

GSCHIS-A022**Author:** Robin Riddihough**Title:** The Earth Physics Branch (EPB) - Geological Survey of Canada (GSC) merger, 1985 -1986: a personal diary**Friends of GSC History, Series A - Historical Contributions, no. GSCHIS-A022****Date of this version:** 2021-05-28**Released:** 2021-06-02**Number of pages in document:** 10 pages**Author Biography:**

Robin P. Riddihough

After a Bachelor's in Geology at Kings College, London in 1959, Robin Riddihough completed a Master's and PhD in Geophysics at Imperial College, London. His subsequent research career, largely in marine magnetic and gravity surveying, continued through Italy, UK, Ireland, Canada and the USA, and resulted in over 90 publications.

He first came to Canada in 1970 on a post-doctoral fellowship at the Earth Physics Branch (EPB) in Ottawa. After another spell in Ireland, he moved to Victoria in 1975 as a Research Scientist at what was then the Victoria Geophysical Observatory - later to become the Pacific Geoscience Centre. He moved to Ottawa in 1985 and with the merger of the EPB with the Geological Survey of Canada (GSC) in 1986, became Senior Scientific Executive Officer. He became Acting Chief Scientist (GSC) in 1987 and was then Chief Scientist from 1989 - 1993. He remained in senior management for the rest of his career, retiring as Senior Communications Advisor in the Assistant Deputy Minister's Office of the Earth Sciences Sector in 2001.

The Earth Physics Branch (EPB) - Geological Survey of Canada (GSC) Merger.

1985 -1986



A Personal Diary – Robin Riddihough.

I first joined EPB as a Post-Doctoral Fellow in 1970. After two years in Ottawa I returned to Ireland. In 1975 I rejoined EPB as a Research Scientist in the Victoria Geophysical Observatory. It moved to the Pacific Geoscience Centre (PGC) in 1977.

I transferred from PGC to the office of the Director General (DG) of EPB on Observatory Crescent in Ottawa on April 20 1985. My job was to assist and advise the DG, Jim Tanner, in dealing with the organisational and budgetary pressures that seemed likely to affect EPB in the immediate future. I was joined in this exercise by Pierre Lapointe from the Geomagnetic Lab in Ottawa. I also took on Editorial duties for the preparation of the Lithoprobe “Black Book” proposal.

A short history

The origins of EPB were in the Dominion Observatory, founded in 1905. Its scientists studied Positional Astronomy, Seismology, Geomagnetism, Gravity and Geodesy. Through numerous organizational changes over the next 60 years, Geodesy, Astronomy and the Time Service were transferred to other parts of the federal structure. The remaining scientific disciplines remained together to form EPB in 1970.

On the West coast, the Dominion Astrophysical Observatory in Victoria was established in 1917. In the 1950s, with the addition of seismology and geomagnetism it became the Victoria Geophysical Observatory, later the Pacific Geoscience Centre.

1980s context:

The early 1980s was a period of upheaval in many federal government departments. This began with an A-Base Review in 1982. Among many other things its results mentioned the feasibility of an EPB/GSC merger but had concluded that there was “little to be gained by it”. However in November 1984, Finance Minister Michael Wilson in the newly elected (September 1984) Conservative Government of Brian Mulroney, announced a period of fiscal government restraint aimed at implementing \$4 billion in cuts during 1985-86.

A bevy of Task Forces/Teams was established – the “Neilsen” Task Forces (Eric Neilsen was Deputy Prime Minister). They were charged with investigating subject areas such as Surveys and Mapping, Canada Centre for Remote Sensing, Natural Resources, Major Surveys, Agriculture, etc. Rumours abounded about the membership of these Teams and certain people on them who may or may not have had personal axes to grind. Within the Department of Energy, Mines and Resources (EMR) a preliminary budgetary reduction target of 8% was proposed. According to Pierre Perron, Associate Deputy Minister in EMR, the time now seemed right to “re-examine and rationalize” the earlier EPB merger idea. For EPB the writing was now definitively on the wall.

A background irritant:

The fact that the Atlantic Geoscience Centre (AGC) on the east coast was part of the GSC and PGC on the west coast was part of EPB (with some secondment of personnel from the GSC’s Vancouver Office), had already been the subject of “muttering in the ranks”. The reasons lay in their historical development but there was a feeling that it would somehow be “better” if they were part of one organization. This issue, in one form or another, lurked in the background for many years. As someone who had played a leading part in the evolution of PGC, I was unfortunately always a suspect. Although, in my innocence, this did not really occur to me at the time, it may have played a part in subsequent developments.

Reinforcements:

In what was perhaps someone’s premonition of things to come, in 1984 the Canadian Geoscience Council was asked to conduct an external review of EPB. Under the Chairmanship of George Garland (University of Toronto), a specially convened committee of industry, university, international, and provincial representatives sent out a detailed questionnaire asking 360 industry, university and government users for their assessment of the various activities of EPB. They were asked to assess its objectives, effectiveness, results and impacts and consider alternative delivery options. The overall results were strongly supportive of the current work of EPB, stressed that it should exist as a separate federal centre for geophysics in Canada and proposed that its name be changed to the “Geophysical Observatory of Canada”. Results included 27 detailed recommendations about all aspects of EPB’s activities.

One of my first tasks in 1985 was drafting the official government response to the Garland Report to be included in the bilingual, printed version that would eventually appear. I duly produced a draft but, needless to say, circumstances were now such that it was not about to appear very quickly – the inevitable “long finger” was being applied. (I will come back to this later).

The battle begins:

In August 1985, ADM Bill “Hutch” Hutchison asked Jim Tanner for his views on possible re-organizations in the department. Jim (with the first of many examples of drafting support from

Pierre and me) duly replied and many of the findings of the Garland report were included in his long memo on the subject.

In the memo he repeated Garland's primary recommendation that EPB remain and be strengthened as the federal centre for Canadian geophysics. Jim then went on to consider 3 options for doing that:

- (a) Transfer geophysical parts of the GSC into EPB;
- (b) Move all national geophysical programs from EPB, GSC, AGC and PGC into a "new" GSC;
- (c) As (b) but add the Geodetic Survey from Surveys and Mapping.

He felt that if reducing financial resources was the over-riding factor, (a) would probably be the best option. He noted that this was a unique opportunity to create an organization that would be the envy of many other countries.

Next round:

From our little oasis on Observatory Crescent I was not part of what were probably many corridor and coffee discussions that were swirling around on Booth Street (maybe I should have been?). We also suspected that Hutch's request for Jim Tanner's opinion on the subject was more cosmetic than real. From my notes, the next concrete move was a memo from him towards the end of August that included copies of the "secret" Neilsen Major Survey Team recommendations for the Sector. These were dated in June and July, a fact that probably confirmed that Hutch had indeed known them for the last month or so.

For EPB the recommendations were short and not sweet:

- 1. Discontinue the geothermal program;*
- 2. Reduce 1985/86 financial resources of other programs by a minimum of 10%;*
- 3. Incorporate EPB into the GSC and sort out the marine organizations on the two coasts.*

The GSC recommendations were:

- 1. Undertake wide consultation with industry, provinces and university for a national mapping strategy;*
- 2. Develop a plan of action to reduce the average age of the scientific staff;*
- 3. With the integration of EPB, restructure into 4 multi-disciplinary institutions across Canada.*

We were given about 5 days to "provide comments" before a discussion with the Deputy Minister. A "fait accompli" or an invitation to have real input?

The EPB Response:

We had to immediately consider the detailed consequences of implementing these recommendations. (The fact that the GSC was being asked/told to carry out just the kind of wide external consultation that EPB had already done, did not improve our feelings about the exercise).

We estimated that cancellation of the Geothermal program would eliminate 9 Person Years, systematic permafrost research and work on the potential use of geothermal energy in Canada (already receiving external energy research funding). The 10% reduction in other resources would affect radioactive waste disposal research, seismological studies in the active earthquake area near Charlevoix, gravity mapping in the west that supported US defence requirements, and contributions to Lithoprobe. (Looking back in the current context of climate change, global warming, and alternative energy, the Geothermal program cuts were particularly short-sighted).

Merging with the GSC would probably be feasible (although not cost effective) provided the resultant re-organization took account of Garland's earlier recommendations to create a national Geophysical Observatory or similar. This was Option (b) in Jim's August memo.

Jim went to the meeting with the Deputy Minister armed with all this information and more, but gave us little indication afterwards as to how it went – probably because he now suspected that chances of changing anything were slim. I think it may have been at this time that he made his memorable comment to us that “we are just going to have to take them over from the inside”.

So what next?

Despite the air of the inevitable, it was agreed that there were some things that needed to be done – at least for our own sanity.

Firstly we worked on three memos from Jim. One went directly to the Associate Deputy Minister pointing out that the Neilson recommendations directly contradicted a number of recent external reviews of EPB. A second to Hutch re-emphasized that links with GSC were perhaps only 20% of the work of EPB; a number of other external links could be adversely affected by the proposed merger – that geophysics was a global science with a very wide clientele. After discussions with the EPB Division Directors, a third memo, also to ADM Hutch, detailed the important program cancellations, observatory closures, scientific investigations and collaborations that would come to an end with the proposed cuts.

Secondly, if a merger was inevitable, we needed to try and affect the decisions being made (somewhere) about the structure of this new, merged EPB/GSC. (It was facetiously noted that one very small advantage of a merger with GSC was that retrospective tracking of the exact details of EPB changes was going to be difficult, if not impossible – the GSC was not known as the Great Swamp Company for nothing!)

On top of all this was the pressure to make some kind of announcement to all staff as to what was going on and how they might be affected. However, except for the fiscal 1985-86 reduction target from the Federal Finance Minister, there had yet been few indications of the time frame in which everything had to be done.

The structure of a merged EPB/GSC?

In his earlier memo of August 1985, Jim had laid out 3 re-organizational options for EPB on the basis of the Garland Report. The response to his ideas came in early September in what came to be known as the “Harrison” document – generated in Hutch’s office by John Harrison (later to become a personal friend and colleague of mine).

John reviewed the external climate that surrounded the EPB and GSC, the trends in interdisciplinary geoscience, demands on national programs and federal government priorities. He concluded that none of these demanded that changes had to be made but that changes were probably inevitable – even desirable. He did not refer directly to the recommendations of the Neilsen Task Forces. However, he ended with a “matrix” Model for a merger of EPB and GSC. This comprised four “Centres” (as per Neilsen), cut across with 3 national programs (Geology, Geophysics, Corporate Services) lead by a Chief Geologist and Chief Geophysicist who reported to an overall Director General of the GSC.

The Observatory Crescent team spent a number of days going up one side and down the other of John’s ideas. Following the Garland Report we supported the idea of a National Geophysical Program but were uncomfortable with the 4 regional centres idea. Trying to solve the organizational “problem” of PGC and AGC through this mechanism seemed a bit like the tail wagging the dog. There were elements that seemed to address senior management needs for “line clarity” but did not consider how scientific research organizations actually worked. The idea of combined Corporate Services was definitely not popular. EPB’s final response to Hutch went through a number of daily revisions.

Among other things the response stressed that geophysics (inhabited by physicists and mathematicians) worked from the global to the particular, but that geology worked from the particular to the global. Maintenance of geophysical disciplines, laboratories and national standards were essential to geophysics, its observatories and maps. Geology and geophysics were complementary but each had separate connections to other disciplines. Whether or not a matrix structure across national programs would work was unclear and looking to other countries for examples (eg. the USA) did not help. If merging were inevitable, EPB would prefer the expanded Branch solution - the Geophysical Observatory of Canada.

A number of letters from prominent Canadian university and industry geoscientists to the Minister (Pat Carney) expressing concern about the proposed EPB/GSC merger were

“stimulated”, encouraged and duly received. I prepared another version of the Department’s formal reply to the Garland Report and went to England for my Christmas holiday.

The cat is out of the bag.....

All this was definitely very akin to “re-arranging the deck-chairs on the Titanic”. (Although in the end, the final merged organization did have elements of all the various proposals). More immediately, up on Observatory Crescent, the “how” of Person Year (PY) reductions had to be addressed along with the implication of cuts to budgets and scientific programs. “Damage control” Task Forces were set up at Division level to start working through all the details.

In mid-January 1986, all staff of EPB and GSC received a memo from the Associate Deputy Minister affirming that the EPB/GSC merger had been approved by Cabinet on December 31, 1985 (New Year’s Eve no less) and listing staff meetings that would immediately take place in all offices across the country. A simultaneous Press Release stated that EPB would be reconstituted as “The Institute of Terrestrial Geophysics” with an immediate 10% resource reduction in former EPB activities. (This particular name for the “new EPB” was not even one of the many names that we had kicked around in the previous few months).

As you can imagine, having left the bag, the cat was definitely now among the pigeons. Meetings, formal and highly informal, took place almost continuously. Although I was technically in a position in which I was expected to keep track, it became almost impossible to maintain a coherent picture of daily developments. “Secret” organization charts and draft texts bounced back and forth, often hand written because at that time there was a central Branch word-processor through which memos were generated – fortunately in the room next to mine in the Observatory building.

There were two main activities. One was getting everyone up to speed with the personnel procedures and mechanisms for staff reductions. Second was coming up with a range of options for delivering the staff, program and budget reductions required. We eventually submitted 3 options to Hutch, carefully counter-balancing program damage against personnel layoffs against budget reductions. In a “classic” gesture, Jim Tanner made his own position surplus in two of them. However the options were well enough constructed that none of them were eventually implemented. An off-line deal resulted in general agreement about a Chief Geophysicist office for Jim (that would include me), and the transfer of most of the geothermal programs and staff into diffuse, and vaguely appropriate, corners of the GSC.

In the middle of all this, it was announced that on January 20, Hutch was to be assigned to the Ministry of Science and Technology (MOSST) to coordinate the government wide implementation of the Neilsen recommendations. As of February 3, the details of overseeing the EPB/GSC merger would fall into the lap of Ray Price, Director General of the GSC.

Meetings, meetings, meetings:

The next two months were occupied by a dizzying series of meetings and discussions about the minutia of the upcoming changes, who goes where, who reports to who, who was responsible for what etc. etc. Within EPB, I became the central Liaison Office for these discussions and my notes and organization diagrams became increasingly handwritten on loose pieces of paper. (Although this was obviously the moment to learn, I was never one of those people who used a daybook – I tried but never did!). One shaft of light for me was being sent out to represent Jim Tanner at the annual Program Review meeting at PGC. Apart from a review of the year's considerable achievements, it included many spirited discussions on the implications of the upcoming merger. I secretly hoped that my PGC history and position at the "centre of the turning wheel" gave some assurance that PGC would survive without too much damage – in the event I was probably wrong.

The issues that dominated almost all discussions across EPB was that of preserving the specialist groups essential to geophysics. Multi-disciplinary projects such as Lithoprobe were certainly highly productive and to be encouraged. However, the quality of the disciplines themselves could only be guaranteed if the people delivering them (seismologists, "paleomagicians" etc.) came from "home" groups working at the leading edge of their speciality. It seemed to have worked at PGC because although it was a regional office, each of the specialist staff reported to a home group back in Ottawa. Could a similar structure be created within the new merger? Are there other ways of ensuring success? One popular suggestion was that distance from Ottawa was a key factor! The horrors of matrix management began to loom.

In early February, as part of a last ditch attempt to minimize program damage, Jim sent his concerns to Ray Price that the apparently emerging structure contained no clear mechanism for maintaining the geophysical disciplines and their core support groups. He saw that it divorced geophysical scientists from their data, computers, service technicians and engineers. The role of the Chief Geophysicist offered the best hope of preserving linkages and he proposed a long list of the Tasks and Functions of the position. Memos went back and forth on this issue and slowly converged on an Office with staff that would be in place for just one year to try and sort things out. Meanwhile, the challenge of merging the two previous Administrative Services and Libraries produced all the predictable complications. Eventually, on March 5 1986, Associate Deputy Minister, Pierre Perron signed off on the PY maneuvers that had somehow resulted in only 3 positions being terminated and \$1.7m apparent savings in expenditures (mainly in Energy Research and Development). As we had thought earlier, the merger itself made it very difficult to judge whether these exactly matched the Neilsen recommendations for EPB or not – and probably by then nobody really cared. The date for completing the merger was now less than a month away - April Fools Day 1986.

And what was the final emerging structure? From where I sat, I suspect that Ray Price, faced with so many different ways of making a silk purse out of a sow's ear, got out the proverbial

back of an envelope and made a decision. It involved 4 Branches containing a total of 10 Divisions with some similarities to John Harrison's original ideas. There was no federal centre for Canadian geophysics but a Geophysics Division containing the seismological and geomagnetic networks and amounting to around 50% of the former EPB (depending on who was counting). All other members of EPB were moved into various corners of other Divisions or into management, administration etc. The Geothermal Program (*sensu stricto*) disappeared, although a number of its scientists continued their work under different headings. On the west coast, PGC and the Vancouver GSC Office were made into one Division – easy to do on paper but difficult in practice, as later history was to show. Looking back, I imagine the pressure was on to do Something – this was Something - and so it was done.

A memorial “Salute”:

Up on Observatory Crescent it was decided that we had to have some kind of special event to mark the demise of the Earth Physics Branch. Having lost the battle as it were, it was actually a sort of “wake” but we called it a “Salute” – a review of the achievements of the Branch over its 15 years.

We booked the auditorium in the Neatby Building in the Agricultural Farm nearby for all day on March 27th, the Thursday before the actual merger on the following Tuesday. Each speaker was given 10 minutes and the program covered all aspects and achievements of the work of ESB. It began with an early history given by John Hodgson, then snapshots of seismology, refraction, magnetic observatories and surveys, paleomagnetism, geothermal, impact studies, gravity and Arctic operations, geodynamics, graphics and displays. We finished in the afternoon with an account of the Pacific Geoscience Centre (by me), an outsider's view by George Garland, and then future prospects for geophysics by Mike Berry and Jim.

The afternoon was followed by a well-attended Dinner/Dance at Tudor Hall near the Hunt Club with cash bar, live band, dinner and dancing until 1:00 am - for a mere \$ 17 per person!

To his credit, the talks during the day were attended by Ray Price and it was then that he asked me if I would join his office as Scientific Executive Officer. After the previous six months of wrangling over the merger I was no longer sure where I was going to fit into the new structure. His offer was a pleasant surprise and I was glad to accept. In the event, I ended up also supporting Jim Tanner in his year as Chief Geophysicist. On John Fyles's retirement, I later replaced him as Deputy Director-General, and Director of Program, Planning and Services. Eventually I became Chief Scientist (as opposed to Chief Geologist!).

As the second floor of 601 Booth Street developed into the GSC's “Executive Suite”, more and more former EPB staff were appointed to positions there. Jim's suggestion that EPB should take over the GSC “from the inside” did, in effect, become something of a reality – not unnoticed by many GSC employees!

Unfinished business:

One of the bits of unfinished business still in my lap after the merger, was the “official” response to the Garland Report. Clearly the first recommendation that there should be a national centre for geophysics had not happened. Many of the other 26 recommendations had also not been followed. I consulted with Hutch in June 1986 as to the approach to be taken and prepared what I hoped would be a final version in July. The eventual printed version was dated 1987.

The original Recommendation 1 was that: **“the EPB be recognized as the centre for the development in the government service of the science of geophysics.”** The official response finally read: *“This role has now been taken by the Geological Survey of Canada. In recognition of the importance of maintaining national geoscience data bases and national geophysical programs, a Geophysics Division has been established. This has as its role, the maintenance of national observatory networks and data bases in seismology, geomagnetism, gravity and geodynamics, the conduct of research in solid earth and global geophysics and the provision of geophysical laboratories for instrument development and maintenance”*

This was close to the text I finally provided. Looking back after many years, I wonder if my choice of the words “taken by” instead of “merged into” were actually a truthful, perhaps subliminal, description of the exercise.

1988 Post script:

In 1988, the issue of the health of the geophysical programs in the combined EPB/GSC was the subject of an External Advisory Committee headed by Harold Seigel (President of Scintrex and a Canadian superstar in exploration geophysics). The structure of the combined organization had been through some adjustments since the 1986 merger and it had become a Sector of the Department. Jim Tanner as Chief Geophysicist had retired and his position eliminated. Approximately 60% of the almost 200 geophysicists in Ottawa were in a Geophysics Division located on the original EPB Observatory campus. The remainder were in the Terrain Sciences Division, the Mineral Resources Division, and the Lithosphere and Canadian Shield Division. The three regional offices in Vancouver, Calgary and Dartmouth, each of which contained a small number of geophysicists, were headed by a Director General located in Ottawa.

As Acting Chief Scientist, alumnus of PGC, former research geophysicist and assistant to Jim, I gave a report summarizing the GSC’s geophysical programs as I saw them: their condition in 1985; their health as seen by Jim on his retirement in 1987; and their status in 1988.

At the end of his year as Chief Geophysicist, Jim had believed the significant achievements were: (1) a Branch/Sector Geophysics Committee coordinating and setting priorities for geophysical resources across the Sector; (2) the initiation of a new geophysical Atlas for Canada and special volume entitled “Geophysical Framework of Canada”; (3) establishing an External Advisory Committee for Geophysics. However he concluded that although there had been some

advances in coordination, on balance the situation was slightly worse than before the merger. He felt that some form of Chief Geophysicist's Office should continue, particularly to resolve resource issues and the maintenance of technical expertise and data bases. He was concerned about a decline in morale among the Sector's geophysicists.

I began the 1988 parts of my report to the Committee by recognizing the major achievements of Lithoprobe and the Frontier Geoscience Program. However, these were well supported by external funding, and the GSC contributions came from a small group of outstanding scientists who worked in spite of their organizational positions. There had been a serious collapse of morale at PGC and it was no longer a world leader in some aspects of marine geophysics, plate tectonics, and subduction seismology. Elsewhere in GSC, many of the major coordination problems for gravity and aeromagnetic programs first identified in 1986, had continued and become worse. Paleomagnetism continued to decline.

At the end of my report I turned to the external political climate in which the GSC was now operating and questioned whether Garland's 1985 idea of the national centre of expertise in geophysics was still a relevant or desirable goal. Clearly as long as Canada faced the threat of earthquakes or geomagnetic storms, the maintenance of national observatory networks remained essential. However many aspects of the geophysical expertise nurtured in the former EPB might arguably be more usefully located in universities, industry or the provinces as part of specific focussed programs. The same questions could probably apply to other geoscience programs across the GSC - in the federal government or not? If not, where? How should national expertise be nurtured and maintained? I ended by hoping that the Committee could give us advice as to where improvements should be made, what should be retained and what should be encouraged to flourish elsewhere.

Afterword:

I do not have a copy of the Seigel Committee's final report but I suspect that there were no clear answers. Over the subsequent 13 years that I remained in the GSC, apart from the seismic network, geophysics became primarily a geological tool. The pursuit of national and global excellence that characterized EPB faded away in a "death of a thousand cuts". Many of its lead scientists moved on elsewhere or became managers – as I did. This change was probably part of a refocussing of federal scientific establishments towards shorter term "policy" priorities. As a scientist I remain sceptical that this is wise (eg. the demise of research on the potential of geothermal energy). However, it may take a special event (such as Covid 19, or a damaging earthquake in Vancouver) before its dangers become apparent to federal politicians.

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