

South Dakota in 1881, where he remained until he received an appointment with the Department of the Interior, Washington, D.C., which position he held until his death, which occurred on April 30th, 1922.

Hargreaves Kippax married Miss Hulda Miller, who was born on January 3rd, 1862. She is now living at Long Beach, California. They had no children.

CHARLES ALBERT BIGGER

“On the afternoon of Friday, Nov. 9th, 1923, in his office at the Geodetic Survey Building at Ottawa, Mr. Chas. A. Bigger, the Assistant Superintendent of the Survey, suddenly passed away. Mr. Bigger, up to the very moment of his death, was actively engaged in the work of the Survey, and apparently in fair health. A year or so ago he had suffered a severe illness, but he had regained much of his former vigor, and his friends looked for many years of usefulness in his chosen profession.”



His paternal grandfather was a U.E. Loyalist. His father, James Smith Bigger, was born Oct. 27th, 1816, died May 12th, 1893. His mother, Amelia Kenny, was born March 1st, 1820, died May 12th, 1903. Charles Albert was born near Paris, Ontario, on Aug. 15th, 1853. He obtained his primary education at the Public School in his native town, and at the Normal School, Toronto. He also attended

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the Military School at Kingston, from which he graduated in 1874.

On January 6th, 1882, he qualified as a Provincial Land Surveyor after serving under articles for three years with Robert Sparks of Ottawa. He also qualified as a Dominion Land Surveyor in the early part of 1882, and was employed that year on Dominion land surveys in northern Saskatchewan. In 1883 he was appointed Inspector of Surveys in the North-West, covering the district between the Fourth Meridian and the Rocky Mountains, and between the International boundary and the Red Deer River. He continued in the employ of the Dominion Government until 1888, when he took up private practice in the Ottawa Valley, making his home at Plantagenet, where he resided six years. He then removed to Ottawa, where he continued in private practice. His work was always of the highest standard.

For the Department of the Interior, Ottawa, Mr. Bigger made surveys as follows:

1882—Outlines in vicinity of Saskatoon.

1883—Inspection of surveys, Southern Saskatchewan.

1884—Subdivision Townships in Alberta between 4th and 5th meridians.

1886—Subdivision Townships in Alberta west of 5th meridian and trails from Red Deer to Calgary and Macleod.

1887—Subdivision Townships in Southern Alberta west of 5th meridian.

1888—Subdivision Townships in Southern Alberta west of 4th meridian.

In 1901 he re-entered the Government service as the Canadian Surveyor on the re-survey of the Quebec-New York boundary line. He made all the astronomical observations for latitude and longitude. Mr. F. A. McDiarmid, to whom we are indebted for much of the information in this sketch, was Mr. Bigger's assistant on part of this work. He states that "Mr. Bigger had the delicate touch of the skilled observer, and his handling of the instruments, and ceaseless care to secure the most reliable results, made him a master in field astronomy." In 1904-05 Mr. Bigger was employed on boundary survey work in Alaska.

In 1905, in co-operation with the late Dr. Wm. F. King, the Geodetic Survey of Canada was commenced, Dr. King being Superintendent and Mr. Bigger Assistant Superintendent.

"For the last eighteen years he used his unbounded energy, his wide experience, and his good ability, to establish the Geodetic Survey of Canada on a sure and firm foundation. He personally supervised the early work in Ontario, Quebec, and British Columbia.

"The equipment of the Standards Building, Ottawa, was gathered together by Mr. Bigger, and the building was designed and constructed under his direct supervision. He was a recognized authority on scientific instrument construction, and was sent to Europe twice to supervise the construction of special apparatus for the Geodetic Survey.

"In Ottawa he held a high place in the esteem of his associates and of the general public. He was a past President of the Ottawa branch of the Royal Astronomical Society of Canada."

Mr. Bigger was an Associate Member of the Engineering Institute of Canada.

He made no surveys for the Ontario Government.

On August 1st, 1877, he married Louise Coburn Brennan of Ottawa. They had one son, who graduated in Science at McGill, and died July 6th, 1906. There were two daughters; one died January 26th, 1903, the other, Hazel, married Mr. John Dawson of San Francisco.

Mr. Bigger is survived by his widow, one brother, two sisters, and one daughter.