

BJERKNES – LIKE FATHER – LIKE SON

By

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A comparison of the lives of the Bjerknnes family of researchers – Carl Anton (1825-1903), Vilhelm (1862-1951), and Jakob (1897-1975) reveal unique parallelisms that are significant to the history of meteorology and to this great family legacy of scholars. Some of these parallelisms were caused by international events, while others were by personal choice. In the following presentation, I will four notable occurrences: 1) personal decisions to postpone scholarship to support a father's research 2) relocations due to international conflicts 3) establishment of world renowned schools of meteorology and 4) funding from the Carnegie Institute of Washington.

1. Personal Choice

Both Vilhelm and Jakob willingly postponed their education and personal research interests in order to support their respective father's scientific investigations.

Vilhelm

During the 1870's and 1880's Carl Anton Bjerknnes worked in relative isolation on hydrodynamic analogies. In 1882, Carl represented Norway at the Paris International Electric Exhibition where he gained international recognition on his electromagnetic theory and analogies which was successfully demonstrated by his son, Vilhelm. Vilhelm continued to assist his father until 1889, when at the age of 27 he "had to get away ... to develop his own skills and career opportunities."¹ Vilhelm earned a Norwegian Doctorate in 1892 at the age of 30. He preferred electromagnetic wave studies above his father's interest in hydrodynamic theory. Through Carl Anton's influence, a position was created at the Stockholm Högskola. Thus at the age of 31, Vilhelm was in his first academic position and not as his father's assistant. In 1895, however, Vilhelm dedicated his efforts to hydrodynamic activity and withdrew his personal research to prepare a manuscript on his father's investigations.² In 1903, he published the first two volumes of "Hydrodynamic action at a distance according to C. A. Bjerknnes' Theory."

It is interesting to note that Vilhelm's first publication was in 1882, when he was 20 years old, on hydrodynamic investigations.

Jakob

Like his father, Jakob interrupted and postponed his studies to support his father's investigations. In 1917, at the age of 18, Jakob interrupted his studies in Norway and joined his father at the Leipzig Institute in Germany as an assistant. Jakob, willingly did so without question. The relocation was due to the death of Vilhelm's former assistant,

¹ Friedman, Robert Marc. Appropriating the weather. Ithaca : Cornell University Press, 1989, p.13.

² Ibid., p.17.

Herbert Petzold, who was killed at Verdun in 1916.³ By June 1918, Jakob had returned to Norway with his father and had set up an experimental weather station in West Norway.⁴ He continued working as an assistant for this father until 1939, when, at the age of 42, he stayed in the United States following the invasion of Norway. More details on this event in the next chapter.

2. Relocations During International Conflicts

Both World Wars interrupted the lives of the Bjerknes family.

Vilhelm

Vilhelm had relocated to Leipzig, Germany in January 1913, having accepted an appointment as the first director at the Leipzig Institute in the field of aeronautical research.⁵ This decision enabled Vilhelm to secure better research support and income for his family. He was given several research assistants and a staff. This changed with the outbreak of the conflict. “Most students and assistants had been called into military service, and most had been killed.”⁶ Food shortages were acute.

The situation was resolved during the summer of 1917, when colleagues in Norway established a position for Vilhelm at the Bergen Museum. Vilhelm resigned his position at Leipzig and accepted the position at Bergen. Thus began the famed Bergen School of Meteorology with Jakob as an assistant in tow.

Jakob

Jakob’s relocation during World War II was even more dramatic. He and his family were on an eight-month lecture tour in the United States in 1939,⁷ when the European conflict began. He did not return to Norway. He organized a training school for military weather officers at the University of California. In 1940, he joined the faculty of the University of California at Los Angeles. Jakob, his wife, son, and daughter became U.S. citizens.

3. Schools of Meteorology

Both established Schools of Meteorology.

Vilhelm

The internationally famed Bergen School owes its existence to Vilhelm Bjerknes, and to his leadership in establishing weather forecasting systems, atmospheric models, convergence, polar fronts, and numerical prediction, among many other concepts that are basics in today’s meteorology. The highest periods of discovery and productivity were in the 1920 and 1930’s.

Jakob

Jakob continued the family legacy by establishing a new Department of Meteorology at the University of California at Los Angeles in 1945. He specially chose Los Angeles for its proximity to the Scripps Oceanographic Institution in La Jolla, CA. Jakob’s insight

³ Eliassen, Arnt. Jacob Aall Bonnevie Bjerknes...Internet :
<http://www.nap.edu/readingroom/books/biomems/bjerknes.html>.

⁴ Friedman, p.94

⁵ Friedman, p. 84-87.

⁶ Ibid. p, 99

⁷ Eliassen, p.5

regarding the importance of oceanography to weather prediction foreshadows his correlation of El Nino and ocean temperature.

3. International Funding

Both Vilhelm and Jakob benefited from funding by the Carnegie Institute of Washington. In 1906, Vilhelm applied for and received an initial grant of five years from the Carnegie Institute that enabled him to hire an assistant. This funding continued for over thirty years and stopped upon the invasion of Norway in 1939. For most of this time, Jakob was the recipient of this funding as he was, for a time, Vilhelm's only assistant, and later primary assistant.

Whereas Vilhelm was, for most of the time, his father's (Carl Anton) unpaid but dedicated advocate of his theories, Jakob benefited from American research funds.

In conclusion, the similarities and parallel events within this family of meteorologists are remarkable and awe inspiring.

I close with an offer of compact discs containing scanned copies of original coursework and articles created by Jakob Bjerknes while he was a professor at UCLA. There are four documents on the disc. There is a draft of an article with annotations in the margins, the printed article, class notes and annotations. Enjoy!