JOHN PATTERSON M.A. F.R.S.C. 1872–1956

Mr. J. Patterson, M.A., F.R.S.C., Director of the Meteorological Service of Canada 1929–1946.

This is the seventh in a continuing series of biographies of the early Directors of the Atmospheric Environment Service written by Dr. Andrew Thomson.

John Patterson was born of Scottish parents in Oxford County, Ontario, on 3 January 1872, one of a family of thirteen children. He was brought up on his parents' farm and after receiving his early education at the local primary school, two and a half miles from his home, he attended the collegiate institutes at Ingersoll and at Woodstock, Ontario. He subsequently taught in a public school for five years to obtain the means to pursue his studies, intending to become an engineer. He entered the School of Practical Science, now the Faculty of Applied Science and Engineering, at the University of Toronto in 1896, and graduated in 1899 in the three-year course in civil engineering. Finding the courses not enough to occupy his energies, he also registered in the Faculty of Arts, taking the honours course in mathematics and physics, along with his engineering studies. During his fourth college year he was able to devote his whole time to his Arts course so that, when he graduated, he won the Gold Medal in Physics and also the 1851 Exhibition Science Research Scholarship, being the first winner of this scholarship from Toronto. This enabled Patterson to carry on postgraduate study for two years under Sir J.J. Thomson at the Cavendish Laboratory, Cambridge, where he obtained the degrees of B.A. in 1902 and M.A. in 1907.

In 1903, Patterson became Professor of Physics in the University of Allahabad, India, and in 1905 was appointed to one of the newly created posts of Imperial Meteorologist to the Government of India. During this appointment he was actively interested in warnings of cyclones and in the public weather forecasts, which were issued only once per day. The great Indian earthquake of 1905 took place the first morning after Patterson took up his meteorological duties at Simla, and led to the establishment there of a seismograph which he set up and attended.

He returned to his homeland to accept the newly created position of Meteorological Physicist in the Meteorological Service of Canada. During World War I Patterson took an active part in the design and operation of the experimental helium extraction plants sponsored by the British Admiralty to obtain helium for lighter-than-air ships. The late Sir John McLennan and Prof. John Satterly were associated with Patterson on this project.

The first plant was erected about four miles from Hamilton close to a natural gas well. With borrowed liquid air equipment, suitably modified, a gas mixture of helium was extracted from the natural gas, but the mixture was only a very small fraction of the total natural gas coming from the well. Subsequently a natural gas well was located in Alberta producing gas with a content of helium, which was much the richest source in the British Empire. Although the first World War was over, the British Admiralty gave approval for the construction of a second helium plant near Calgary. Patterson was placed in charge of its construction and operation until his recall to duty at Toronto in September 1919. Altogether 60,000 cu. ft. of helium mixture, having 60% to 90% pure helium, was extracted with the plant capable of producing 30,000 cu. ft. a month. The British Admiralty closed the Alberta plant in April 1920 on account of the discovery of natural gas wells in Texas, which produced gas in greater quantity with a much higher helium content than the wells in Alberta.

After World War I, Patterson returned to the Meteorological Service, continuing his earlier investigations on the upper atmosphere. He modified the Dines meteorograph for Canadian use to reduce the risk of destruction of the record when the instrument struck the ground. He also developed the Canadian pilot-balloon program and devised a simple procedure for computing the velocity of the upper winds from the flight observations. Patterson was mainly interested in wind and pressure instruments. He will perhaps be best known for the development of the three-cup anemometer which he originated and which, he was able to show, had definite superiority over the four-cup type. He also made intensive studies, along with others, on improving the anemometer by beading the edge of the cup and

changing the shape from a hemisphere to a cone with a straight lip. Later, he developed a satisfactory electromagnetic anemograph for recording wind speed and direction.

Until 35 years ago, 75 percent of the mercury barometers shipped to Canada arrived broken, with the metal parts contaminated by mercury. Shortly after World War I, Dr. Patterson designed a barometer, for manufacture in Canada, which combined the advantages of a Kew Barometer with the portability of the Fortin barometer. This instrument, now known as the Patterson barometer, can be shipped to any weather station in Canada with little risk of breaking. He also developed an almost automatic procedure for filling barometer tubes with pure mercury, a method still in use today, in which the boiling of mercury is eliminated and there is no danger of breaking the barometer tube.

He was appointed Assistant Director of the Canadian Meteorological Service in 1924 and Director in 1929, the title being changed to Controller in 1936. As Director, or Controller, he was responsible for modernizing the Service and encouraging the introduction of the latest developments in all branches of meteorology. He organized meteorological services for Trans-Canada Air Lines and for the Canadian side of trans-Atlantic aviation, and with the outbreak of the Second World War, for the Royal Canadian Air Force. He retired from his official position on 1 December 1946.

Dr. Patterson was on the executive of the Royal Canadian Institute from 1911 to 1939. From 1911 to 1918 he was honorary secretary; a member of the Council from 1918 to 1928 and from 1933 to 1939; second vice-president from 1928 to 1930; first vice-president from 1930 to 1932; and President from 1932 to 1933. During the almost forty years Patterson was on the executive of the Institute, he contributed greatly to its expansion. The Institute had remained fairly static from the time of founding in 1853 until 1910 when the attendance at the public meetings was about thirty or forty, and in bad weather there might not be a dozen. By 1939, despite the financial depression of 1933, the membership had increased to 1,300 with attendance at weekly meetings reaching a thousand.

Patterson was elected a fellow of the Royal Society of Canada in 1918, was its honorary editor from 1928 to 1938 and subsequently was President of Section III of the Society dealing with the physical sciences.

He was elected into Fellowship of the Royal Meteorological Society on November 17, 1920 and on January 19, 1941, he was elected to the very distinguished group of about a dozen meteorologists who at any one time are Honorary Fellows. On this side of the Atlantic, Patterson was elected President of the American Meteorological Society for 1930-1932.

Patterson's wisdom was greatly respected in international meteorology and he represented Canada in numerous conferences and committees. He was President of the Commonwealth Conference on Meteorology in London, England, in 1935, and was President of the W.M.O. Technical Commission in Instruments and Methods of Observation, 1946-1953. From 1940 until 1947 he was honorary professor of meteorology at the University of Toronto.

A very happy event in India for Dr. Patterson was his marriage to Margaret Norris, M.D., born at Staffa, Perth County, Ontario, who had gone out as a Medical Missionary and was in charge of the Seward Hospital of the American Presbyterian Mission at Allahabad. For 50 years Mrs. Patterson created an ideal home life for her husband. They had one son, Arthur J. Patterson, who was born in Toronto.

Patterson belonged to the Presbyterian Church (later the United Church of Canada) and took an active part in the Congregation to which he belonged, carrying out his duties as an office-holder (elder). His religious faith pervaded his daily life and gave him a

quiet tenacity of purpose that carried him triumphantly through frequent periods of delay and disappointment. He was a non-smoker and was strongly opposed to the drinking of alcohol. For a few years prior to the Second World War, he was a member of a Curling Club and devoted the one evening a week he felt he could spare from his office work to playing in a team.

Patterson obtained his greatest pleasure in his work. He loved designing instruments and carrying out his administrative duties. Fortunately, he had a strong constitution so that he was able to work for ten or twelve hours a day for many years without taking sick leave or the authorized annual holiday. After his retirement from official duties, he continued to come to the office daily and carried on his writing and instrument work until six weeks before his death, which occurred on 22 February 1956.

Dr. Patterson made a notable contribution to the advancement of meteorology in Canada and abroad by his untiring energy, his sound judgment and the integrity of his character.

MARGARET PATTERSON – MAGISTRATE

MARGARET PATTERSON
Treated justice with dignity

From the Toronto Telegram July 17, 1971
Nostalgia – George Kidd

Magistrate Margaret Patterson wife of John Patterson Director, of the Canadian Meteorological Service was something of an enigma.

On one hand she won the affection of friends and acquaintances by her warmth, her sincerity and her understanding. She even won the respect of King Edward VII.

On the debit side she was feared by those who came before the bench in Toronto's Women's Court. She was the target of strong controversy from City Council and was finally severely censured by the attorney-general's department.

And then she was fired.

Margaret Norris Patterson was born in South Perth in 1877 and after a distinguished career in medicine she was appointed a magistrate in Toronto, the first woman to hold such a position in Eastern Canada.

Prior to this appointment her star shone brightly. She had graduated in medicine in 1899 and went to Europe for post graduate work. This led her to India where she became superintendent of a hospital for women. There were many touches of brilliance in this period of an active life.

When a bubonic plague ravished the provinces she did what she could and because of this labor of love she was recognized by the reigning monarch.

She was Lord Kitchener's advisor in dealing with a major problem.

"We have to do something about the camp followers," he said.

"We'll dispose of them," she said quietly.

This experience may very well have given her an insight into the women who were eventually to appear before her for trial.

She returned to Canada in 1911 and immediately took up social service work, a task that was very close to her heart and understanding. When the influenza epidemic hit Toronto she worked around the clock, giving lectures twice daily and training over 2,000 nurses.

And then, in 1921, she was appointed a magistrate.

"She has no legal training," said Mayor Tommy Church. He did not like the idea of the city having to pay her $3,500 and also felt that there were already enough magistrates.

But Magistrate Patterson was there and she treated justice with the dignity it merited, if not always with the expected decisions.

The stormy side of her career was beginning.

It was not long before the Trades and Labor Council pointed her out as "a cold-blooded woman." Many individuals who had stood before her in court agreed, but there were many who felt that justice was being well served.

She disposed of cases with a strong knowledge of the law and her court was always orderly. Sometimes it moved leisurely.

"We have lots of time," she commented. "We're always giving it to people here."

These bright touches of humor came at unexpected times and those in court were never quite sure whether to smile, laugh or just pass the whole thing off. Lawyers were seldom comfortable in her presence.

Once, when a young girl seemed to have fainted while appearing before her, the magistrate said;

"You threw yourself down. Now you can pick yourself up."

The girl did.

On another occasion she excluded the press from the court room because a case she was hearing would eventually go before judge and jury.

"I excluded the press only in the interest of British justice, which I try to give to everyone who appears before me," she said.

Not everyone agreed with this statement. One of the greatest sensations that hit her was when she sentenced a man to 10 days because he could not pay a debt of $1.50. She was called to the office of the attorney general and severely reprimanded.

Things then continued along a normal and smooth road until the Case of the Biting Dog landed on page one of the newspapers.

The dog had bitten a boy and the 19 year old owner, who was unemployed and with no money, appeared before Her Worship.

She gave him three alternatives. He could have the dog destroyed, pay a $50 fine or go to jail for 10 days.

"I have no money and I can't have my dog destroyed," he said. "I'll go to jail."

Once again the attorney general intervened.

In November, 1934, Magistrate Patterson was retired from the bench of the Women's Court and appointed a justice of the peace.

"Mrs. Patterson's best work has been done off the bench rather than on it," said Attorney General Arthur Roebuck.

And Mrs. (doctor, magistrate) Patterson replied:

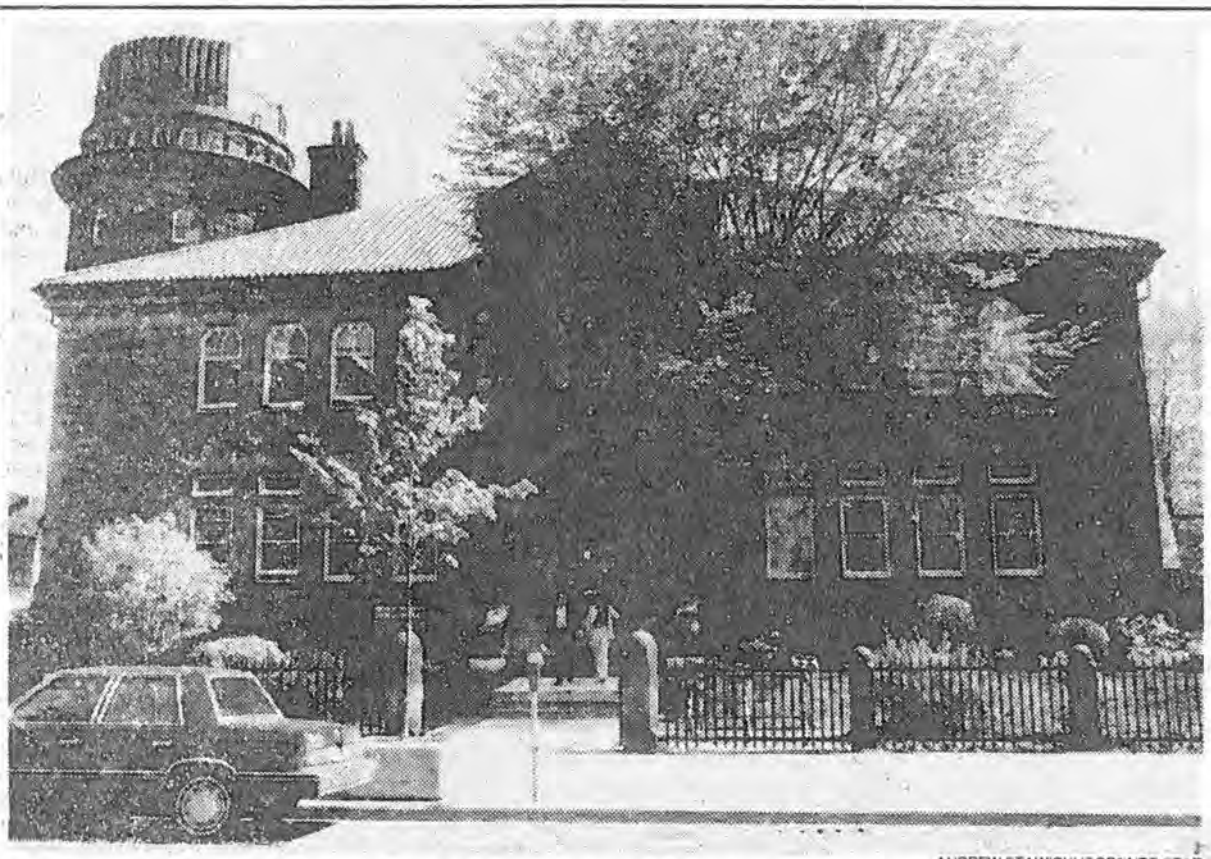
"As you see fit to dismiss me as magistrate I decline to accept the position of justice of the peace."

Several groups protested her dismissal and hailed her reform work and her career in medicine and public service.

They were sorry she was finished but there it was. . . Women's Court was again in the control of a male magistrate. If Women's Lib had been the order of the period there would probably have been protesters.

Or would there have been?

The long, worth-while career of Margaret Patterson, so often clouded by controversy, came to an end in December of 1962 when she died.



ANDREW STAWICKI/TORONTO STAR

Meteorological office: Building at 315 Bloor St. W. was the head office of the Dominion Meteorological Service where John Patterson worked almost until his death in 1956.

Weatherman John Patterson helped Allies fly to victory

DONALD JONES

Historical Toronto

In 1938, when Europe began preparing for a possible war, a series of secret documents began passing between the meteorological service in England and the Canadian headquarters in Toronto.

In the autumn of 1939, on the day war was declared, all meteorological reports radioed to London began being transmitted in a new secret code. Weather reports had suddenly become "classified information."

At every air force base in Britain, air crews were ordered not to use their radios, even for vital weather information, since radio signals would reveal their position to the enemy. Overnight, the study of the weather became a wartime priority.

Training scheme

Every member of the thousands of future air crews would

hard-nosed tight-fisted operator who sent back every expense account that did not have the proper receipts.

He regularly battled with American meteorologists who insisted on being based in Canada to brief American crews flying into Canada. It was Patterson who kept his staff in civilian dress throughout the war despite those who wanted them in uniforms. For, to Patterson, they were "his" men and he knew that once they were in military unifou u larship that enabled him to cor tinue his studies at Cambridge.

give weather forecasts as no better than a charlatan."

So he started giving lectures to make the public more aware that meteorology was based on the fundamental laws of physics.

By the 1920s he had begun to establish himself as a renowned inventor of metorological instruments still in use throughout the world and in 1924 was appointed assistant director of the service and in 1929 he became director.

When the Depression struck Canada in the early 1930s, it was believed by almost everyone that the "met" service would be one of the first casualties of any budget cut.

But in the early 1930s, Canada had started its first regular air mail service. In 1937, it created a national airline, Trans Canada Airlines, later to be renamed Air Canada. By the late 1930s, a large part of the safe operation of both these new services was due to a new 24-hour weather

now have to be trained to become minor meteorologists and be able to recognize the kind of clouds that could tear the wings off an airplane.

Within 23 days of the declaration of war, plans were proposed for a vast air-crew training scheme to "darken the German skies with Empire airmen."

The schools would have to be built far from Britain, outside the range of enemy bombers, and the decision was made to build them in Canada.

By the time of the Battle of Britain, there were close to 100 air crew training schools in operation in almost every part of Canada.

Thousands of instructors were commissioned, but, among the unsung men in that famous wartime operation called the British Commonwealth Air Training Plan, there was a small band of civilian instructors known on every station as "the Met Officers."

Their headquarters was a small gray stone building in Toronto and the head of their operations throughout the war was a Toronto man, John Patterson.

He was 67 when war broke out, two years beyond mandatory retirement age, but he was considered so valuable by both the Canadian and British governments that every year, from 1939 to 1945, his term of office was automatically extended.

First medal

When the war ended, C. D. Howe, Canada's war-time minister of munitions and supply, said that Canada's met service had become second to none in the world.

He called Patterson "a world leader in the meteorological field" and on the day of Patterson's retirement in 1946, Howe announced the creation of the "Patterson Medal," the first medal ever to be awarded to men in the field of meteorology in Canada; and every year since then it has been given to the most distinguished Canadian in this field.

In the history of this country's met service, Patterson has become a legend.

He was never an easy man to work with. To the young men entering his department during the war, he was known as a

In 1903, he was offered a position in India and became professor of physics at the University of Allahabad. It was there that he married a young woman from Ontario who had come to India as a volunteer medical missionary.

By 1910, he had become Imperial Meterologist to the government of India and had an assured career. But he became ill and had to return to Canada.

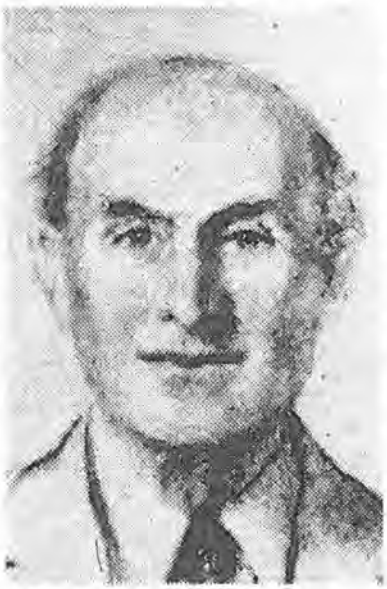
Gray stone

He bought a house in the Annex, at 97 Walmer Rd. His doctor-wife started a new career which would make her one of the foremost activists in the cause of women's rights and, in 1922, she became the first woman magistrate to sit on the bench of a police court in Toronto.

Patterson, as soon as he was well, joined the Dominion Meteorological Service and for the rest of his life he had an office in its gray stone building, built in 1909, at 315 Bloor St. W.

For more than a half a century, it remained the national headquarters of the "met" service in Canada until 1971 when the headquarters were moved into the mammoth new Atmospheric Environment Service building at 4905 Dufferin St.

At the time Patterson joined the Canadian service, meteorology was still a largely misunderstood science. In his own words, it was not long ago that the Royal Society in London had "forbade the publication of weather forecasts as they considered that anyone who would



John Patterson: Meteorological medal is named after him.

service.

Small band

When war broke out in 1939, Pattrerson and his staff had to train and staff "met" officers for every one of the schools of the British Commonwealth Training Plan across Canada. Although there were then few more than 50 graduate meteorologists on his staff they had become renowned as a small band of dedicated "zealots."

During the 1930s, many of them had taken leaves of absence, always without pay, to study the latest developments in meteorology in Europe. During the critical first years of the war they were able to convince universities of the meteorology department's vital need for many of their best graduates in physics and were so successful that university professors became the department's best recruiters.

Patterson's staff now had to create crash courses to train men to become Met Officers who could teach tens of thousands of allied air men about the dangers and complexities of changing weather patterns. They also had to provide the best possible long-range forecasts for the Ferry Command that was flying Canadian-made bombers to Britain and for the Coastal Command that was regularly flying 8 to 16 hours without radio contact.

Still working

By the end of the war the number of men on Patterson's staff had soared to more than 900 and military leaders were elated by what Patterson had been able to accomplish in a few short years.

When the war ended, Patterson was, at last, officially retired. But he refused to stay home. He had always been known among his staff as a "workaholic" who would regularly spend 10 to 12 hours a day at his office in the building on Bloor St. Even when he was in his 80s, he was still coming to the office.

On Feb. 22, 1956, after a brief illness that had kept him away from his work for six weeks, he died, at the age of 84.

Like the exploits of his happy band of "zealots," his story has always remained unknown outside of the service.