSELL tells

HOW THEY’RE WINNING THE WAR AGAINST

STRETCHING ACROSS the north of Canada is a mass of spongy, treacherous, ill-smelling territory that has probably done more to hold back northern Canadian development than anything else. From the air, much of this land looks beautiful. The sun may reflect upwards in blinding flashes from thousands of small lakes and pools, between which twist delicately colored strips of land—blue, red, brown, purple. This waterland often stretches for such distances that it seems to be curving out of sight.

Muskog—for that is the land below—covers 500,000 square miles of Canada, an area bigger than France, East and West Germany, and Greece, all lumped together. It has cost Canada countless millions of dollars. The petroleum industry alone has lost an estimated $100 million as a direct result of muskog. Seemingly barren and dead, it is an almost impenetrable barrier to the north. Most people whose lives are touched by muskog usually hate and revile the stuff. An engineer with the Manitoba Paper Company Limited, W. C. Harrison, once summed up the thoughts of many: “I have found out by bitter experience that the problems of road building through muskog are numerous, the worries are endless and the costs are unbelievable.”

Muskog hits every industry in the north. In fact, if it didn’t freeze once a year, many industries would not be able to operate in muskog country at all. Without a freeze-up, the eastern Canadian pulpwood industry, for instance, would never be able to log out its annual harvest by any conventional method of transport. Nor could the petroleum industry even begin to prospect or transport in much muskog country.

But such is the pressure in Canada to develop, to advance the frontiers of forestry, mining, petroleum and agriculture, that an extraordinary revolution is involving muskog right now. It is a revolution that has never been fully reported. The muskog country is being challenged—and beaten.

The Quebec Department of Mines is analyzing peat bogs covering about 700,000 acres along the lower St. Lawrence Valley. This work is revealing that muskog contains the raw materials for stock feeds and certain kinds of plastics. If these chemicals can be isolated commercially, it might be possible to work the area for chemicals while converting the bog to farmland.

At a recent conference called by the National Research Council’s associate committee on soil and snow mechanics, a muskog expert made these predictions:
Muskeg, a mixture of water and living and dead vegetation, is largely black, stony, peaty muck which breeds insects and dogs down everything from horses and dogs to enormous earth-moving tractors. More than blackflies, permafrost and temperatures of 50 degrees below zero, it is a serious deterrent to any development in Canada's north.

Actually, it is a type of terrain found in many parts of the world, often in undiscovered areas once covered by glaciers. In Ireland, Scotland and Russia, the peaty part of muskeg is scraped up, dried and used as fuel. In those countries, it's variously known as peat, bogland or just plain swamp. Only in North America is it known as a--um--term borrowed from the Indians.

Dr. Norman Radford, a Canadian university professor and one of the world's great authorities on muskeg, once gave this description of a bad type of muskeg: "The peaty matrix of which this is constituted is made up of microscopic organic particles forming a loosely associated, highly saturated mass, strengthened only by a weak webbing of non-woody fibers."

A foundation engineer offered this translation: "What the doctor means is that if you put your foot in that stuff, you'll go up in it to your waist!"

Muskeg bogs are made up of layers of plant remains, ranging in depth from a few inches to 20 and 30 feet. In older countries, some bogs are rich with tools, ornaments and pottery of civilizations going back 4,000 and 5,000 years.

In Canada, every province has its share of muskeg. Generally speaking, it stretches right across the north from Newfoundland to B.C. In one surprising sump, it comes right down into the heart of Ontario where part of it has been drained and farmed to become the famous vegetable-producing Holland Marshes.

Despite its beauty, the air, muskeg territory is among the world's most dreary at ground level. It seems to grow like cancer, cutting into healthy land, making it soggy and gradually killing nearly all vegetation. Consequently, great areas of muskeg look as though some too late. The spring thaw trapped men and machines in the middle of a vast plain of melting muskeg. For 100 miles across the plain, oil rigs, pipe, fuel, chemicals, trucks, trailers and tractors bogged down hopelessly. They stayed there till the autumn freeze-up.

The high cost of muskeg has often made it more economic to abandon machinery than to salvage it. During the construction of the Quebec North Shore and Labrador Railway, hauled charges over the winter muskeg were found to be just about as high as the cost of charter airlifts. In fact, western oil companies find that airlifting is the only economical way of keeping some muskeg-bound airlifts in business.

But the muskeg doesn't always win. The Patricia Transportation Co. Ltd. hauled 28,000 tons of material from Thicket Portage to Meek Lake, 400 miles north of Winnipeg, in the winter of 1956-57. This material was washed north for International Nickel Co. of Canada Ltd. to get started in its development of big nickel resources in the area.

Bell Telephone Company faced much the same sort of problem during the construction of the mid-Canada radar line in 1955. Bell wanted to establish a base at Wensik, Ont., on the south shore of Hudson Bay, nearly 400 miles from the nearest railroad at Gillam, Man. A winter tractor train was the only way of getting into the area. The water on the bay was too shallow to allow ships to approach the shore during the summer; an airstrip couldn't be built until some access was secured.

Using air photos as a guide, the tractor train, consisting of two Bombardier muskeg tractors and a Caterpillar D6, set out from Gillam with its load of fuel, prefabricated huts and supplies. The journey, undertaken under the most appalling conditions, took 68 days. A diary kept by transport boss Harry Hickson of London, Ont., tells some of the dramas of the journey:

March 1: Making good time through fairly open patches of muskeg between bush. We are now 91 days 48' 56" days 23'.

March 2: Cooper arrived at 4:20 p.m. with spare crossarms and mechanical temperature is 36 degrees below.

March 3: 7:30 a.m., 48 degrees below. Made good ground distance to coop with cooper pointing the way to the best route. Dozer falls into swamp.

March 4: Contact The Pas and ar- rangements are made to bring wire rope and blocks. Postion is now 91 degrees 22' 56" degrees 19'.

March 5: Tractor recovered from river at noon. Running again at 5 p.m. Cooper having trouble.

March 6: Norsemann picks up gas at Lloyd for tractor. March 7: Scouted new river crossing with helicopter. Proceeded due east over ridges and fairly open muskeg for seven miles to head water of Kaskatamaha River.

March 8: Cross Kaskatamaha head water and climbed ridge.

March 9: Radio signals dead again today at 9 a.m.

March 10: With helicopter pointing the way, we crossed three creeks. Progress is very good today; we have covered 11 miles. Radio signals still poor but clear at short intervals. March 11: Helicopter exploded and crashed, killing pilot and foreman. Unable to get message through. RCMP finally succeed.

Muskeg usually depresses people. Its air of desolation is chilling. But not to everybody. At the last muskeg conference, the Newfoundland Burman Development Supervisor, J. V. Healey, said cheerfully to delegates: "There are six million acres of peat in Newfoundland and contrary to the way the rest of you gentlemen might feel about muskeg--we like it!"

He told how the province was systematically draining the peatlands and setting farmers on them. Special peat plows, cutting furrows three feet wide and three feet deep, were ripping the muskeg open. Ditching machines that flung pulverized peat more than 50 feet from a trench 45 feet deep were being put into service at $30,000 apiece to speed the development of Newfoundland's muskeg.

In British Columbia, muskeg is also useful, in a minor way. Large quantities of it are scraped from the surface of land being turned into farmland. About 14 million tons of peat are burned in Russian power houses every year. When Dr. Radford was in Russia, he was astounded to find 1,000 students and 400 scientists--many skilled at both engineering and biology--in the Peat Institute. All the researchers were making a life-study of peat.

He was fascinated to find that the Russians had a great pool of semi-
You can watch for the development of agriculture and forestry in muskog acres.

The Rat and muskog experts are eagerly awaiting the results of tests on it. Imperial's new odd vehicle capable of carrying eight tons over muskog. Dubbed the Centipede, it was designed as a transportation for the larger vehicles needed in the north.

None of the vehicles thoroughly tested so far, however, can replace the ideal muskog, which would be able to carry heavy loads over any kind of muskog at any time of the year.

Imperial's hope at the moment are pinned on a vehicle called the Musk Ox. It will weigh nearly 20 tons and will be about two pounds per square inch. Though it is designed primarily to carry oil well drilling equipment over muskog, the Musk Ox could become an important means of transportation for all types of equipment if it is successful.

"In other words," says Alex Hemstock, "our vehicle development schemes are putting us in the game for the first time in the history of the muskog problem. We will knock about muskog problems in future, and our new vehicles suggest we are on the right track.

But whether the Musks Ox has been working on these problems since 1935, tells the reader instead of muskog expert, but he reveals the thinking of the idealist when he gets talking about Canada's north. He sees a future in the conquest of muskog and the exploitation of the north as a region of potential.

For, as he says, "We will be running through that muskog in a matter of weeks. And when that time comes, you can watch for the development of agriculture and forestry in muskog areas. The country will open up and goods, farming and reforestation will begin in many muskog areas that are now considered waste land.

Hemstock sees Canada being literally forced into muskog country. Canada only forty miles from the north; muskog is the frontier. "It won't happen for a while," he says, "because we've still got quite a bit of non-muskog development after that.

Although the conquest of muskog is considered the essential first step toward northern development, many look beyond this stage to the next-and just as important-stage when oil is discovered in islands in the far north. Once that happens, he hopes, Canadians will see the development of northern ports, served by huge submarine tankers and freighters navigating under the ice for thousands of miles.

Last summer's cruise of the U.S. atomic submarine Nautilus proved the feasibility of navigation under the ice; and meanwhile the British Ice Breaker has been working on an enormous submarine tanker.

When muskog is conquered, the north may be in a good position to provide most of its own food supplies. At Norman Wells, 10 miles from the Arctic Circle, crops such as potatoes, oats, barley, and wild raspberries already grow; some of them ripening earlier than those in Alberta, because of the long days of sunshine. Control of the muskog would give northern residents the use of the immensely rich soil which muskog provides. It in turn could grow, large crops of vegetables and grain. And meat supplies need not be a serious problem, either. Once land development, begins, herds of indigenous animals, such as musk ox and reindeer, could be expanded. "Reindeer meat is delicious," says Hemstock, "and so is musk ox, which also supplies milk and beautiful wool, better than cashmere."

The enthusiasm of Hemstock, Thomsen and their colleagues is typical of many of the men who are fighting muskog today. To them has been given a fighting but exhilarating view of the north as it will be some day. Because the men as practical as Hemstock, scientifically determined as Reifarth, are patient as scores of road-building engineers from coast to coast, muskog seems likely, some day, to become a dalek servant-instead of a cantankerous tyrant.
O'Fer Journey from a bone-shaking beginning to sleek sophistication today, the gasoline-powered automobile had to pass many serious competitors. There were the steamers, which held their own for about two decades before retiring, around 1910, into dignified obscurity. Not long before their demise, an unwieldy cousin of theirs appeared, operating on a mixture of gasoline and water which was transformed into super-heated steam. But this contraption was even more short-lived. Other horseless carriages which left the road quickly—or never quite got on the road at all—were intended to get their somewhat questionable motive power from compressed air, steel springs or gravity.

However, there was one non-unniquished vehicle which moved through its brief life smoothly and graciously, in remarkable contrast to the sputtering, puffing and sometimes terrifying demeanor of its competitors. This was the electric car—a slick, quiet, little horseless carriage that for just more than a decade hummed about London’s fashionable Belgrave Square, New York’s swank “Avenue,” and through the now-yellowed pages of E. Phillips Oppenheim and Sax Rohmer. The electric car was, in effect, a young industry’s bow to the ladies. A New York reporter at the turn of the century wrote of traffic on Fifth Avenue:

“While a number of men favored gasoline models, the clean, quiet electric was used by almost all the women. These women do not drive their own autos, but use them for paying calls, for shopping and for riding on the Avenue, and the style of vehicles they choose are the Victoria and the Brougham. The automobile Victoria, with two men in livery on the box, is certainly a very smart appearing vehicle.”

By 1910, in both London and New York, the four-passenger Brougham (pronounced broom) was the most favored of the “electrics.” Society’s first glance at this shiny, metal model must have been a startled one, for the moving carriage appeared both helpless and driverless. The driver’s controls were at the back seat and the occupants facing one another on two double seats. From the sidewalk, the sedate foursome appeared to be disconcerting or playing out the nities of a hand of whist.

Their novel appearance was perhaps one reason why the “electric” caught on. North America’s first “electric” seems to have been built in Toronto by the Dixon Carriage Works in 1883. In 1888, Magnus Volk in Pennsylvania turned out an electric tricycle with a 40-pound motor, but it didn’t sell well. Its top speed was only nine mph. By 1899 several thousand of the noiseless buggies had taken to the road in North America. In that year alone, manufacturers turned out 1,575 “electrics,” compared to 1,661 steamers and only 936 gasoline buggies. The “electric” even gained court acceptance. Masters of Inns of London, England, produced a custom-built “electric” for the sultan of Turkey. After viewing this product, a British reporter noted crisply that it “ran very well, but was unable to reverse.”

But in this pioneer age, such drawbacks were not enough to kill public interest and enthusiasm, and as the novelty of the “electric” dimmed, its popularity grew. Once established as quieter and more dependable than the steamer or the gasoline buggy, the “electric” went on to prove that it was no slouch in the straight-away. In 1896, at the first track races ever held in North America, “electrics” won all five of the half-mile heats at an average speed of 27 mph. Four years later, in the first race held on Long Island, a slow-chained Riker Electric raced the 50 miles from Springfield to Babylon in just over two hours, defeating all gasoline and steam cars.

Once accepted as a prestige vehicle, the “electric” appeared in numerous designs. Its prestige was enhanced mainly by the gold medal won by Morris and Salom. They were a team of Philadelphia engineers who produced the Electrobat, an automobile that won the award for quietness of operation and did better than 25 mph. In 1907 the Columbia Electric made its appearance, topped by a fringed canopy of the four-poster variety. It cost $1,600. By 1910 “electric” designs were on the market.

The hey-day of the “electrics” lasted only as long as “bugs” plagued gasoline models. Until the gasoline-powered car became dependable, motorists were content to continue their battery-powered journeys, recharging the storage cells every 50 miles or so, and braving the hazards of travel in a coach that often looked like a movable china cabinet. With rear-seat controls, too, maddeningly plumed headgear must have presented a barrier that not even today’s wrap-around windshield could eliminate.

Until about 1910 many automotive engineers were still looking to electricity as the motor power of the future, much to the chagrin of a man named Henry Ford. While he was still with the Edison Illuminating Company, Ford wrote: “My gas engine experiments were no more popular with the president of the company than my first mechanical learnings were with my father. It was not that my employer objected to experiments—only to experiments with a gas engine. I can still hear him say: ‘Electricity. Yes, that’s the coming thing. But gas! No!’”

In a later age, when his employer, Alexander Dow, had been proven wrong, Ford could look back and appraise the fate of the “electric.” “A road star,” he wrote, “could not run on a trolley even if trolley wires had been less expensive; no storage battery was in sight of a weight that was practical. An electric car had, of necessity, to contain a large amount of motive machinery in proportion to the power exerted.”

Ford knew well what he was writing about, for the gasoline motor industry had fixed the same difficulties, and had taken years to overcome them. But by 1915 U.S. factories were producing almost a million gasoline-driven cars and trucks a year.

The last “electric,” the Detroit Electric Brougham, went on sale in 1918. It was an elegant, dainty model, but it proved incapable of catching the public fancy. No more “electrics” were made. Today they are known only to antique car collectors and to those who delight in old car tours. But they can always lay claim to a short but important chapter in automotive history, for they helped bridge the era when the horse was on his way out and the gasoline engine was not quite ready to replace him.—Jim Moore
A whale
of a tank

Setting up storage tanks for diesel fuel has always been one of the toughest problems for crews drilling for oil in remote locations. They need the diesel fuel to power the drill, but the task of getting heavy steel tanks into a wilderness site is almost enough, sometimes, to reduce strong men to tears.

Now, from an Imperial crew working in northern B.C., comes word that the problem may be licked by a new device called The Whale—an inflatable tank made partly from petrochemicals. Deflated, it looks like an oversized bedroll. Inflated, it resembles its namesake. The model pictured here will hold some 5,000 gallons of fuel.

Whereas even one conventional storage tank calls for a special trailer, as many as seven "Whales" can be rolled up and carried on a single truck. At the drill site The Whale can be unrolled on any flat piece of ground and hooked up, ready for filling, in a matter of minutes.

So far, on-the-spot tests show that the new tank will withstand temperatures as low as 65 below zero. And, unlike steel tanks, which can be repaired only by a fully-equipped welder, any Whale that springs a leak can have its neoprene-coated nylon hide patched with a simple repair kit.

The Amazing New Fabrics in

Haute Couture

by EVA SZULNER
material for women’s stockings, and, for the first time, stores began carrying it by the yard. But nylon didn’t get along well on envisy street at first. Unlike the tough, washable fabric we know today, post-war nylon was neither sheer nor stout and it puckered even at normal body temperature. Normally of an uncertain off-white, it could be expected to turn pink, gray or yellow in no time. On occasion it even melted dead away in the wash.

One thrifty miss bought a “slightly counter-sold” nylon blouse at a reduced price, then tried to perk it up by swishing it through a mild bleach solution. The result was shocking. The front turned pink, the sleeves gray, the back and collar a startling shade of patchwork yellow. Another young lady left a nylon slip soaking in a mild detergent while she answered the telephone. When she returned nothing remained but a few wavy threads—not even enough to take back for a refund.

Naturally, such violent shows of temperament did not enhance nylon’s chinned nylon. But just as nylon stockings were gaining universal acceptance and the fabric was being readied for bigger things, World War II started and nylon joined the fight.

Nylon’s most important wartime use was in parachutes. And since one parachute required up to 76 yards of material, there was very little nylon left for the girls back home. Unless they knew the right people, they were often obliged to do without nylon stockings. Allied soldiers in Europe quickly discovered that a pair of nylon was a gift that would melt the heart of the most obdurate Continental maiden.

In Canada, nylon stockings became progressively scarcer as the war went on. No one laughed, back in 1941, when the newspapers reported that a Toronto millionaire had given his wife six pairs of matched nylon stockings for Christmas.

At war’s end, nylon was demobilized, factories began to re-tool and the synthetic age was upon us.

Nylon quickly became the standard.
reputation among fashion designers. While it might be all right for sheetdresses and car-seat covers, nylon would never do at all for ladies' clothing—or so decried the haute couturiers. But they hadn't reckoned with research.

In 1949 researchers came up with a new, improved shiny nylon fabric, then followed it up with nylon tricot, both in white and in color. Later came nylon sheer and, in 1950, the first bolts of Orlon.

It was two years later that the sudden popularity of nylon sheer blouses stood Ottawa on its head. Female civil servants are said to have started the tempest by wearing the reveling blouses to work. While male morale went up, efficiency went down. Supervisors ordered the girls to wear something a little less transparent. Some refused, contenting there was nothing indecent about the blouses. The clash hit the newspaper and the battle was on. Eventually, the federal government went out, but not before the entire nation was nylon-conscious and nylon sheer blouses had become part of every working girl's evening wardrobe.

By 1953, Orlon jersey was solidly established in Canada. Along with its sister fabrics, trade-marked Azrill and Dynel, it was a soft, bulky, lightweight fabric with a warm silky feel. It resisted chemical action (particularly acids, hence perspiration). Washable and moth-proof, it could be mixed with wool, nylon or cotton, or used alone, in high-quality sweaters, blankets, sportswear and deep-pile fashions.

One of the most popular Orlon items ever to hit the market was a soft, white Orlon-sheen shortie coat designed to make any girl feel like a fairy princess. A young Toronto man, craving to prove one of these coats to his intended but unwilling to pay the $49.95 which they fetched in Toronto, drove to Buffalo and bought one for $25. Customs inspectors at the border found him wearing it under his coat, but he firmly convinced them that it was his mother's bedjacket which he wore to keep warm.

In 1954 came Terylene, known as Dercon in the United States. It is produced by heating up a mixture of alcohol and paraxylylene, cooking the resulting condensation in an ice-freeze and squeezing the resinous substance through a sieve. Usually, the fibers are mixed with cotton: the final product having the feel of cotton but being lighter in weight, softer and amazingly crease-resistant. Terylene turned out to be a godsend for summer dresses, blouses, lingerie and women's lightweight suits. And it scored a major breakthrough in the men's wear department. For the first time, men's summerweight suits could be washed in the evening, hung up dry overnight and worn, properly creased, the next day.

By now, man-made fibers had arrived. Despite themselves, Canada's top designers were forced by the weight of public opinion to take a new look at the new fabrics. While the synthetics had their shortcomings (Orlon ERA, for instance, matted in the rain and couldn't be cleaned) they were infinitely tougher than natural fabrics. Furthermore, they were flame-proof, could be washed with ease, took well to dyes and, in some cases, even improved with wear like fine leather.

If you can't beat 'em, think 'em, thought some designers, join 'em. In 1954, Raoul Jean Fourre, one of Canada's leading fashion designers and a co-organizer of the Canadian Fabric Foundation, began actively promoting the use of the new fibers in Canadian haute couture.

Although Canada's top designers now use synthetics to varying degrees, it was Fourre who was the first to come forward with "exchanges" made from the new fabrics. Recently his atelier completed an empire-style bridal nightgown in blue, with a linen "V" decollete, minaret shrink from shoulder to waist, falling in gracefully looping draperies to its floor length. It is made from sheer nylon tricot, a Canadian-made synthetic that looks and feels like silk chiffon but is uncatchable, drapery, wears like cowhide and costs only about $1.50 a yard.

I couldn't have designed this from silk chiffon," says Fourre, "because the shirring would get crushed. As it is, this gown can travel in a handbag, yet will never need ironing."

Another of his all-synthetic designs is a wedding gown made of 60 yards of nylon tulle over 60 yards of nylon sheer, sprinkled with 360 tiny flowers hand embroidered. Total cost: $600. Finished from silks, the same gown would probably cost about $2,000 without the silk, and the man-made fiber cost is not the primary consideration. Silk lace, says Fourre, wouldn't take the handling these were subjected to. "We can do things with synthetics that we never dreamed of doing with natural fabrics."

And, because man-made fibers are so much cheaper than traditional dress materials, a designer feels free to experiment with them. She can risk wasting the occasional yard without fear of sending his costs soaring.

Another example of what can be done by synthetics is Bianca Giamarlo's prize-winning Terylene tridresses with all-round knife pleats. It travelled from Montreal to the World's Fair at Brussels was modelled and handled and returned in a soft paper package, still spotless and smooth. Another notable success was designer Marie-Paule's dress of silk broadcloth, cut from 10 yards of white nylon marquisette with a huge red bow of nylon taffeta for a bodice. Price: $40.00, less than half what it would have cost in pure silk.

But of course a low price is often a drawback. It makes the product a selling point, in the world of high fashion. "I know that synthetic fabrics are good," says one designer, "but personally I'd like to have a chance to use them more. But my kind of customer just won't buy a dress made of cheap fabrics you see in every window."

On the other hand, most manufacturers, turning to dresses in quantity, regard the relative cheapness of the new fabrics as their greatest advantage. Synthetics, they point out, have made it possible for the average Canadian woman to deck herself out in better quality clothes than any wore by the great ladies of history, including such fashion-plates as Marie-Antoinette and Madame Pompadour.

Take, for instance, those Dynasty party dresses made from yards and yards of fluid. In pre-synthetic days, the amount of silk tulle and silk taffeta they required—say 10 yards at $5 a yard—plus labor costs, overhead, taxes and profit margin made their mass-production impractical. But the advent of nylon taffeta and nylon tulle at $1.50 or $2 a yard brought prices down to a sensible level, encouraging manufacturers to mass-produce dozens of lavish designs which formerly only a few could afford.

Or take that dream of every woman—a fur coat. Even at today's lower fur prices, a mouton coat of reasonable quality costs around $300. And it must be panned—can't be worn in the rain or dried by a stove; must be put into storage every year and required almost as often. On the other hand a beautiful fake fur of Orlon fleece costs only about $90, looks remarkably like the real thing and hardly needs any more care than your old jeans. Wear it in the rain. Sleep in it if you wish. In the spring, just send it to the dry cleaner, then store it at home in a garment bag. The moths won't go near it.

Even some very small fry have come to appreciate the sterling qualities of synthetic fur. One little girl in Montreal made fashion headlines a couple of years ago by dressing herself in her own homemade mink coat for Christmas. Then she, too, joined the trend to synthetics the following year, by graciously announcing that the doll's next Christmas gift would be an Orlon fake number.

Thus, in little more than a decade, have synthetic fabrics grown in social distinction to a degree that would stir very heart in the nimblest social climber. On their way to the top they revolutionized the garment industry, taking the ready-made look out of work, a ready-made garment, and bringing some of the best design and color within the economic reach of millions of modern women.

Now just to bring the story out, Canadian women may one day be wearing their own made-to-order wares, personalized prints, and fabrics that would change texture with the weather, keeping the wearer cool in summer and warm in winter.

Last year it was those sleepers with interesting belt and matching suits with unforgettable finishes. Next year—who knows what miracles?