

Neurosciences at Dalhousie: Past, Present and Future.

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The following is a brief account of the history of basic neurosciences at Dalhousie, some of it based on my own recollections. It shows the highs and lows of this discipline throughout its nearly three quarter of a century, but there is evidence to indicate that neurosciences at Dalhousie have been doing well recently. It is concluded that with hard work and cooperation the future looks promising.

PAVLOV'S PUPIL, BORIS BABKIN COMES TO DALHOUSIE

The story starts in 1924 with the appointment of Boris Petrovitch Babkin to the chair in Physiology of the Faculty of Medicine at Dalhousie. Two years previously, the Medical School received a generous gift from the Carnegie and Rockefeller Foundations for several new buildings, such as the Medical Sciences Building (now the Burbridge Pharmacy Building), the Public Health Clinic (now the Clinical Research Center), the Grace Maternity Hospital (recently demolished) and the Pathology Building. These donations were aimed at overcoming the severe shortcomings identified in a scathing report from the Flexner Commission. As a consequence of these gifts, the Medical School was in a growing phase at the time of professor Babkin's appointment.

The reason for choosing Professor Babkin's arrival to Dalhousie as the start of the history of neuroscience is that after graduating from the Military Academy of St. Petersburg, Babkin was I.P. Pavlov's assistant for 11 years. Pavlov was one of the founders of neuroscience early this century. From Pavlov's laboratory, Babkin published several papers on conditioned reflexes. In 1922, the Bolsheviks ordered him to leave Russia and he and his family fled to England.

In 1924, he and his wife crossed the Atlantic, bound for New York. On ship,

he received a telegram from President Mackenzie of Dalhousie, offering him the job of Head of Department of Physiology. In New York, he took the train to Halifax. In his reminiscences entitled "How I came to Dalhousie", written ten years after his arrival to Dalhousie, Babkin described his first impressions of Halifax. He arrived on a rainy day in August and found the city rather depressing. However, he liked the people he met, such as the President, the Dean of Medicine, as well as the promise of a university-paid assistant and the new laboratories that were assigned to him. However, something else clinched his decision:

"I was now standing at the gate of a small cemetery, abandoned probably many years ago....In the middle of the cemetery stood an arch with the figure of a lion on the top. I read the inscription "Sebastopol" and below "Alma 1855, Redan", "Weesford, 97 Reg.", "Parker, 77 Reg." This arch was probably in commemoration of two officers killed in action during the Crimean war.

Sebastopol! How many memories did this name evoke in me! My grandfather, Ivan Babkin, with the rank of colonel, and my uncle, Alexander, then young lieutenant, participated in the Crimean campaign. The military traditions and memories of 1854-55 were very much alive in our fammiral Kornilov and Admiral Nakhimov were my childhood idols.

I stood probably too long before the monument, because one or two passersby looked at me with curiosity. But it was something to think about! The children and grand children of those who fought against my own people now wanted to accept me as their fellow

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member in one of the most vital institutions of their land. How little we understand the tortuous course of history...! I do not think that the Sebastopol monument directly influenced my decision... But the unknown path of Destiny which was revealed by the sight of it undoubtedly reminded me that Someone knows what is good for us more often better than we do ourselves.

When the same evening President Mackenzie came to the hotel ... my decision was already made."

In 1928 professor Babkin moved to McGill where he remained until his death in 1950.

PROFESSOR SYMONS - PSYCHOANALYSIS COMES TO HALIFAX

Another notable neuroscientist at Dalhousie was Norman Jellinger Symons, M.A. Oxon, appointed in 1923 as Associate Professor at King's College, probably with Carnegie money given to help the college to move to Halifax from Windsor. He was to teach Psychology in a section in the Department of Philosophy. As described in professor James Clark's presentation to the Dalhousie Historical Society, Symons became increasingly an ardent supporter of Freudian psychoanalysis. It is no wonder that the number of students attending his lectures kept growing, since his description of the Psychology course given to medical students appeared as follows in the Dalhousie Calendar:

"This course is designed to afford a clear insight into the newer work in psychology, particularly in its bearing upon medical problems. Only such reference is made to usual text book teaching as necessary to elucidate matters brought up for discussion, the aim being to make the course as free from academic consideration and as adaptable to medical practice as possible."

I would have loved to put such a description of a course of mine into the Calendar, especially at a time when other courses had recommended the same textbooks for decades.

His lectures as well as his publications in the *International Journal of Psycho-Analysis* were full with Freudian sexual imagery. Professor Clark's notes contain a description of professor Symons by an alumna of the Psychology Department written at the time of their 50 year class reunion in 1979.

"I didn't like Symons. He was very dark of hair and complexion, and I thought he was a villain. He undressed the girls with his eyes, and was either obsessed with Freud, or sex-starved, or just crazy about it. He was great on phallic symbols, and he made such an impression on us that chimneys and church steeples were indelibly printed on my mind. The really odd thing about it was - most of us hadn't a clue of what forever he was insinuating.

He gave lectures which were the most popular on campus. The minute I reached Sherriff Hall I was met with a delegation: 'Let's see your notes!'

His lectures were my first encounter with the half-

world of homosexuals and lesbians. These he explained in detail - all Freud, the mother-possessed boys, and the father worshippers. It surely was an education. I told my mother about such and her hair stood on end. 'If that's what you are learning I don't think it's good for you.' She leaned more to subjects that would lure a man to the altar, or would place me in a position where I would earn more money ... It was all so horribly fascinating... The snake and the bird syndrome ...

Two girls left the class, and others wanted to but needed it as a minor ...

He had asked us to tell a dream in class, and I believe it was Madeleine Page ... At any rate it was about tall straight trees, or a tree with a box of soup cans at its base. Oh boy! did he latch on to that. If memory serves she stayed to ask him after class, and it was certainly that incident which brought about his dismissal."

Because of this incident or other complaints, Professor Symons (he was now promoted to full professor) was asked to resign, just after the 1929 spring term was over. He returned to England where he apparently did not fare well, since letters of his are on file in which he begged for money for his starving wife and children.

CONSERVATISM RETURNS TO DALHOUSIE

Evidently, the Symons affair taught a lesson to the King's board of Governors because a very safe successor was selected in the person of Hilton Page, M.A. Toronto, an ordained minister. Professor Page continued to teach Psychology as a section of the Department of Philosophy, practically single handedly, until 1948, when a separate Department of Psychology was established. In 1950, two instructors to teach Child Psychology and Abnormal Psychology were appointed, and in 1953 the first course in experimental psychology and statistics was given. Professor Page continued as head of Psychology until 1963.

Certainly, his department was slow to progress with the times and for younger staff members, such as myself who arrived in the early fifties, the absence of a strong experimental psychology component at Dalhousie was a source of desperation. We were ready to blame Page for the lack of progress. Yet, colleagues who knew him well thought that he was a very kind, wise man who was aware of his own limitations. In fact, the severe budgetary conditions of the University during the depression and the inflation immediately post-war prevented any new development. Even when excellent appointments were made in neurosciences, they did not last long. For instance, in 1941 Hugh Davson was appointed to Physiology and left the following year. Later, he was the author of excellent monographs on the physiology of cerebrospinal fluid and aqueous humour formation and with Grace Eggleton, of a well

known physiology text book. In 1956, Hugh McLennan came to the Physiology Department and left in 1958. Later in his career, he contributed a great deal to the identification of different types of glutamate receptors and to their role in synaptic plasticity.

SOME DISTINGUISHED EARLY NOVA SCOTIAN GRADUATES IN NEUROSCIENCES

In spite of this stagnation, Dalhousie during these years graduated at least three young Nova Scotians who later made outstanding contributions to neurosciences: Donald Hebb, B.A. (1925) built a world renowned Psychology Department at McGill and whose book, *The Organization of Behaviour*, published in 1949 revolutionized Physiological Psychology; Frank (or better known as Hank) MacIntosh, B.A. 1930, M.A. 1932 made fundamental contributions to cholinergic transmission and was chairman of Physiology at McGill; Catherine Hebb B.A. 1932, M.A. 1933 while working in Britain, contributed a great deal to our knowledge of choline acetyl transferase.

A PERIOD OF REMARKABLE GROWTH

In the early sixties, the cloud of stagnation over Dalhousie suddenly lifted. At times, it seemed to us that everything became possible. In 1963, Henry Hicks was appointed president and Henry James Chairman of Psychology. The construction of the Tupper Building was started in 1965 and finished in 1967 in anticipation of a large increase in Medical School enrolment to cover needs created by the new government health insurance. A few years later, the Life Sciences Building was completed and the Psychology Department moved into its new spacious quarters from its temporary location in the President's house on Oxford Street.

With the physical expansion came the drive to recruit new staff. For instance, the Psychology Department, which had 6 members when Henry James was appointed, grew to 25 members in five years. Not quite as extensive growth took place in most other departments. In 1965, I was appointed Head of Physiology and Biophysics with a mandate to recruit a large number of new staff. This appears now to have been an enviable situation but it was not easy. Since most North-American universities were also expanding at the same time, there were too few competent candidates from which to choose. This was especially true in neurosciences and the Physiology Department was in desperate need for at least two more neuroscientists. Neuroscience was at that time a fairly new discipline compared, for instance, to Endocrinology. Furthermore, a neurophysiologist could train only a small number of graduate students at a time because of limited and inadequate equipment --transistorized equipment became available only in the

middle sixties and only primitive computers existed. I remember offering jobs to at least a dozen young neurophysiologists between 1965 and 1970 but the first one I could recruit and who stayed for more than two years was Robert Dykes, in 1971.

Henry James, the Chairman of Psychology, was in competition with me but I think was much better or had better luck than I at recruiting. He built a magnificent department. Many members of the Psychology Department who are here now came to Dalhousie at that time as well as many others whom ambition and reputation carried to greener pastures. Eventually, other departments, such as Anatomy, Pharmacology and Physiology, were also successful in building strong neuroscience components.

DALHOUSIE NEUROSCIENCE NOW

What happened since then to neuroscience at Dalhousie? A recently completed survey by the Institute for Scientific Information (ISI) in Philadelphia of science publications from Canadian Universities provided an unbiased answer. It reported in the Nov/Dec 1995 issue of *Science Watch* the results of an analysis of science publications from Canadian universities during the last 4 years (1990-94) and the last 14 years (1981-94). Twenty disciplines in Canadian universities were ranked two ways, by the total number of publications and by the average number of times papers were quoted, the latter being an objective measure of the importance or impact of published papers. The total number of citations during 1990-94 placed the largest universities, such as Toronto, UBC, McGill, University of Montreal amongst the first four in 20 disciplines. Dalhousie's name was nowhere to be seen. In contrast, when the quality, not the quantity, of publications was judged by the number of times they were cited, Dalhousie neuroscience came second in Canada during the period of 1990-94, behind UBC but ahead of Toronto and McGill.

The impact of none of the 20 other disciplines at Dalhousie was among the first three. However, the overall quality (impact) of publications originating from Dalhousie from the 20 science fields was quite good: Dal came sixth amongst Canadian universities, indicating that although we are small, our research has a good reputation.

CONCLUSIONS

Neuroscience and other science disciplines at Dalhousie, although smaller than at other institutions, are doing well. We have to remember, however, the rather slow start of neuroscience at Dalhousie. The contrast between the early difficult and the more recent

successful years in neuroscience provides both an encouragement and a warning. It is encouraging to know that we now have an excellent group of neuroscientists who produce work which is well recognized. This is a background which provides our younger colleagues, postdocs and graduate students, with the opportunity to build a very significant center for the neurosciences. However, the early difficult years should also be warning that maintaining even the present standards is by no means assured and further developments will depend on the hard work and cooperation of members of the neuroscience community.

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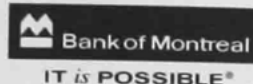
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