4. R.H. COATS: A CANADIAN LEGEND, OTTAWA, 1936-42

Coats was a shrewd Canadian of Scottish ancestry, who knew his personnel, and did not overestimate their judgment. I was summoned upstairs, wondering with some trepidation what was going to come next. In fact it was the beginning of a firm friendship. Coats invited me to lunch at his home in Rockliffe on that occasion and again a number of times over the next few months. You will know what sort of person Coats was when I tell you that his book-lined living room contained the 20 or so volumes of the Oxford English Dictionary. He even consulted it once when we got into an argument about the meaning of a word. Of statistics there was not a sign.

A word on Robert Hamilton Coats (1874-1960) from the official history of the Bureau published under Dr. Ivan Fellegi (75 years and counting). Robert Hamilton Coats graduated from the University of Toronto in 1896 with a B.A. in classics. He then went to Ottawa to work for the government's Labour Gazette, eventually as editor. He soon moved on to statistics, however, and in 1905 was appointed Chief Statistician at the Department of Labour.

Dr. Coats supervised the creation of the Dominion Bureau of Statistics in 1918. By the time he retired as Dominion Statistician in 1942, Dr. Coats had given Canada a centralized and coordinated statistical system and had greatly expanded the Bureau's program.

It just happened that when I received my B.A. in 1934 Coats was on the platform--that year McGill gave him an honorary doctorate.

A far more advanced expression of trust than having me to lunch was asking me to read and comment on an address he had written for the occasion of his taking over as President of the American Statistical Association in 1939. It was packed with classical references--in fact there was nothing there except scholarly references. Coats had followed a classical course for his BA at the University of Toronto, and aside from that, he was a great reader. I hesitatingly suggested that the detail looked good, but surely it needed some big idea to pull it together. He agreed, saying something like, "Of course, but I don't have a big idea, so I have to let a lot of little ones carry the presentation."

He took me to Detroit so that I could hear him read the Presidential Address to a large gathering that included most of the statisticians of the day. The audience listened courteously, applauded where appropriate, and no one ever mentioned the address again. Coats was pleased with the reception of his talk, apparently unaware that it could have been appreciated only by Greek scholars in that audience of statisticians.

R.H. had an endless stock of stories that told much of his interests. One of his favorites was of his father, who had immigrated to a small Ontario town, and had a servant from "the old country" (Scotland, of course) who approached him one morning and said she had had a dream that her mother was very sick, and needed her help. Under questioning she insisted that such a dream could not be disregarded, and she had to go. Her not ungenerous employer yielded, bought her a ticket, and wasn't sure when, if ever, he would see her again. After three months she reappeared and resumed her duties.

Another story, this one well known. When someone asked Wellington "Do you think your soldiers will frighten the enemy?" he replied "I don't know about the enemy, but by God they frighten me." There was something about this that tickled Coats, and he told it more than once

Coats was a great friend of Editor O'Leary of the Ottawa Journal, a somewhat Conservative paper. O'Leary's son Dillon, whom I knew well, was decidedly radical. It is this way that children so often get back at their parents.

My relation to Coats continued close, and I was promoted. I was given a supervisory job and was responsible for the work of a dozen or fifteen clerks.

I don't remember much of what we did, but there was one event that seemed all-important. The King resigned, abdicated. History books tell us that when King George V died he was succeeded by King Edward VIII. There were plenty of rumors about the King and Mrs. Simpson, an American divorcee and not regarded, especially by Prime Minister Stanley Baldwin, as a suitable match. I don't know how the negotiations between Baldwin and Edward went, but do know that on December 11, 1936 Edward gave a formal speech announcing his abdication. My little group we gathered in a circle around a radio (then still something of a novelty) that someone had brought. It started and ended as follows:

At long last I am able to say a few words of my own. I have never wanted to withhold anything, but until now it has not been constitutionally possible for me to speak.

.....

I now quit altogether public affairs and I lay down my burden. It may be some time before I return to my native land, but I shall always follow the fortunes of the British race and Empire with profound interest, and if at any time in the future I can be found of service to His Majesty in a private station, I shall not fail.

And now, we all have a new King. I wish him and you, his people, happiness and prosperity with all my heart. God bless you all! God save the King!

Edward VIII - December 11, 1936

The work of the Bureau continued to be suspended while we discussed the meaning of that speech and the consequences of the abdication it announced.

Coats was fond of telling me about the injustices wreaked on him and the Bureau by the Minister of Trade and Commerce whose charge included the Bureau, and he certainly made no attempt to ingratiate himself. For space in which to work the government allocated to us a two-story spread-out building in rough brick that had been the stable of the Edwards Lumber Company. (In those times horses provided the energy that brought out the lumber.) Now the trees in the Ottawa area had all been cut, and the government bought the site with the intention of clearing it and making a decorative parkway, but nothing could be done during the Depression; and many years passed before this large and expensive project was accomplished.

So the stable was allocated to the DBS, and the mill proper to the National Film Board. Remarks could be made on a building disused by horses being turned over to DBS, a sign of the stormy relation between the government and R.H. Coats. After "R.H." retired the relation improved and we were given the "new building" (now old in its turn) in Tunney's pasture.

Yet with all his eccentricities Coats was a man with vision and a consistently followed mission. He saw at this early stage that dispersing statistical work among the various ministries resulted in wasteful duplication and inhibited the growth of statistical professionalism. So he campaigned indefatigably, starting in a report he wrote in 1915 on the organization of statistics in the Federal Government, unambiguously favoring the centralization of all statistical compilation. A single agency was to compile justice statistics, labor statistics, manufacturing statistics, take the census, and provide for other statistical needs. It is this more than any other single factor that has placed the DBS (later Statistics Canada when "Dominion" got to be a bad word) in the forefront of statistical agencies in the world.

The UN Sampling Sub-commission, Geneva 1947

On what was to be my very first crossing of the Atlantic, the DBS wanted me to represent it at the meeting of the UN Sampling Sub-committee of the Statistical Commission of the Social and Economic Council of the then new United Nations. .

Getting me to Geneva was the work of J.T. Marshall, Assistant Dominion Statistician, and he made a big operation of the planning. I would be leaving from the Port of Montreal, on the Canadian Pacific liner Duchess of Bedford, an old ship that had survived the war--there were better ships that hadn't. It rolled with the waves and earned the title of the Drunken Duchess. The plan called for me to disembark in England, put up for the night in the Grosvenor Hotel, then go on to Paris, where I put up at the .Hotel George V, just off the Champs Elyssees.

From Paris I took the train to Geneva, where the meeting was to be held. The Chairman was P.C. Mahalanobis, R.A.Fisher was Consultant, Frank Yates was the member for the U.K., W.Edwards Deming was the member for the United States, and the French sent a top mathematician, Georgs Darmois. My status was only that of observer.

What I observed was the great R.A. Fisher holding the Times carefully folded to show the day's crossword puzzle, and kept below the level of the desk. And every now and then he surreptitiously wrote something in it. And I also remember Mahalanobis getting twisted up on the electronic hearing equipment. When he spoke, which was often, he would hold the microphone very close and left his earphones open--almost as though he was anxious to hear his own amplified voice. What he got was a loud burst of interference.

I don't remember much of the deliberations, but I do remember that a report was drafted and submitted to the group. When Deming got it he writhed, he didn't like any of the wording, and set about rewriting it while I looked on. The next day his draft was distributed to the Sampling Subcommission, and the members tore it apart. There was really no difference in point of view--all members were in favor of sampling, the differences were mostly between American English and English English. R.A. Fisher as Consultant might have helped to reconcile the differences, but he actually took no part in the deliberations--he was too busy with the day's crossword puzzle.

The DBS, using Canadian Government funds, had arranged a luxurious room for me at the hotel where we all stayed, and Fisher's allowance only provided a smaller room, without its own bathroom. I just couldn't stand the thought that unimportant me would be better put up than the great Fisher, and on my initiative we interchanged rooms without changing the billing. Fisher thanked me heartily, saying more than once that I had allowed him to have a bath. When we met in half-a-dozen places over the course of in the succeeding 25 years of his life he treated me as a friend. I didn't sense any condescension in his attitude, even though I was expecting it. It looks as though that bath served me well.

My mountain climb, Le Fer a Cheval, Chamonix, 1947

On Friday afternoon, as the deliberations were about to recess until Monday, Yates looked around the group, and saw me as the only one there who might conceivably accompany him on a mountain climb. I agreed readily, not realizing how arduous it would be. Yates himself had climbed in many parts of the world, and was in superb physical condition. My condition was no better than average. We saw him several times since, and he stayed with us at least once and recounted climbs he had made. Mountaineering must be healthful; he made age 92.

We met on Saturday morning, Yates looked at my dress shoes and said "They'll do, but they won't be much good afterwards." After an hour or so on a street car we were in France and at the foot of the Fer a Cheval. And so we set out on the four-hour 5000 feet climb. At first I streaked ahead, but when I looked back I saw Yates taking tiny steps, and going very very slow. I got into step with him, and we climbed.

The most thrilling moment of the day was when we broke past the tree-line, and there saw stretched out before us like a map the beautifully groomed French countryside, with tiny farm houses and neatly plowed fields.

But we had another hour to get to the top, and I was exhausted. I just couldn't go further. So Frank carried on by himself, and picked me up again on his way down. Going down was easy? Not at all, but somehow I made it. And the following day I was plenty stiff.

A property owner

Beatrice and I started married life in the Tweedsmuir basement apartment, but on my in-laws invitation soon moved into the house that Henry Orkin had built with his own hands on the Metcalfe road. They needed the rent we would pay, a rent less than we were paying for the apartment.

But soon we felt a yearning to have our own house, and we bought a small self-standing house, 5 Bristol Avenue.in Ottawa South. We had a mortgage, and also a debt for the down payment, as mentioned earlier. We also had a spare room that we equipped with a bed, and rented out. The arrangement was that the tenant got the room and kitchen privileges, and we got the rent plus baby-sitting services.

Our first tenant was Dorothy Short, a young lady with a somewhat short temper, who just didn't like our two children. When Robert, a baby who was always hungry, one night had colic, and Beatrice spent the night carrying him up and down the hall in the attempt to soothe him, Dorothy complained that she had been disturbed by her allowing him to cry all night, and there was enough ill-feeling that Dorothy moved out. I was sorry she left, for I saw many good points about her, and even formed some affection for her.

She was followed by Jeanne, a Franco-Canadian, a very different type, charming and always pleasant. She had the inestimable value of talking French to us, despite having to tolerate the bad grammar and worse pronunciation on our side.

She left us when her business took her away from Ottawa, and Mary Roseberry came and occupied that spare room. She became something of a life-time friend. She married Richard

Salisbury, an anthropologist of distinction, who died young, not only a blow to his wife and friends, but a serious loss to the profession. Our acquaintance with Mary then suffered a gap of many years.

But just recently we caught with her. Our Barbara was appointed Director of the Fields Institute, whose not inconsiderable funding is devoted to the furthering of mathematics, through post-doc fellowships, conferences, and in other ways. And she has just met her Deputy, a young man named Salisbury. We knew that she and Dick had a son, had even met him once. And through the son and our daughter we hope to catch up with Mary.

Is it ever an advantage to have too little money? Yes, for if we had had enough we would not have needed to rent out a room, and never met the bright young people of this note.

My life as bureaucrat, Ottawa, 1936-1959

Starting work at age 23, I spent the first 23 years of my working life with the Dominion Bureau of Statistics in Ottawa, and there had much boredom as well as some opportunities and challenges.

Counting the ration cards

For example I was assigned the task of counting the ration cards issued to the Canadian population in wartime. This was the early 1940s, and machines to do the counting were far in the future. There was some hurry to complete the task in order to apportion the wartime provisioning of necessities to the several cities and rural counties, and I was assigned a staff to handle it quickly. Testing to ascertain the speed with which our clerks counted, I found that the job would take years. The war could be over before the numbers were available.

So I devised a scheme for counting by weighing. We would hand-count 1000 cards, and then weigh them and after that weigh the cards contained in the boxes piled on the floor. But pounds and ounces would be a useless complication so we made our own unit. Neither metric nor foot-pound-second. We had a clerk count and another clerk verify 1000 cards, tie a string around them, and use that bundle as our unit weight. We did not need scales, just a balance.

Having established the unit, we divided all our cards into bundles of 1000 with the balance. When we knew how many thousand card bundles we had for a city we knew the ration card total for that place.

But with a little experimenting I found that the weight of cards varied from day to day, i.e. was a function of the atmospheric humidity. I came to see the piles of cards as living things, sucking in

water vapor for a few days, then evaporating it out as the weather went through a dry spell. Our count would be very rough if this was not taken into account. So several times each day we counted out new standard bundles of 1000 cards

All this was in a time when counting meant counting, licking one's fingers and muttering under one's breath "1, 2, 3, and so on". The rather obvious idea of weighing seemed so ground-breaking that it earned me a promotion.

That is all there is to say about the ration card experience, except for one incident. We had rented a gymnasium in a school building some distance away to house the cards, and they were in filing drawers on steel shelves about six feet high, The stacks seemed solid enough, but one day the supervisor in charge, luckily a young man of good hearing, noted a slight sound of movement at one end of the hall, and quickly ordered everyone out of the stacks, just in time to see a wave of collapsing card-filled shelves that went down the whole length of the vast room. Goodness knows what would have happened if the order to evacuate had not been given.

Then, also during the war, the proposal for a Mothers' Allowance scheme came up in Parliament, and I was asked to estimate what it would cost. As planned from the start, it would send a monthly check to each mother according to the number of her children and their ages. The check written to the order of the mother rather than to the male who was quaintly called the "Head of household" in the Census did not fit the patriarchal views of the time, but the government insisted and that was the way it was enacted. The sums allocated were not large, but they did make a huge difference to poor mothers. So the scheme was pro-woman and egalitarian. It showed more than just symbolically the appreciation of the community for the devotion of mothers to the vital task of child raising. It helped in raising and educating the next generation. Altogether a worthy scheme, after 50 years still firmly embedded in Canadian Federal budget-making. But it was a scheme that would be treason to promote in Washington today. There motherhood is so sacred a symbol it must not be contaminated with money!

How did I, a middle-level public servant, entirely outside of politics, come into this? My cost calculations showed that it was not altogether extravagant, it would not sink the Treasury. My calculations were found useful by the proponents of the scheme in Parliament. Now, most of 60 years after its enactment, it still retains the support of all parties. I keep speculating why such a uniform Mother's Allowance is OK north of the 49th parallel, unmentionable south.

Again, I turned up some data from a height and weight survey of Canadian children, carried out in 1931 and again in 1941. They showed that the average height of 10-year olds rose by about half an inch in the10 years. More important for policy, it showed large differences among social classes at any one time: areas of high income showed taller children, age for age. Nutritionists

found such data useful as did those leaders who argued for social measures that would tend to equalize incomes, would moderate the harshness of a free market system to the poor.

These were high spots of my experience as an official statistician. Useful, perhaps, but not very exciting. And I have to admit that my life in Ottawa was brightened by the opportunity to visit and live in various less developed countries. The Government of Burma wanted a statistical officer for three months in early 1951 to help it take a Census and I was named. U Than Tut came to Ottawa to negotiate for my services, and through the entire visit he was my mentor.

For about a year I was assigned to the External Trade Section, headed by Arthur Neal. The work was in considerable part answering questions from the public--usually business concerns--about the imports of iron bars, or some other of a thousand other items in the customs classification. Arthur was one of the smartest people I have met, in DBS or elsewhere, and also the laziest. When a request came in he groaned, and was pleased and relieved when I undertook, even with some zest, to answer it. The only character in literature that represents such a type is Oblomov, an aristocrat and estate owner in a novel by Goncharev. He could not be bothered collecting the rents from his tenants, so he had a assistant do it. He could not be bothered even sitting up, and spent much of his days in bed. Goncharev intended him as a satire on the Russian nobility in Czarist times. But in the New World such laziness, such lethargy, is nearly non-existent--Arthur Neal was unique.

Another member of the section was a man by the name of Tingley, who sat all day examining the financial news, and calculating the value of his holdings. He refused to do any of the work for which he was paid, and had been paid over the course of years. Getting Tingley fired out of the Civil Service was a huge task, so solid were the protections for anyone who was in the permanent service. It was a task into which Arthur put his heart, and during my tenure in the section he was rewarded. Tingley was out.

Another activity in which Arthur came to life was amateur photography. He had a well-furnished dark room in his Rockliffe home, and there for the first time I saw an actual picture emerge in the developer fluid. From that moment onward, and for a year of two afterward I was an amateur photographer, spending most of my spare time in my own well-equipped dark room.

Beatrice was never infected with this passion, and on one occasion it brought us to sharp words. I was in the habit of using the kitchen oven as an adjunct to the darkroom for storage of printing paper and other valuables, and Beatrice turned on the oven (so she said) without looking and destroyed most of 100 sheets of 8 by 10 printing paper.

When R.H. reached 65 he retired, as required by the rules then prevailing. I thought it would be nice to signalize the occasion with pictures of the 30 or so men and women who had worked with

him. So I went the rounds with camera and flash bulbs and took the Bureau's 30 or so heads of sections in characteristic poses. After a lot of dark room work I emerged with a bound book that I presented to Coats at his retirement ceremony.

Given R.H.'s more than friendly treatment of me over five years, it may not be irrelevant to mention that he never had children of his own. I was just about the age to have been his son.

So the Bureau went on--under Herbert Marshall, successor to Coats as Dominion Statistician; we had a new building, and ultimately I was made Assistant Dominion Statistician, My pay had gone up from the initial $75 a month to nearly $1,000 a month.

There were always a few ingenious and energetic individuals in the Bureau, even though those qualities were not listed in the specifications of the job. . One was Sidney B. Smith, who on his own was making a compilation of the national accounts, long before it had occurred to anyone else to do it. R.H. Coats had said to me, "Go up and see what Sidney Smith is up to." When I did ask him questions it turned out that his methods were homemade, his definitions not always the same as those officially established internationally after the War.

And because Smith was isolated in Ottawa he knew as little as I did about developments in national accounts in the outside world. All I could report to Coats were Smith's initiative, energy and ingenuity. I am afraid that Sydney Smith and his work were forgotten, and the whole project was started up afresh with personnel newly hired and bypassing Smith, on the model provided by the United States. The executive in charge was Simon Goldberg, who saw that the American model would be adopted worldwide. No discredit to Simon, but this is one of many items in which Canada has somewhat slavishly followed the United States. I myself was party to the same tendency in sampling and other fields.

None of what I say above gives any idea of the enduring contribution Robert H. Coats made to Canada. His monument is the Canadian statistical system and more visibly, a 40 story building that dominates Tunney's Pasture. He was a stubborn and tireless advocate of the consolidation of statistical work of the Federal Government under a single roof. As early as 1915 he wrote a report to this effect on the organization of the Canadian statistical system. He pointed out that statistics were coming out of all corners of the Canadian government; there was no standard of classification, no comparability, no professionalism in the compilations. Coats recommended a unified system that would take the place of this chaos. Unlike the American system, it was to be a centralized arrangement, in which the DBS would collect data on the several industries, would take the Census, would advise the Government on what data were needed and what they would cost. The Government of the day accepted his report. On it has been based the organization of Canadian statistics ever since.

Coats saw the avoidance of duplication, the technical advances that would be possible, and the skilled personnel who could be developed, if the statistical units of all departments were collected together under one roof. The authorities agreed and they were persuaded to embody this idea in the Statistics Act that established the DBS and its successor agency Statistics Canada. That has resulted in a Canadian system arguably the best in the world, all within the framework of Coats's vision. To me the minor eccentricities that I have reported here are merely amusing features of a truly great man.

I said earlier that the DBS was a sleepy bureaucracy in my time. But one exception deserves to be mentioned: the computers in DBS in 1936.

When I joined the DBS some 67 years ago, the electronic computer was not yet on the horizon. The radio had just come into mass use, and it contained vacuum tubes, so that it could be used as a switching device, and be available for computing. Even that was not in sight until such people as Aitken at Harvard (whose lab I visited in the early 1950s), and Eckert and Maughly in a garage in Philadelphia did their work.

But Fernand Belisle, a Franco-Canadian working in the DBS, with not much formal education but plenty of native ingenuity, came on the scene. The tabulation of the Decennial Census had been carried out since before Confederation by clerks who simply counted the number of men and of women, of people of the several ages, and wrote the results on large sheets. One can well imagine the errors so introduced, as well as the cost.

A home-grown genius anticipates the computer age

Fernand Belisle thought of a better way. He experimented with the census data punched on cards, a hole for each category of age, of sex, of years of schooling etc. Then the card was passed between two metal plates with holes for all possible punches. At the moment when the plates closed down on the card and held it firmly a strong puff of air was pushed though the holes that were punched, and the air continued moving through windshield wiper tubing – seemingly miles of it altogether – to a set of simple hand counters sold in sporting goods shops so that athletes could count the numbers of times they went around a track. These counters were arranged on a board just like a huge copy of the punch card and suitably labelled. Finally a camera was set up to photograph the totals once a batch (perhaps for the population of a town, or a rural township) had been run through.

This accomplished the tabulation of the 1936 Census of the Prairie Provinces of Canada. .

The only thing wrong was that the system was very slow. The maximum speed at which it could operate was limited by the inertia of air. The air could only be moved so fast.

So Belisle turned his attention to doing the same thing with an electric circuit. Electricity surely has no appreciable inertia. So he started all over again, with the difference that now wires replaced the tubing, and a circuit breaker was introduced to interrupt the current between cards. That involved a large copper drum, and the flashes--30 times a minute or however fast the cards could be passed through--made the computer room look as though an electric storm with thunder and lightning was passing through it.

By the 1950s International Business Machines (IBM), whose income came from sorters and tabulators, not usually sold but rented to the client, could see the electronic age ahead, and their engineers were set to developing equipment accordingly, but in secret, not wanting to affect their lucrative rentals for the soon-to-be obsolete sorters and tabulators any earlier than was inevitable. As a representative of DBS, a major customer, I discussed this with the people at IBM in Poughkeepsie.

Hermann Hollerith founded the TMC (Tabulating Machine Company) in 1896 that became IBM (International Business Machines) in 1924. No firm has had a more important role in the development of computing. IBM has throughout its history had the largest number of the most creative scientists. It has had a crucial part in the development of computers to the central point they hold in the modern world. Now that computers are old stuff, I can claim that I was a skilled user up to the 1980's, but then they passed me, and I am no better than any other duffer struggling to get along with Windows and MacIntosh.

When after 23 years I left the Bureau, Walter Duffett had just been appointed Dominion Statistician. Walter was sure that it was because I was disappointed in not succeeding to the office of DS. He was wrong. I had affection and respect for Walter, and sincerely thought he was doing a better job than I would have done.

When in 1959 I left the Bureau of Statistics it was to become a Professor at the University of Toronto. I could hardly believe the conditions of academic life, so new and strange--no clock to punch in the morning, disposal of time at the pleasure of the faculty member him-or her-self, the only requirement being to put up to 12 hours of the 24 into solid scholarship. The life was what I had tried to maintain on weekends and holidays when in the civil service; now I was to be doing it full time and actually paid for it.

When Vincent Bladen, a genial English economist and the Dean at the U. of T. called inviting me to join, I accepted with alacrity, in fact I answered on the spot, without any further discussion. My secretary, the very loyal Jean Duffus, commented only "I was afraid this was going to happen."