HOW TO ASSEMBLE YOUR CHRISTMAS MOBILE

1. Tear off back cover on perforated line and press out each piece. Avoid creasing or bending.
2. Fold the points of the star, out on the scoring ending at each star point, in on the short lines. When completed, the star will have a fluted "umbrella" effect.
3. For hanging mobile, attach about two feet of thread with a needle at point X of star on the top side of the "umbrella".
4. At star point A, attach four inches of thread to point B of small angel. From point C of small angel suspend single shepherd with two inches of thread.
5. From point D of star attach six inches of thread to point E of large angel. Suspend the two shepherds from point F with about two inches of thread.
6. From point G of the star suspend the manger about 13 inches.
7. Your mobile is now ready for hanging from a light fixture, in an archway or can even be attached to the ceiling with sticky tape. Room air currents will make it revolve slowly.

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EDITOR: ROBERT COLLINS

IMPERIAL
OIL
REVIEW

Gasoline by any other name...

Not long ago in these pages we discussed the chemical complexity of gasoline, and the fact that most motorists still think this fluid, with its hundreds of ingredients, is as simple a compound as water.

Subsequently, Imperial president W. O. Twaits discussed the same point before members of the Canadian paint industry, observing that paint and gasoline both suffer from oversimplified names. In neither case does the name do justice to the tremendous technological change that has occurred within those products in a relatively few years. Should paints be renamed “synthetic coatings” and gasolines, “automotive hydrocarbons”, he wondered?

It’s a tantalizing thought. There’s no doubt that the scientific title adds an aura of glamour and authority to products, as far as the users are concerned. What pain-wracked citizen among us has not taken new hope at mention of the headache pill that contains acetylsalicylic acid? What maiden with dingly smile has been able to resist the toothpastes that contain the secret ingredients (identified only by numbers and initials, like a rocket ship)? What housewife with reddened hands has been able to keep her hands off the detergents that contain lanolin?

If this is the magic that makes customers sit up and take notice, gasoline can compete with the best of them. Should we sell it in plastic squeeze bottles, bearing the label:

GASOLINE!
with HOB and C7H16*

*(Hexane, Octane, Benezene and Heptane)?

Should a trio of flashing-toothed girls chant out its ingredients in singing commercials:

"Gasoline, gasoline, Full of tobutylene . . ."?

Maybe. The point is, “gasoline” isn’t the same fluid it was 40 years ago, even though it bears the same name. Compared to that simple raw naphtha of long ago, it’s as much of a scientific achievement in its field as is the DC8 compared to the Kitty Hawk.
At age 42 Martin Reif, a sturdy smallish man with lined face and quiet deep-set eyes, has already witnessed and shared in enough human experience to fill the average lifetime.

He has been union investigator, truck driver, soldier and down-and-outs. He has the thick forearms, battered ears and damaged nose of a boxer and wrestler—which he was. He talks with the ease and conviction of a minister of the gospel—which he is.

Out of all this, the Rev. Martin Reif has gained a rare understanding of human nature. Which is perhaps why he is now achieving uncommon success in his newest profession: service station dealer. Certainly his Imperial station near Richmond Hill, 30 miles north of Toronto, is one of the most uncommon in Canada.

Reif's washrooms, for instance, are equipped with diapers, baby powder, pins and a "changing" table. Behind his office is a home-made carpeted customer lounge, where waiting customers can read books from Reif's personal library. Each morning, a 17-year-old blonde employee in high heels serves free coffee to the customers. Some days, Reif's two-year-old son Roy dressed in Essex uniform, runs out to polish the headlamps of cars at the pump.

The local people are solidly behind him, mainly because the Rev. Mr. Reif applies his religious principles to his business dealings. He does to his customers as he would have them do to him. Once a woman motorist found her gas tank cap missing and accused him of losing it around the pumps. Reif handed over the cash for it without comment. A day later she returned apologetically. It had turned up at another station.

"I knew it wasn't lost here," Reif told her quietly. "But I thought it better to part with $1.25 than a customer."

Again, a trucker claimed that Reif had sold him a damaged tire. Reif replaced it without even looking at it. "If it's damaged I'll get a refund from the company," he said later. "If it isn't... well, I've satisfied a good customer." It's not surprising that Reif's sales have jumped 200 percent in the six months he's had the station.

It would be easy to attribute his success to slick salesmanship. But to Reif, salesmanship has a special meaning. It means giving the customer a fair deal—which is really just an extension of his deeper conviction that every human deserves a break.

"Martin just naturally seems to like people," says Art Jennings of a cleaning firm, who comes to the station twice a week for gas and free coffee. "When he was working full-time as a minister, his house was always full of young people he was taking care of. Most of them were delinquents and many of them let him down by stealing from him. This didn't stop him taking more in."

Reif says simply, "I understand and sympathize with people in a rough spot. I've been through all the rough spots myself."

The first of the rough spots was in World War II where, as a warrant officer with the 13th Canadian Field Artillery, he took part in the invasion of Europe and was wounded in Germany. After the war he went to Calgary where, drawing on athletic experience in the army, he trained a wrestling team at a boy's college. The team won the national championships.
Then Reif hit rock bottom. He had been drinking increasing-ly during and after his army career. He became an alco-holic, and drifted to the east. "I had to drink half a bottle of rum every night to get to sleep, and every morning I had to take a drink before a cup of coffee," he admits. "I had no friends—except other men that wanted to drink with me. Finally, Rev. Len Jones of Park Road Gospel Church in Toronto befriended me. It was the greatest thing in my life. The Scott Mission helped me kick alcoholism, too, and then started me on my ministerial career."

Reif spent four years studying to be a minister at Toronto Bible College. There he met his English wife-to-be, Margaret. To pay his way through college he drove a truck in his spare time.

During this period he suddenly was caught up in a sen-sational union investigation. He had been appointed shop stew ard for his local. At a union meeting he was asked to head up an investigating team to search out alleged corruption in the executive.

Reif plunged into the task with such vigor that the investiga-tion made headlines. Strangers began to harass the investi-gators and their families with threatening phone calls. Reif began sleeping with a rifle by his bed. One night thugs broke into his home. The Reifs took refuge in a friend's house.

Reif and his team stuck to their job. Newspapers supported them and the police helped track down evidence. And in the end the union dismissed one official.

Upon completion of his studies, Reif's seat planned to send the couple to the New Tribes Mission in Ecuador. But instead he was called to a parish at Wilson Lake, a string-out settle-ment of converted summer houses on a lake 25 miles north of Toronto. It was a challenging assignment. Residents of Wilson Lake had been troubled by teen-age gang wars, burglaries and other violence. "There were five people in the church when I first went there," says Reif. "I knew that preaching in itself wasn't enough to reach the others. I had to look at every-thing.

Some of the families drew water from a community well. Some had only the barest clothing. Reif set out on a preaching crusade to Stratford, Penetang, St. Catharines and various Toronto parishes, raising food and clothing. A friend says, "I've never seen a man work so hard. Unfortunately, some didn't appreciate it. I saw him hand out a beautiful Harris tweed overcoat to one family. Two weeks later it was left outside the church door."

One errant boy, whom Reif provided with clothing and housing, is now a minister himself. Others left him down by stealing on parade. But Reif kept stubbornly at his mission. Soon missionaries began to recognize him as he stood beside prison guards in court. Nurses began to see him at hospital bedsides. Children grew accustomed to getting lifts in his car. Meanwhile the parish grew to 60 people.

But finally Reif had to face up to one of the toughest deci-sions in his career. His weekly stipend at the church was not enough to live on. When the proprietor of the Imperial station, near Richmond Hill, asked if he knew anyone who wanted a part-time job, Reif said, "Yes, Me!" He started work at a dollar an hour.

The proprietor eventually gave up the station, due to illnes. (Imperial asked Reif to become the new lessee, which he did after serious thought. "I didn't feel I was giving up the ministry completely," he says.)

"Martin had the whole station repainted and tidied up," says Mrs. Carson Whelan, a regular customer who lives a mile west. "Windows were repaired and shadawrms cleaned."

Next, Reif started serving coffee, but only between 6:30 and 9:30 a.m., so that he wouldn't take customers away from the Pavilion de France restaurant next door. He engaged tall, pretty Colby Den, a Dutch girl, to serve the coffee.

Typically, he met her through an act of kindness. Earlier, her older brother, Harry, brought to a stranded car he planned to buy and asked Reif to check it over. Reif, during many months in Holland in World War II, had learned the language and given food to the people. He checked the car and refused to accept a penny for his work. The grateful Harry soon came to work at the station and when Reif said, "Know anyone I could hire to serve coffee?" Harry said, "My sister."

Colby, who had been in Canada only nine months, worried at first about working in rough surroundings. But Reif saw to it that she was treated courteously.

At six a.m. she sets out 30 cups of coffee, some with sugar, some without, (for now she knows the approximate tastes of the customers). Some days she serves as many as 30 people. You don't have to buy to get coffee at Reif's. A trucker pulls in for free air, and a free cup, then moves on. But next day, likely as not, his friend drives in for gas.

Reif's next innovation was a lounge. He cleaned out an old storeroom, painted it and made a couch from an automobile back seat covered with a rug. He tiled and carpeted the floor. The local Anglican minister, Rev. D. C. H. Mitchell, gave a rocking chair. A trucker gave an electric bottle. Another cus-tomer gave two arm-chairs. Painted plants and ornaments came in from neighbors. A cigarette firm gave 200 cartons, and has been donating smoke ever since.

Reif surrounded the office desk (which Colby tends regularly with an electric polisher), cleaned up the workrooms and added diapers, baby powder and gum. One day a party of four pulled up for gas and, while Reif served the men, the women side steppe baby supplies ("for a joke" as they said later). Reif stopped them, recovered the goods but said he wouldn't "turn them in." It developed that the husbands were on parole. They thanked Reif for not informing and have been regular customers since.

"You've got to put some trust in human nature," says Reif, "and make friends of those who have none." He remembers at least one occasion when he was glad he did: a town on a mission. The man, dressed in working clothes, rode frequent gasoline pur-chases and ran up an account. Reif sent him up and let it ride. One day the customer drove up in a Cadillac. It turned out he was a building contractor—and a very good one.

Reif constantly seeks ideas to improve his service. He keeps a good used tire on each of a Ford, Chrysler and Chevrolet wheel rim. A hurried customer with a flat can leave it at the station, pick up Reif's "space," go away with Reif's spare and exchange it for his own tire at the end of the day. Reif also carries a wide stock of accessories ("I noticed that minor repairs sometimes take too long simply because a dealer hasn't the part") and whenever a new model car comes out, he adds to his stock accordingly.

Although running the station is a full-time job, Reif hasn't turned his back on the ministry. "I'm doing almost as much ministerial work as before. I don't have a parish, but there is plenty of welfare work to do and two boys are still passed out to me." He also supports a Canadian missionary couple and their three children in Ecuador, helps another in Firemen and opens his home to all whenever they return to Canada.

"To receive something from life, you have to give it," says Reif. And the revered dealer practices what he preaches.
river rats

These Peace River daredevils shoot rapids in motor boats. They call it relaxation

BY JIM BOWES

The late day sunshine slid down the steep spruce-clad banks of the Smoky River, skipped lightly across the ripples and beamed full on the wild rapids 200 yards ahead.

At full power, a flat-bottomed, homemade plywood boat hurtled along the shafts of sunlight, its turned-up ski nose lifting saucily. Lean Bill Sargent, at the tiller, shouted to his passengers huddled in their lifejackets, “Hold on.”

Spray curled over the boat as it smashed the tops of four-foot waves boiling up from the jungle of rocks a few inches beneath the surface. Sargent, on his feet for a better view of the jumbled water ahead, twisted the tiller with desperate urgency, dodging boulders. For one tingling moment, the motor missed a beat, hanging the men in suspense beneath the backlash of angry water. It caught again, flinging the boat forward as though whacked in the stern by a giant’s hand. The rapids were behind.


Sargent fished a cigarette from a soggy pack and grinned. Somewhere in Wyoming, a buddy asked, "Bill?" The Scot-
tish-born Imperial Oil agent and car dealer from Grande
Prairie, with a trace of Glasgow still in his voice after 30
years in Alberta and British Columbia, "Yes, Bill."

"Out there a man has a chance to think..."

Sargent jumped overboard to light the boat. "It won't worth it," he said. "You can't use a speck in a chunk of cigar and I quelled it when I lit into it."

In quiet waters far from the rim of settlement, the river men work as hard as they did in the battle against the
fierce enemy of their fathers. They carry in their pockets for the children. One doctor, on his May 34 river excursion, made an emergency operation on a little girl in the village to give penicillin shots to elders with skin diseases.

Jerry Stojan, Charlie's younger brother, and grey-haired
Carl Leonard, a storekeeper, once found a starving Indian
family on the banks of the Finsky in the Rocky Mountain
Trench. Their supplies had not arrived and the family had
run out of food. The old folks were in poor
shape but the children, who had been outside to school during the winter, were really suffering," Stojan said.

"They didn't have a speck of food."

The river men sent the family 40 miles downstream to the post.

But for all the anticipation of new tableaux along the next bend in the river, River Rats get their hardest drifts from the
muddy rivers themselves. Rising in the peaks, the northern
rivers like the Peace, Smoky, Wapiti, Murray and Flin Flon
merge recklessly through steep canyons, then meander
through valley flats over courses studded with boulders and gravel bars. They spill swift current treks from the banks in the spring, leaving them half-submerged in the main channels. Rapids boil between sheer banks, serving as limbo-lanes for the other hazards.

In spite of the dangers, Sargent reports proudly, "We have not lost a man."

But in spite of the weather, the river men have sometimes been close to the angels. Catskill Rapids, a quarter-mile cascadian 90 miles upstream from Grande Prairie, is the second most treacherous for River Rats. Three boats have swamped in them at different times.

Luckily, all hands were wearing life jackets and were able to scramble over the rocks. A floating gangway party was found, chilled and hungry, on the bank. Four bodies of men were seen, but others floated croufs from driftwood and floated home.

More often, many lonely hours are spent on a gravel bar or mud bank as the price paid by River Rats still learning to "read water," the almost effortless ability to pick the channel through shallow and swift water. Three of four fished by the Sagnas, and even Tom, an expert in which fish was best, had been found dead. Once, a swimming bear climbed aboard a boat, unloaded the bear boards with a mighty thump of its paws and then climbed off the side. Another voyager, steering be-
tween a cow and moose, her calf, barely eluded the mother's slashing hooves as she charged the boat.

In their throats into the wilderness, the River Rats have
flown over many a colorful character who long ago flew the
river. For three summers, the business to our corner, "The Herm, of Ne-Parke-Pin Rapids," a white-boarded reclus who lives on the upper Peace River. Word of their approach by the throb of the motors, old cowboys and Indians in the bars,
we surprised him nearly by capsizing with the motor oil," said Otto Spacik, service manager for a garage in Sex-
not, Alta. "He was a nice old fellow—he must have been

"Out there a man has a chance to think..."

"We realized that we needed a boat that could stand up to these northern rivers," said Charlie Stojan. "We scouted all over in the Northwest Territories."

Fellow-townson Carl Leonard, an ex-trapper, enthusi-
astically joined the project. That spring, a long, heavy flies
fished from their old barn a fine, roomy, flat-tail boat made
in the workshop, and in early July the voyage was
launched from the shed where the builders had worked through
the winter. There was little grace in a boat with a flat four-foot bottom but every uneven line was aimed at meeting a special hazard of the river. With a 15-horsepower motor at its stern, the
boat was designed to carry two tons through shallow or rapids but largely. Predictably, the maiden voyage was routed through the Canadian Rockies.

Carl Leonard, the boat builder, and Charlie Stojan recalls la
tanantly.

Twelve miles upstream from the Cathcart, the shale cliffs
like toothpicks squeezed from a tube, between the cliffs of Porcupine Canyon. It tumbles for half a mile in a 40-foot
diverted by reef and rock. No man had navigated "The Chutes" and Stojan, in a flint test of a new boat, plunged through them. Only three have done it since.

Weed of the intertidal river men and their boat spread swiftly through the district. Other boats began building—and the ruts for the rivers was on. It cost $1,000 to get launched, even when the boat was self-built, and many of the outfits became four or five miles below the boat. The cost of a boat was built
by 90 boats—and each spring when garage doors swing open,
the total swells by a few more.

As the men and their wives, their husbands and children
joined them on many of the weekend forays. On story-book islands and mossy-carpeted clearings along the banks, families sleep beneath trees or on the banks, in the car, under the star
covered of the oriole, the shrill notes of the Whitetail owl and
the cry of the loon.

So entrenched has the Peace River district become with its rivers that earlier this year, the Rotary Clubs of Dawson Creek and Prince George, B.C., boasted, 300 miles to hold an inter-
club inter-divisional round-up on the river. Two of the two
cicipated roles in the river men's problems spring from the river's vegetation. The weeds can keep the motor from
boating or treacherous. Only a few inches of water, seven feet of water.

Particularly, it is a widespread fish—on the Catfish
Rapids 40 years ago that sparked the fish to the northwest corner of the river. The Stojans brothers and Spacik, trying to navigate
them in a canoe with a 10-horsepower motor, ripped an end of
the flimsy coot on a hocken rock. Pummled into the grazing
water, the men grabbed the sinking boat and somehow, carried it through the rapids and to the shore.

They ripped up an apple box, which held their food, and
fattened tim cans to make a new bow for the canoe. It held together for 10 miles but a log touched the paddle and it
was smoked from the shed where the builders had worked through
the winter. There was little grace in a boat with a flat four-foot bottom but every uneven line was aimed at meeting a special hazard of the river. With a 15-horsepower motor at its stern, the
boat was designed to carry two tons through shallow or rapids but largely. Predictably, the maiden voyage was routed through the Canadian Rockies.

Apollo, the boat name, was named by Charlie Stojan.

For the men of the upper Peace, Bill...
How does a symphony orchestra get into the oil business? This one did, in Imperial Oil's new color film, "Decision to Drill!"

The conductor raised his baton, eyed his musicians, then pressed a stopwatch as his arm came down on the first beat. Timing had to be perfect. Two minutes, 6½ seconds later, the final note of that section was held strong: one...two...three seconds.

"Cut!"

And the recording studio relaxed amid scraping chairs, shuffled feet, a sneeze, some cleared throats and deep breaths as each musician prepared for the next section of the score.

It was a scene far removed from prairie oil fields—yet it was part of the telling of the story of oil. Conductor William McCauley and 26 top-flight Toronto musicians were recording music composed by Larry Cresley of Cresley Films for Imperial Oil's latest film, "Decision to Drill," a documentary that captures the day-to-day human effort, ingenuity and knowledge that go into the search for oil. Everything else was ready—film shot and edited, script written and recorded, on-the-spot sound effects on tape.

Only the blending in of music now remained—and here timing was crucial. Producer Gerry Moses, head of Imperial's P.R. graphics division, and film editor Dennis Gurney of Cresley Films had decided with Cresley the parts of the film where music was needed—a total of 13 minutes. With two minor exceptions it was to be descriptive rather than background music, an integral part of the over-all dramatic effect. Cresley had viewed the film dozens of times to catch the mood and develop his theme. Each cut had been keyed to the action on screen (for a helicopter take-off: a lift in the music; for a silent forest trail: a peaceful refrain; for a seismic explosion: a crash of cymbals). To match the movement on screen Cresley changed either the metre of the music or the tempo. The score was carefully marked so that new, on-recording day, the conductor with the aid of a stopwatch could make Cresley's music fit precisely.

When producer, composer, conductor and musicians met in the RCA recording studio that morning last August, Cresley had never heard his music played in concert. No other musician had seen the score. One fact alone was known to all: the music was for an Imperial Oil film on the search for oil. But as the rehearsal and recording moved along, the score sparked the performers and at times brought their applause.
For Gerry Moses, the recording studio was the last milestone of a long road that began in the Rocky Mountain foothills.

For three months last year he and staff photographer Al Schoenborn roamed from the Arctic Circle to Calgary seeking out seismic, geological and drilling camps for actual, unposed shots of the oil hunt. Cold rain dogged their footsteps and delayed shooting. One day Moses flew by helicopter into Fort St. John amid fog and rain that forced the pilot to land twice by the side of the Alaska Highway. The 180-mile trip took three hours.

Another time he and Schoenborn drove seven hours through falling snow to film drillers pulling up rock cores (a job done periodically during drilling to examine underground stress). The photo team arrived just as the drill crew brought up cores—crushed to bits. The long drive had been fruitless. The camp had extra beds but no extra blankets so Moses and Schoenborn spent the night driving back to Calgary.

In the end they covered 3,000 miles by car, several thousand more by air and shot 12,300 feet of film. The completed movie, replacing "Search Unending" on Imperial's film calendar (which was completely outdated in less than 15 years by new techniques in the oil industry), represents the best of these months and miles, distilled into 27 minutes of color and sound. "Decision to Drill" this winter will show youngsters and adults in schoolrooms and meeting halls across the country how today's oil hunters do their job.

Most people, given a few thousand tons of gold or platinum, would run out and buy Hawaii. H. W. "Hi" Addington, chief corrosion inspector of Imperial's engineering division in Sarnia, would be sorely tempted to use them as building materials for an oil refinery. It's the one way he could be sure of beating the corrosion problem. Other metals eventually break down.

Metal corrosion is one of the biggest technical problems facing Canadian industry. In 1960 it cost Canadians an estimated $500 million in its prevention, replacement of parts or lost production. Imperial estimates that its share of the bill runs in the millions.

For instance, corrosion periodically causes a breakdown in the catalytic cracker water cooler at Sarnia refinery. "As a result," says Addington, "this little two-bit item brings down the entire unit at a penalty of thousands of dollars a day."

Why not use a less corrosive alloy in the water cooler? Because prevention may cost more than the damage. "As a far-fetched example, equipment built of gold or platinum won't rust," says Addington. "But using these metals as building materials would give you a refinery worth just slightly less than the national debt."

To complicate the problem most corrosion takes place unseen, inside refinery units or pipe lines and can't be detected while the unit is running with X-rays or special ultrasonic equipment. Until the company began using a superior alloy, hidden corrosion ate six tons of metal a year from the inside of furnace tubes at Sarnia refinery. Nowadays, too, Addington uses portable X-ray equipment to help hunt out breakdowns.

Addington, metallurgist Charlie Easton, and three other inspectors spend all their time detecting corrosion, studying its causes and finding ways of preventing it. When the engineering division designs new refinery equipment, they suggest ways of reducing corrosion and, using an electronic computer, calculate whether expensive, less corrosive alloys or cheaper, more corrosive materials should be used.

At the company's Calgary laboratories, engineer Glen Mainland does a similar job for the producing department—battling corrosion in drilling and producing equipment. The company's other eight refineries have part-time inspectors. Both Calgary and Sarnia refineries have special corrosion laboratories—usually referred to as "bone yards" or "horror chambers," because of the broken, pitted pieces of metal handled there.

Preventing corrosion would be somewhat simpler, if engineers only had to worry about plain rust—the reddish powder that results from exposing steel and iron to air and water. But there are several more insidious causes of breakdown. Hydrogen sulphide, for instance, often found in crude oil, will eat all the metal out of carbon steel; the leftover pipe, of carbon, is about as strong as the lead in a pencil.

For reasons not yet known, hydrogen atoms will drift through metal until they find a microscopic hollow, then pile up until the metal blossoms.

Another problem is "electrolytic corrosion" occurring in pipe lines where soil bacteria exist. Such reactions cause metal to detach itself from one part of the pipe and attach itself to another. The part which loses metal is eventually eaten away. Engineers can prevent electrolytic reactions by injecting electric current into the soil through two metal stakes driven into the ground. But lightning or northern lights set up their own currents, break the devices and so destroy their preventive effects.

Improved paints and plastic coatings are continually being developed to help prevent corrosion. But so far there's no way of protecting ordinary metal indefinitely.

We've made some progress, though, since 2,300 years ago when Alexander the Great had his problems. Alexander, stretching a chain across the Tigris River to help move barges, was plagued by constant breakage of new replacement links. As "Hi" Addington could have told him, his chain was suffering from "galvanic coupling," a form of corrosion resulting from joining metals of different types or ages—Bob Ferrier
PERFUME ISN'T JUST FOR PEOPLE

it's also for dogs and houses and...
neckties and stockings and movies

When a Parisian perfume expert speaking at last week's National Gallery recently urged men to use perfume ("I enhance personality and is a sure sign of culture") his male listeners did not rush out en masse to search in Chanel No. 5. But at least they sat still and listened with an eager eye. True, American men might have seen the speaker off the stage. All of which seems to verify the perfumers' contention—that everyone wants to smell sweet nowadays.

There are now perfumes to make rooms smell like pine forests, used cars smell like new ones; buses smell like rose bushes; dogs smell like petumias; and men as fragrant as pineapple. Although only 15 percent of Canadian women use scent (compared to 36 percent in the U.S. and 20 percent in England) Canadian perfume and cologne sales have tripled in the past 10 years to a total of more than $15.5 million in 1960.

And although Ontario men are still "just nibbling at the perfume market," according to one manufacturer, "70 percent of their Canadian counterparts are going for spicy, woody, citrus and other fragrant shaving lotions. Around Calgary, where one man was said to smell like "a greasy, greasy, greasy" character," selling colognes and scented soaps in toilettes is sizable quantities, reportedly followed by an eye for buying on business. A recent survey conducted by the Society of French Perfumers found that products using $250,000 a year more on scent than are British women. And in New York a manufacturer is producing ties with built-in scent "for the country square who is sartorially casual but fashionably correct." The tie comes in 10 essences with the pattern of each tied in its own color. A pine-apple scent, for example, comes with a tie with pine-needle design on gray background. About the only scents men won't accept are lavender and Russian leather.

Man's best friend, on the other hand, will wear any perfumeone can't tell one's dog from a flowerbed. A Toronto shop has begun selling real dog cologne with labels such as the Sweet Pea, Petunia, Wagonia and Kenolia No. 5. The boom in personal perfume is only the tip of an iceberg. Scent is also a vital ingredient in such things as soap, lipstick and room deodorants, and sprays to mask the smell of paint, coal and glue. Industrial perfumers use rubber odors to make used cars smell like new, and neutralizing odors to keep raincoats from smelling of rubber. Mer- capton, said to be the world's worst smell, (similar to rotten egg), warns of natural gas leaks. Pleasant, woody fragrances are used in air conditioning systems. In Detroit, bus exhaust fumes will soon be disguised with rose-scented perfume. Hunters rub the animal odors of civet and castorium into shoes and gloves to disguise their human smell. Merchants entice customers with advertisements and packages that smell of bacon, cheese or chocolate.

Some periodicals are now printed on scented paper and a Connecticut fire insurance company once startled prowling burglars with the use of scented, smelted like burnt wood. Theatre owners have attracted audiences with Aromaroma and Scent-a-vision movies in which hero, villain and landscape all exude an appropriate odor. At Christmas someone with a nose for solemnity might give her friends nyloons scented with Chanel No. 5, cocktail napkins and buttons scented with olives, cherries or peppermint, or artificial flowers scented with whiskey, wrapped in pine-scented paper and tagged with a perfumed greeting card.

Women have been using sweet odors to attract the opposite sex since the beginning of recorded time, and prepared perfumes appeared when the dawn of religion created a need for incense. (The name is derived from the Latin "per fumum" meaning "through smoke"). But perfume sales have given a definite lift since a parliamentary bill in 18th century England provided a witchcraft trial for "all women... with perfumes, viallods that shall... seduce and betray into matrimony any of his majesty's subjects... in the use of scents, paints, cosmetics..."

Scent's popularity began in the late 1800's with the discovery of synthetic perfume. Scientists learned that the natural oils in lavender, tuberose, jonquils, carnations, sandalwood and other flowers and plants, from which all perfumes were being made, were not one but a combination of chemicals; and that coal tar and petroleum contained chemicals with approximately the same odors. Ethyl alcohol, produced from grape oil at Imperial's Sarnia refinery, is one of these chemicals. This discovery lowered the cost of basic perfume ingredients and brought quality scent within reach of the average pocketbook. (Natural rose oil, for instance, may cost $500 to $600 a pound). It also enabled perfume manufacturers to create scents that don't exist in nature, and duplicate such odors as lilac and lily of the valley, which don't exist in nature. Some perfumers are quite unorthodox in their search for scent. These are: ambregr, a peculiar insectal growth found in diseased sperm whales, used in a characteristic substance of the American civet cat (during the reign of George II, a London perfumer during a love affair with his name, bottle and, above all, its advertising. Labels like Aphrodisia, Saudial, Shocking, My Sin, Intimate and Amour Amour hint that the flap contains a love potion. Chamel and Dior scents borrow the glamour of fashion houses of those names.

But here, too, women are completely irrational. A weary woman is apt to buy "Tigress" or "Intoxication" which worldly cousin wears "To a Wild Rose." Furthermore, according to perfumers, women don't know how to use perfume. They use it too seldom, too sparingly. They can't tell because perfume evaporates and dissolves in the bottle, especially if it's exposed to heat and light. It should, perfumers say, be applied as often as lipstick.

Women in cities tend to wear scent daily; women in smaller communities use it less regularly. The more fashionable the town, the more perfume is worn. Montreal provides the best Canadian market for perfume as 73 percent of women in the province of Quebec wear perfume and 64 percent wear toilet water—compared to the national average of 15 percent. Quebec women usually buy sophisticated or oriental fragrances such as Lotus and Cotillion, while women in the rest of the country buy floral bouquets like Blue Gram and Aprilje. For some reason, the popularity of April Violets on the west coast is out of all proportion to its sales in the other provinces.

Canadian men choose moderate scents for themselves, and usually they're too shy to make the actual purchase. Most men's cosmetics are bought by women, but 80 percent of the small amount of real perfume sold in Canada is bought for women by men, usually at Christmas. For herself, a woman usually buys toilet water or a cologne or a scented sachet. If she does buy perfume, she'll buy a tiny purse-sized bottle of less effect than one a man would choose for her.

But perfume is such buffetting and bewildering that even experienced perfumers can't always predict how well it will react to it. Last Christmas a Toronto store displayed a three-eounce bottle of "Eucstern," specially packaged in France in a gigantic red velvet jewel box lined with white satin. With a $125 price tag, the owner of the shop regarded it as a lavish promotion piece, the sort of thing that Diamond and extravagant woman would buy for his true love. To his astonishment a woman bought it for herself.

fire insurance policies

Jasmine, orange blossom, mimosa and other fragrances are all becoming as popular as "noses" which can distinguish several hundred separate odors. The perfume buyer no longer needs the expertise of use of scents, paints, cosmetics..."

Blending natural oils and synthetic compounds to create a new fragrance is the job of skilled perfumers known as "noses" who can distinguish several hundred separate odors. The perfume buyer no longer needs the expertise of use of scents, paints, cosmetics..."

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BOUNDARY LAKE:

New Life for a B.C. Field

Down a gravel road, dragging a cloud of dust, comes a tractor trailer loaded with lengths of seven-inch oil well casing. The driver and his helper pry loose the 600-pound sections, which crash and rattle across a drilling rig unloading platform. Up on the rig floor muddy, helmeted roughnecks slam "tongs" (gigantic wrenches) around a length of drill pipe.

These are the sights and sounds of oil producing areas anywhere. But at Boundary Lake—a rig-spotted block of land named for a large slough on the northern B.C.—Alberta border—they have a special significance. They signify that Boundary Lake—the field that waited six years to come into its own—is through waiting.

A basic rule of petroleum economics says that oil in the ground is worthless until it has a market and can be economically transported to that market. Perhaps no current Canadian discovery area better illustrates the rule than Boundary.

In February 1955 an Imperial Oil wildcat (an exploratory well in unproven territory) probed beneath the gently rolling country above the 500-foot banks of the Peace River, about 45 miles northwest of Dawson Creek, and encountered oil. Located in an easy-to-reach checkerboard of farm land and poplar and pine bushes, Boundary was—and is—a fairly routine operation. With the pay zone a little more than 4,000 feet down (shallow by western Canada standards) drilling was relatively easy. Boundary at that time was B.C.'s only oil producing area.

But far from refining centres (about 370 miles to Vancouver and 465 to Edmonton as the crow flies) Boundary developed slowly. At first tank trucks—up to 40 a day—took crude to a small refinery at Dawson Creek. Then in November 1960 a pipe line replaced the trucks. When the refinery moved last summer to Taylor, B.C., further north on the Alaska Highway, Boundary crude went there.

From the time of the discovery until August 1961, Imperial drilled 19 wells and sold approximately one million barrels of Boundary crude. All told, counting production of other operators, the field produced one to 3,000 barrels of crude a day.

Imperial had established a small production camp—a collection of office and living trailers specially designed for comfort by production foreman Hugh MacKenzie; a deluxe house trailer occupied by battery operator Roy Hutchings, attractive blonde wife Evelyn and their family. Sewers were installed. A generator provided light. Mobile phones connected the camp with the outside.

Then last spring came the decision to build a pipe line from the Milligan-Beaton field to the north, through Boundary, to Kamloops, B.C., where it would link up with the Trans Mountain Pipe Line and go on to refineries in Vancouver. Boundary's wait was over.

Over the roads, many of them newly built, came drilling rigs followed by batteries—the collection of separators and tanks where crude oil is separated from natural gas and water, and stored. Construction equipment moved in to build gathering systems—networks of pipes running from batteries to a central pipe line terminal.

In August and September of this year four contract rigs drilled 20 wells for Imperial and partners—every one a producer. By next spring the group will have drilled another 100 wells. When the drilling is finished Boundary will be a 10,000 barrel a day field (about 10 times its present output). Imperial's share will be about 7,500 barrels a day. The field is still an unknown as its eastern, southern and southwestern limits have still to be established.

This fall Imperial was planning a new camp site—a small, semi-permanent trailer town, with all the conveniences, will spring up in the poplar bush. If there are at least eight school-age children, a school will be built.

Like Imperial's Juby Creek field, Boundary will be highly automated with timing devices to turn wells on and off, direct oil into storage tanks and release it into the gathering system. Meanwhile, as Boundary Lake moves toward completion, Imperial seismic crews working in wild B.C. foothills country, 30 miles beyond the nearest point where an Otter aircraft could land, were looking for another oil field.

BY BOB FENNER

Mrs. Evelyn Hutchings in a family hairdressing session
Do commercials offend you? It's the job of CBC's Bob Switallo to make sure they don't

BY BARBARA WEST • One spring evening this year a crowd of several hundred sat in the concert hall of Toronto's Royal York Hotel and watched 49 television commercials, one after the other.

Instead of emerging cross-eyed and cupious from this orgy of pitchmanship, the viewers were exhilarated. The commercials, they said, showed more art, imagination and talent than the programs they were designed to interrupt.

This was Canada's first Festival of Commercials, which followed a New York festival, in which the winning 49 (including two of Imperial's) were selected from 1,400 Canadian and U.S. entries.

The enthusiasm aroused may have been partisan, since judges and all other viewers were advertising people. But some members of the public like commercials too. So, oddly enough, does Robert T. Switallo, who, as head of the CBC's commer-
cial acceptance department, spends most of his waking hours looking at commercials. He does this because any commercial that appears on the CBC networks must first be submitted to his department and measured against its integrity, scrupulousness and unbending “code of good taste.”

Broadcaster commercials rate such close scrutiny, because more money, time and energy go into their making than any other form of advertising; competition is cutthroat; the difference between wares peddled is frequently negligible; TV hucksters in their time have been accused of many kinds of dishonesty and fraud, and a check on the truth of the copywriter’s prose is therefore desirable.

Bob Switallo, who does this, is a sturdy, decorously crew-cut young man, who looks rather like a bespectacled Burt Lancaster, has an M.A. in philosophy and takes his responsibility seriously. Radio and television, he says, are guests in the homes of the public; nothing must be advertised that would be unsuitable for mixed company or children.

“We do not take ads for women’s undergarments,” he says firmly, “or laxatives or funeral parlors, and we won’t allow gross use of sex or fear.”

Also on the forbidden list are astrology, phrenology, palm reading, numerology, mind reading or character reading, fire-works, tip sheets, race track publications and betting organizations “Hurl-switch” advertising—in which goods the advertiser has no intention of selling are offered to lure the customer into buying higher-priced goods—is banned. So are premiums which appeal to superstition. Obscene language would get the goon, if anyone dared try it.

The commercial acceptance department is fastidious about deodorant ads. “There must be no hint that those who don’t use the product are anti-social,” says Switallo. “The video can show deodorant being applied on the back of the hand, or, in the case of soaps, behind a shower curtain, nothing more.”

And there are okay words that may be used. “Fresh, freshness, shower fresh,” repeats Switallo fluently. “Protection, prevention, petal fresh, stay fresh.”

In setting these standards the department has had to decide arbitrarily what may or may not be acceptable to the public. Public taste changes, of course, and whenever Switallo feels the CBC should review one of its rules, he consults board officials in Ottawa. All major policy decisions of this type are taken in Ottawa, but Switallo’s department has the final word on every commercial that appears on the network, including those from the U.S. A 60-second spot in Vancouver must be submitted to the Toronto office, and when it is stamped with the department’s number it can be shown anywhere on the CBC network.

Naturally, a rejected commercial means a financial loss to the CBC which depends on advertising for much of its revenue. (Next year it expects to lose $6 million simply through the shift of advertising to private second stations in eight major cities.) Switallo and his staff have the delicate task of applying the desired standards unfailingly and at the same time cultivating a healthy relationship with advertisers.

Staff (there are 12) choose for this tightrope-walking usually come to the department straight from university. Switallo looks for girls and men with the right temperament—a feeling for words, the shrewdness to read between the lines of craftily worded copy, and the dexterity to handle “admen.”

In spite of a formidable cross-indexed and ever-growing policy books, the department’s ultimate yardstick is the elusive one of “good taste.” The ad agencies have come to respect “Sometimes they go too far,” says one agency official. “But generally the department’s taste policy works.”

As the department has been in existence since 1945 most Canadian advertising agencies are familiar with its rules and rather than have an expensive commercial rejected, prefer to discuss a proposal and step by step with Switallo. Many reputable companies, of course, have their “good taste” which are as high as Switallo’s. They apply these standards to scripts before clearing them with the department and consequently have no difficulty. Imperial Tobacco and its half a dozen companies, among others, have never crossed swords with the commercial acceptance department.

Drug ads are the trickiest. Before such scripts reach Swi- tallo’s hands they must be approved by the Department of Health and Welfare in Ottawa, guided by the Food and Drug Act. Switallo then applies his own department’s standards, eliminating some personal medical products, gristly detail in describing illness and ads for mail order medicines or habit-forming drugs. Personal testimonies are too subjective and too specific. There must be no attempt to frighten people into buy- ing medicine by saying Asian flu has struck Canada and they’d better get a certain drug or else. Advertisers must not claim cures; they may, subject to approval, say their product causes pain.

Switallo, who feels the worst aspect of “hard selling” is the attempt by some advertisers to capture child audiences, also pays particular attention to commercials aimed at young- sters. Where premiums are offered, he feels the script must be presented to the child, a human hand, to give propor- tion, so the kids won’t think the price is bigger than it really is. Although Switallo and his staff are posed like speed cops to pounce on the first sign of fraud, they pass an area of deliberate but necessary cheating with an indulgent shrug. Since edible goods would lose their appeal to a child if exposed to glaring studio lights, they must be made up with more care than an aging actress, or entirely replaced by a stand-in.

Many a time a hard knocks photographe s has spent hours disguided as ice cream. The whipped cream on a TV parfait would taste like shaving cream, because it is shaving cream. Ruffles and pudding mix worn with studio lights at single strength but may make the grade at double strength. Glycerine helps glasses glimpse. That ice cold foaming beer on U.S. TV is poured and photographed while warm to produce good foam, and may have detergent in it to help things along.

The dirt a vacuum cleaner picks up may be hunks of cork, because real dirt won’t photograph well. The color of straw- berry jam can be lightened in case it shows up black. Ketchup may be darkened with ink if photographs too light. Refriger- ators are tinted blue or yellow to prevent glare. Mirrors, polished silver and chromium are treated with soap to reduce spots of intense light.

All these are legitimate deceptions, a part of the time-con- suming effort that is necessary to make the TV products look as good as the original. Once filming starts, it takes three to eight weeks, calls up a regiment of technicians and draws on an amazing battery of effects. After filming, Switallo’s depart- ment again checks the commercials. A script may be harmless but the wink of an eye, the twitch of an eyebrow, or some other gesture may add a meaning that wasn’t in the script. The com- merical acceptance department also keeps a sharp eye out for too much cleavage. “You have to watch those fabric manufacturers,” says Switallo.

Switallo’s group also works with the CBC program people, to fit ads in at appropriate times, so that the atmosphere built up by a play is not rudely shattered by a clamorous commer- cial. They won’t allow heightening of sound. Nor will they allow “saturation” campaigns; they like to keep an hour be- tween commercials for the same product, and set their cost as the absolute minimum. “We try to get rid of listener irrita- tion,” says Switallo. “We consider we’re doing the advertiser a good turn when we oppose saturation campaigns.”

Filming and airing a commercial is astronomically expen- sive. A 10-second identification commercial at the start of a program (known as a cowcatcher) can cost as much as $2,500 to produce. A 20-second animated commercial costs from $1,800 to $4,000, and a five action film from $2,000 per minute to $20,000. Color television will send up the cost by a third. On top of all this half an hour of class A evening time on CBC costs the advertiser $7,704, to which distribution charges for 32 stations add $1,440.

But in spite of the great cost the size of the audience makes it all worthwhile. Canada jumped from 2,501,300 TV sets in 1957 to 3,908,400 sets in 1961. This means that costs about $4.21 per commercial minute to reach a thousand TV houses.

In addition, a successful commercial bears much repetition and the cost is amortized to smaller and smaller amounts. Most ads are in use for at least two years unless something dates them. Some radio jingles have been on the air for years. Styles in commercials change, though, and last spring’s Festival indicates that the trend is towards the light and humorous. One winner, Masquerade, an animated commercial put out by Pan’s Boots Cat Food, shows a man eating cat food with obvious enjoyment (but he’s really a cat on his way to a masquerade, dressed as a man). Another winning com- mercial, Imperial Oil’s, and also animated, showed a cat basking in the warmth of an Eso oil-heated house. A third winner was Imperial’s Suganay (see page 24). None employs the pig driver tactics of the hard sell, but all were reckoned to sell their products well.

Whether we regard commercials as a tedious interruption of the program, it looks as if they’re here to stay. Even Russia has them. The day is probably near when they’ll be bounced from continent to continent via stations in outer space.

But the dodge hammer approach is fading out. The trend is to more charm, human interest and humor. If anyone should be sick of commercials it’s Bob Switallo—but he watches them with enthusiasm, in the evening, even after living with them all day.

“I think,” sums up Switallo, “that the quality of some com- mercials is higher than that of some programs.”
While most commercials concentrate furiously and exclusively on their brand image, Imperial's, without fear of being upstaged by the scenery, have shown a great deal of Canada to Canadians in the past few years. The happy-looking people in the Esso-fueled cars, on hockey telecasts, have swept along the highway from Vancouver to Newfoundland amid an assorted panorama of Rockies, rodeos, bears at Buff, carnivals in Quebec and parades at Fort Henry.

Preparing one of these 90-second glimpses of Canada is somewhat more complicated than shooting a home movie. To get them, a team of three, John Sone, agency producer for MacLaren Advertising, John Ercole, cameraman for Filmsways and his assistant Dick Mingalone, head for the open spaces armed with one 35 mm. motion picture camera and 40,000 feet of film. In 21 days in 1960 they shot 30,000 feet, from which eventually came four 90-second commercials using 135 feet each.

One of them, Saguenay, won an award at this year's TV Commercials Festival.

The idea for Saguenay (which shows a young couple going by steamship up the river) was developed by Imperial's advertising department and by MacLaren's copywriter Leighton Hardey. Producer John Sone visited the Saguenay district and returned with still pictures and story outline. Imperial and the CBC commercial acceptance department both approved the treatment.

John Ercole, who has filmed such epic events as the Guadalcanal landing, and Dick Mingalone now flew to Quebec with Sone. Here Sone arranged for a car for TV motorists, a station wagon to carry equipment, and a convertible from which the camera would operate. (Car manufacturers willingly provide these "props". Indeed, all parties concerned in a commercial are usually willing to co-operate. For another film, the soldiers at Kingston's Fort Henry repeatedly marched and fired their ancient cannon until Sone got a desired effect.)

After making arrangements with the steamship line, the team drove to the Saguenay district. Sone decided that the most effective moment to film would be as the ship turned past Trinity Rock and sounded an echoing blast on its siren. They hired a cabin cruiser and calculated the exact time they should leave the other side of the rock to catch the ship in the right position. What they didn't calculate was the Saguenay tide which swept the slowly approaching ship forward in a sudden surge that outdistanced the little cruiser by five minutes. They'd missed their chance, and the ship wouldn't be back for two days.

On the second try they took no chances; they hired a plane. (The team is used to coping with nature. Once, on Prince Edward Island, they were ready to film people buying lobster when they discovered the lobster season was closed on that side of the Island. Undaunted, Sone drove across to the other side, packed 50 lobsters in the trunk of his car and rushed them back to the waiting camera."

Editing was done and musical accompaniment added. Nick Perito and Ray Charles arranged and recorded the Esso theme song which, as well as stressing the merits of Esso, sets the mood for each commercial. Saguenay was ready.

In 1957 the commercials ran 45 seconds and showed a car traveling along a road while off-screen voices belted out the theme song. In 1958 the length was increased to 90 seconds and a slight story line worked in with more ambitious backgrounds. Later sound effects—rodeo noises, beat whistles, seagulls, cows—were added. Today, commercials like Saguenay, while bearing the product message, are good TV entertainment in their own right. At last spring's Festival, director Wallace Ross praised their "freshness, originality and welcome lack of sponsor control."—<i>Barbara West</i>
it will, we think, make you a more careful driver. ■ On September 2, 1955, a Hamilton, Ont., woman, her husband and 10-year-old son were driving home from their cottage. The man was at the wheel. ■ "I don’t remember what happened then," his wife said later. "All I remember is the ambulance coming and then being in the hospital." ■ No one really knows what happened. They were in an accident—a split-second affair, as most accidents are. The husband was killed outright. The wife was badly hurt. Their son suffered severe brain injury. ■ For years his mother hoped he would recover. Now she knows he won’t. He may live to be 60 or 70, say doctors, but he will never even become conscious. Sometimes he laughs, sometimes he cries, but never knowingly. He recognizes no one. Once, he said "yes" — the only word he has ever spoken. ■ Most people would say he was injured because two cars collided — which is partly true. But when the car collided and stopped, its occupants kept going. They smashed themselves on projecting points, on the roof, the steering wheel and the windshield. To be absolutely accurate, the boy was hurt when he collided with the inside of his parent’s car. ■ Obvious though this fact is, it is rarely recognized. We devote much of our thought and effort, rightly, to preventing accidents. But they continue to happen, instantaneously, and often to people whose driving habits are faultless. Therefore, an all-important point is to reduce injuries and death by preventing what happens inside the colliding car. ■ Few of us realize that speed alone is not a prime cause of death and injury in cars. In Britain and in the U.S.A., it has been proved that most serious accidents occur in cars traveling at 30 miles an hour or less. At 30 m.p.h. the human body can be propelled forward forcefully enough to cause death. ■ Tests carried out by General Motors showed that in a 30-mile-per-hour crash the impact will roll up the hood of the car, push the engine back and damage the front wheels. The Ford Motor Company has also held crash tests, with similar results. Slow motion studies using dummies showed what happened to an occupant when a car hits a tree at 55 miles per hour (which most people regard as a “safe” highway speed). Here is the grisly sequence of events during the first seven-tenths of a second after impact. ■ One-tenth of a second — Front bumper and chrome frosting of grill collapse; steel slivers penetrate tree 1½ inches. ■ Two-tenths of a second — Hood crumples, rises, smashing into windshield. Spinning rear wheels leave the ground. Grill disintegrates. Fenders come into contact with the tree, forcing rear parts to splay out over the front door. Driver’s body continues to move forward with a force 20 times that of gravity. His body now weighs 3,200 pounds; his legs, held straight out, snap at the knees. ■ Three-tenths of a second — Driver’s body now off the seat, torso upright. Plastic and steel frame of the steering wheel bend under his death grip. His head is near sun visor, his chest above steering column. ■ Four-tenths of a second — Car’s front 24 inches is completely demolished but the rear end is still travelling 35 m.p.h. The half-ton motor block crunches into the tree. Rear of the car, like a bucking horse, rises high enough to scrape bark off lower branches. ■ Five-tenths of a second — Driver’s hands bend steering wheel shaft. Lungs
and intercostal arteries are punctured. 

Six-tenths of a second—Driver's feet are ripped out of lace shoes. The brake pedal shears off at the floor. Chassis bends in the middle. The driver's head smashes into the windshield. Rear of the car begins falling.

Seven-tenths of a second—The entire riding body of the car is forced out of shape. Hinges tear, doors spring open, seat turns forward, pinning driver against steering shaft. He is dead.

This doesn't make pleasant reading, but it brings home the tremendous force and speed of accidents.

"People often don't have time to brace themselves against an accident and if they did it wouldn't help them," says Dr. E. B. Hendricks, rectorneurosurgeon at Toronto's Hospital for Sick Children.

"Everyman did simply couldn't hold on.

The danger is greatest for children. Many mothers insist on holding babies while they sit in the front seat. Yet this is the most dangerous seat in a car and merely holding a baby will not save it, even in a relatively low-speed collision.

Dr. Hendricks studied head injuries to children who were brought to the hospital over a five-year period. Some 600 of the 2,000 child head-injury cases were the result of car accidents. Many had been standing in the front seat and flew through the air, battering their heads against the windshield or dashboard.

Children should normally travel in the back seat. A study by John O. Moore and Boris Tourin of Cornell, covering 16,520 auto accidents of all kinds, found that half of the children involved were in the back seat at the time and sustained fewer injuries than adults, most of whom were in the front. The same study showed that in front-end accidents, more than 60 percent of injuries were suffered by people in front seats.

Another danger is that doors may fly open, ejecting occupants onto the roadway. People who manage to stay inside a car are about five times less likely to be killed than those ejected. Most ejections occur from the front seat, another reason why the back seat is safer.

Heavy objects lying loosely in the car, especially those on the back shelf under the window, are another frequent source of injury. When a car slaps suddenly, they fly forward like shotgals.

Finally, in rear-end collisions, windshield injury to the neck is common and serious. Here the car, which is usually stepped or traveling slowly, is hit in the rear and propelled forward suddenly.

The passenger's head snaps backward, causing injury to the vertebrae.

All these problems have been carefully studied in recent years and some modifications to automobiles have already been made. For instance, in some later model cars, interlocking door locks have been introduced to prevent doors springing open. Instrument panels have been padded. Rear-view mirrors are provided with guards; they swing aside on impact.

In 1962 all Canadian cars built by Ford, Chrysler, General Motors, Studebaker-Packard and American Motors will have built-in seat belt frames to encourage the use of safety belts which will, however, remain optional equipment. Frequently, automobile companies are criticized for not providing belts as built-in features. The manufacturers reply that the people don't want them enough to pay the extra sum (about $10-$15 per person) and don't use them when they do have them. A study made with the help of the California Highway Patrol, showed that about three percent of cars in accidents were equipped with seat belts, but only one-third of the belts were being used.

Yet there is little doubt that seat belts reduce crash deaths and injury. They prevent ejection and lessen injury inside the car. D. W. McCullough, a general practitioner of Oceilla, Ont., studied serious accidents in his area which resulted in four deaths and injury to others. His subsequent report stated that seat belts could have saved four lives and minimized other serious injuries. Investigators in the U.S. calculate that 30 to 60 percent of the people killed annually in cars could be saved by belts. Saskatchewan Highway Safety Council says 78 of the 164 highway victims of 1960 could have been saved by belts.

To help encourage motorists to wear belts at all times, some safety officials point out that they also make driving more comfortable. You end your journey less tired because you have been riding "with the car.

Virtually all belts on the market are waist models, although one foreign automobile is fitted for shoulder harness. Other built-in safety features are being devised. At the University of Minnesota, one study has been devoted to car bumpers. The problem here is not simply to provide "bounce," which wouldn't help, but to cushion the tremendous impact. Hydraulic shock-absorbing bumpers are being evaluated.

The bumper consists of two sets of telescoping tubes attached to each side of the frame supporting the ends of the bumper and shield. University of Minnesota authorities say these reduce the "g" force in an impact by about one-half. They believe these bumpers could be added without affecting style or price.

Seats, too, are being studied. If they could be built to move forward slowly and only when extreme force is applied, they might help cushion the shock.

Liberty Mutual Insurance Company has devised a special vehicle called "Survival Car II" (a successor to a previous Survival Car) equipped with 24 safety features. They include: tall bucket-type seats to cradle drivers; head supports to prevent whiplash injury; a rectangular collapsible steering wheel; and complete shoulder harnesses (instead of the conventional seat belt). The company says this car would protect an occupant against deceleration forces of approximately 30 "g's" (30 times the force of gravity).

All these studies have one objective: packaging the passenger so that the car and occupants are decelerated together. Why aren't all these other safety devices incorporated at once?

The automobile industry says the public must be ready for them first. It has introduced many safety features over the years: safety glass, four-wheel and hydraulic brakes, dual windshield wipers, inside sun visors, windshield washers and defrosters, direction signals, dual taillights and stoplights, dimmer switches, sealed beam headlamps, power brakes, power steering, and automatic gear shift.

Perhaps motorists would clamor for still more safety equipment if they clearly understood the tremendous, damaging forces exerted against our puny bodies in an accident. But they don't. Every day you still see children standing up in the front seats of cars while the car is in motion, or mother in the death seat with baby in her lap.

Children in cars should be belted. If they can't be belted, they should be seated at all times. They should never be allowed to suck lollipops or eat ice cream on a stick in a moving car. There should be no heavy objects on the back seat. Dr. Hendricks believes babies should be strapped into "carcy-cots," or similar box-like structures, wedged well onto the floor in the back seat.

An accident can happen to anyone. It can happen so fast you have no time to save yourself. Only the proper "packaging" of humans within cars can prepare them for the fatal seven-tenths.