

# SLIDE RULERS

By John Fisher

This article, one of many radio talks by John Fisher, Canada's wandering reporter, is published by permission of the CBC and Mr. Fisher.

The nobs on doors, the shapes of cans, the slope of a road, the collar button, the light switch, the gasolene, the airplanes, trains and cars — even the shoes upon which we walk and the beds in which we sleep come to us from these: "SLIDE RULERS".

There was no big light in the sky this night. The big hook of Father Time had reached up and pulled down the moon. Even the stars had taken the pledge of total abstinence. A night beside the ocean, so dark it seemed black — black except for the thick gooey gray that seemed to hang from the sky and come up from the ground. The weatherman would mutter something about heavy fog conditions and mariners out at sea would curse the elements and praise man and modern eyes of radar which can see through nights like this. The Atlantic coast had a muffled look, even the sounds of nature. As each person walked that night he seemed to make his own channel through the fog — much like a man walking through a bank of snow, only this stuff was soupy and maddening in its softness. And street lights seemed smaller than a fire-fly's glow, and outside the ocean was growling on the shore; outside further she rose and fell and on her back moved the heels of economics. And there on the shore we could hear the slow steady growl of the fog horn, as if in courtesy to this invention of man, the fog lifted its curtain long enough to let the low tones slip through. Mournful and steady it growled, and as I listened to its protest, I wondered about this invention. Who did invent the fog horn, anyway? Who gave the world of shipping this blessing — this one voice which speaks when night is black and dark? Had Robert Foulis been born in any other country, his name would live in the classroom and museum, but the inventor of the fog horn was a Canadian, and in Canada we seem to forget our distinguished sons. The fog horn was invented partly by accident, and partly because its inventor was a student — always curious.

It was a dark foggy night when Robert Foulis was walking along the streets of Saint John, New Brunswick. He couldn't see a thing in front of him, but as he neared his house he could hear his daughter practising the scales on the



piano. At least it sounded like the scales, but right beside the house he found differently — she was actually playing a musical composition. How strange, he thought, that in the fog he heard only certain notes. He asked his daughter to play the same thing over and over. Then he took out his watch and counted off so many feet. He listened, he moved forward, he listened. Again it was only the low tones that came through the fog. Robert Foulis knew he had discovered something. He had — the foghorn. It was not long before the whole marine world rendered thanks and their blessings to this Canadian inventor who died a poor man. From his simple idea, engineering has made the fog horn a principle of water travel.

The light switch on the wall, the knob on the door, the cap on the bottle — the wonders of science and the simple things we take for granted — all had to be engineered; all had to be invented first. How great is our debt in society to the inventor and the professional engineer who makes the wonders usable and practical.

Last week when in Halifax, I met my old friend, Ira P. MacNab, who is President of the Dominion Association of Professional Engineers. Next year he will be head of the Engineering Institute of Canada. Ira MacNab, who has worked as an engineer in Venezuela, Mexico, the United States and parts of Canada, believes that no country in the world holds greater opportunity for the professional engineer than Canada. He believes the day of the young engineer leaving this country the day after graduation are finished for good. There is no greater indication of the new developments in Canada than a survey of the engineers being turned out by Canadian uni-

versities.

We are turning out nearly five times as many as we did before the war and yet there is still a great shortage of engineers. Before the war we thought 800 engineers a year was pretty terrific. This spring more than 10,000 new professional engineers have come forward to help with the building of Canada — not alone in the dazzling shows of Shipshaw, Welland, Labrador, Pipelines, Steep Rock, power projects, Chalk River — yes they serve here, but the great service is behind the scenes, in the factories and assembly lines which keep us strong. Canada, in the eyes of an enemy can never be rated for the number of troops she can raise, but she is known for her engineering, for the strength of the industrial front. In that line we are a front ranking power. Modern industry is geared to science and the engineers are the cogs in that alignment. From farm implement makers to toy manufacturers, from airplane factories to flour mills — they all need the special talent of the professional engineers.

You will note that I am using the word 'professional' engineers. The various associations in Canada have been trying to have the word 'professional' adopted in general use. They want to draw a distinction to the man who runs the locomotive and the university graduate in engineering. Some of the big Canadian companies such as Shawinigan, Consolidated, Ontario Hydro, will have hundreds of professional engineers employed. One big company which manufactures light bulbs and motors and things electrical told me that out of every 27 employees, one is a professional engineer. And as industry grows more and more complex and the bonds with the world of science are tighter and tighter, the more we will depend on the engineer. Behind the Iron Curtain, today, they put tremendous emphasis on the engineer. The dictators behind the Curtain know what modern wars and indeed a high standard of peace are won and maintained by the power of the industrial front.

Last year I met a high school graduate who wanted to study engineering. Several people advised against it — they told him there were too many engineers being turned out of college. I believe these cautious folk are wrong. This country is moving so fast we find ourselves acutely short of professional engineers. And besides, today, Canada is in the world engineering market. We are now big exporters of engineering brains to India, Mexico, South America, Greece, Israel and all over the free world. The other day I met a Canadian professional engineer just back from Casablanca, Morocco. The project had been designed in Canada and supervised by Canadians. The ancient lead zinc mine in the Atlas Mountains, worked by the Romans 2000 years ago is now being reopened and developed by French-American capital, but the mining machinery, the shaft house and mill, the grinders, crushers were designed by Canadians.

The biggest mine hoist in all North America is a freight elevator which will lift ore for the International Nickel Company at Sudbury. I noticed a little item in the paper about it recently. It was built by John Bertram and Sons Company in Dundas, Ontario. A little notice in the paper, but a Canadian engineering job employing hundreds of men — the building of a freight elevator which will haul

to the surface 500 tons of ore an hour. Now imagine how busy the industries of this country will be in the building of a railroad in Labrador. Imagine the indirect benefits which will come to industry when we start moving ten million tons of iron ore a year. And think of what will happen when we complete the oil pipeline . . . run it right to Montreal. Hear too, the talk of a natural gas pipeline to Montreal from Alberta . . . plans for a huge aluminum development in British Columbia . . . another nickel company in Manitoba . . . big uranium works in Saskatchewan . . . enormous power developments in Ontario and Quebec is fairly panting with development these days. Even in the Maritimes there is steady growth. In Newfoundland they of course, hold part of the rich acreage of Labrador. As the Honorable C. D. Howe, himself a professional engineer, said the other day — this is no country for pessimists. It certainly is an engineer's dream — for we are still largely undeveloped. The more big spectacular engineering jobs we have, the more we will need smaller unsung ones in the plants. And there are some spectacular ones in addition to the mountain tunnels, Welland Canal, Quebec Bridge, Polymer at Sarnia and so on.

One of the most thrilling engineering accomplishments is at Port Arthur where the box cars from the Prairies are emptied. The car rolls in, a giant machine reaches forward, grabs the box car, lifts it, tilts, spills the grain out swoosh. And to make sure it is completely unloaded, it tilts the box car end to end. At Cornwall they built an automatic rayon plant where 5000 separate filaments of thread are created from

nozzles no thicker than a lead pencil.

Another intriguing invention, I saw this summer when guest of the Ontario Northland Railway. We stopped at Cobalt to inspect the silver mines. Now each mine requires great quantities of compressed air to drive the drills. Compressing air is expensive. About 40 years ago when Cobalt was the biggest silver camp in the world, a Toronto engineer developed a scheme to produce air for nothing. He took the principle of the kitchen sink. Have you ever noticed how the water swirls around the little screened drain in your sink. It creates a suction and pulls the water down. Sometimes it goes down with a gurgle. Well, this Toronto engineer dammed up the Montreal River. Above the rapids here there is quite a drop in the river. Under his dam he placed two cylinders with holes in them like a kitchen drain. Only the holes led to pipes which went straight down. As the water from the dam swirled over these cylinders, it was sucked down and went

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An obvious atmosphere of several at the Stag Party. Left to right: "Perk" Perki

A Report of (continued from) to such an extent impossible to find alone to keep it open. Highway was cons supplies over to the way from the ocean struction, and is s purpose. From Haines Ju the Alaska Highw north west, one c high plateau, the I gion, and finally frost area around. At mile 1130 the the Donjek River seven trestles. A time, the Army i seven span steel bridge has been tion for several ye pletion is not ex years to come. I because one of the construction to give practical bridge building to Also, because it frost area many holdups have o completed, the bri provide a better Donjek River, b out several miles highway. It is well know tion in permafros more difficult t which alternatel thaws. In most f frost is covered muskeg. If this ed, the ground t upon exposure to result is a soupy is impossible to smallest building last. There ha where tons of p placed on thawed never seen again most satisfactory struction on permafrost the muskeg, and Between the I the Alaska borde almost entirely frost and is not it was in the so is continually l and repaired wh is always open t The Alaska b 1221, and from l the highway is Alaska Road o quality of the r same as on the C interesting to not mer of 1949, the topped a section in Alaska, which condition in the having survived and spring thaw damage. It mu however, that t was almost wh try and it would tion of the succ Canada. The h is in a much n region and there to warrant the c unpaved road is a par with many where. At the present in Canada is n Canadian Army