"The Gentle Scholar Who Worked Upstairs": Seymour Hadwen, Internationally Renowned Professor of Animal Diseases

Seymour Hadwen was "one of Canada's foremost veterinarians in the field of research." At the University of Saskatchewan for six years in the 1920s, he gained an international reputation, but his name is likely unfamiliar to many at the University of Saskatchewan today.

Born in Leeds, England in 1877, Hadwen received his early education in England and France. As an adolescent, he came to Canada, farming for five years with his brother on Vancouver Island. In 1902 he earned a D.V.Sc. (veterinary) degree from McGill University. He enlisted for the Boer (South African) War "immediately" after graduation, serving as captain with the 6th Canadian Mounted Rifles.

After the war, he returned to Canada and joined the Dominion Department of Agricultural. He held several posts with that department, and was appointed Canada's chief animal pathologist in 1917, resigning three years later to head up the United States government's reindeer investigations in Alaska. It was from this position that President Walter Murray successfully recruited him to the University of Saskatchewan.

In November 1922, Murray wrote to Hadwen:

> We are considering here the possibility of developing a good laboratory for the investigation of diseases of animals. Dr. Fulton whom you know, is here and conducts a certain amount of routine analysis but we are of the opinion that our stock is subject to serious devastating epidemics that the University should attempt to investigate. After a time we can make the laboratory and the laboratory staff the nucleus of the staff of a Veterinary College which would be intended to train veterinarians for the public service, and give them more scientific and better training than the old Veterinary College. … Would you be interested in the position if we could secure the funds? I do not think we would make the venture unless we could secure the right man for directing the work.[1]

Murray wrote again on 6 February 1923 with a more specific offer, and Hadwen replied on 26 February to accept the offer. However, Hadwen had also been applying for a position at Cambridge at the same time. Murray wrote on 5 March 1923:

> I saw in an English paper that approval had been given to the Cambridge proposal to establish a Health of Animals Institute. I was hoping that the fates would be kind to us. It was a very selfish hope. It will be a very great pleasure to have you remain with us but if you go to Cambridge [or?] otherwise we will rejoice with you in getting something that is worth while.

Hadwen replied on 23 March: "I do not think that the election at Cambridge can possibly take place until the end of the term in June, so that whatever the result, we should have time to put in a good summers work." On 31 March, Murray reported that the Executive of the Board of Governors had approved Hadwen's appointment as Research Professor of Animal Diseases: "This will leave you quite free to accept an offer from Cambridge, and should it not come your appointment here will be permanent."

By the time Hadwen arrived at the University of Saskatchewan in spring 1923, he already had an impressive research record, had held several positions, and had other institutions interested in him. He wrote in his (ultimately unsuccessful) application letter for the Cambridge job:

> I resigned by post of Chief Animal Pathologist at Ottawa, because of my distaste for the routine of official work and of my desire to acquire wider experience. Since then I have purposely held temporary posts which would take me further afield. I may add in this connexion, that the Bureau of Animal Industry, U.S.A., has offered me a post dealing with live stock problems in the South, that the Hudson Bay Company has offered to employ me in reporting upon their reindeer herds in Baffin's Land, whilst another offer emanates from the Canadian Department of Agriculture.

Indeed, Murray's hope that the appointment would be "permanent" was likely doomed from the start. Ole Nielsen relates that:

> His travels over his lifetime were so extensive and to sufficiently exotic places that he was characterized as an "explorer" by some. It has been opined that he had the 7-year itch every 2 years. In response to being publicly introduced as a "drifter" at a banquet, he pointed out that while a rolling stone gathers no moss "it gets a hell of a good polish." His travels were undertaken in the belief that "nothing can stop a man if he really wants to do research."[2]

Hadwen was the first veterinary scientist to be elected to fellowship in the Royal Society of Canada – in 1926, when he was still at the University of Saskatchewan. He was also an honorary fellow of the Royal Society of Medicine, a fellow of Entomological Society of England, and served as a vice-president of the American Veterinary Medical Association. Nielsen speculates that "Hadwen was likely the Canadian veterinarian of his time to be most honored by the scientific community."

As noted in his obituary in the *Evening Telegram*, he was "known throughout the scientific world for his work on parasites and diseases of animals." He published over 70 papers, of which 45 related to parasitology. Nielsen writes that:

> It is reasonable to attribute his success to his keen powers of observation and hands-on approach that arose from his interest in natural history. Most of his work is focused on taxonomy and the life cycles of parasites; the more important include the following: treatment of piroplasmosis, warble fly life history, tick classification, tick paralysis, *Gastrophilus* life history, and trypanosome classification. Ticks were a special fascination and he seems to have been the most knowledgeable Canadian authority on this subject during much of his lifetime.[3]

Hadwen left the University of Saskatchewan in 1929 to join the Ontario Research Foundation as director of the department of pathology and bacteriology, where he remained until his retirement in 1942. He died in 1947 in Toronto. A tribute to him by a former colleague describes some of Hadwen's later contributions:

> During his working life he covered a wide field of scientific research and made distinct contributions in entomology, bacteriology, pathology and parasitology. Today you will often see in the literature recognition of his pioneer work in these fields. Whilst he was with us he extended his work on colouration to include a masterly study of melanotic carcinoma in animals. He inspired and directed all our work on contagious abortion, and in particular I would mention the confidence he gained and held among the farmers who created the first

> clean area in Canada. His last work was a treatise on mastitis in cattle and included new and rapid methods for sound diagnosis.[4]

The same colleague observed:

> His life was spent in trying to raise [the veterinary profession's] educational standards and facilities for research, hoping that one day they would be comparable with those of the medical profession. In all of this he was a generation ahead of his contemporaries and only a man with his charity and patience could have faced the early atmosphere of indifference and criticism. He was not a recluse, and one's first impression that he was a dreamer and not very practical were very wide of the mark. The gentle scholar who worked upstairs was equally at home at a meeting of dirt farmers or spending hard days on the trail in Alaska. Some of you would have envied his skill with a rifle and fly-rod.

In 2007, Prof. Ole Nielsen, former Dean of the Western College of Veterinary Medicine, donated to the University Archives a typescript copy of Seymour Hadwen's memoirs, along with copies of obituaries and tributes – adding significantly to our records relating to this early faculty member. From a 272 page document, we have excerpted material relating to Hadwen's Saskatoon period.

Tim Hutchinson, University Archives

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[1] University of Saskatchewan Archives, President's Office fonds, RG 2001.1 (Murray), B8, Applications and Appointments. All subsequent quotations from correspondence between Murray and Hadwen is from this file. The animal diseases laboratory was later well known for J.S. Fulton's development of a vaccine for both human and equine encephalomyelitis (sleeping sickness). Murray's proposed veterinary college would take another forty years to become a reality.

[2] N. Ole Nielsen, Veterinarians, the Royal Society of Canada, and the future of veterinary medicine: Part I, *Canadian Veterinary Journal* 43(12), Dec. 2002. Available online at http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=339919

[3] Nielsen, op. cit.

[4] H.B. Speakman, Statement read at Annual Meeting of Board of Governors of Ontario Research Foundation, 24 April 1947. Copy with Hadwen memoirs, University of Saskatchewan Archives

Excerpts from "Man and Animals": memoirs of Seymour Hadwen

Dr. A.L. Lynch (Saskatoon), Sir David Bruce (President of the British Association for the Advancement of Science) and Prof. Seymour Hadwen – at the University of Saskatchewan, 22 August 1924. As part of meetings in Toronto, members of the British Association for the Advancement of Science travelled to Saskatoon for the official opening of the Chemistry Building. *University Archives, photo A-2863*

I got another welcome surprise later. Dr. Murray, President of the University of Saskatchewan, was in town. He and my old partner, Dr. A.E. Cameron, with whom I had worked in Saskatchewan, went to a movie together. Dr. Murray asked me if I would come to work at Saskatoon. I replied "Yes" with gratitude. I left for Saskatoon at the end of April 1923 just after the birth of our first-born son. I was very happy, and looked ahead with confidence.

University of Saskatchewan

My new job was that of Research Professor of Animal Diseases in the University of Saskatchewan. My principal job was to study swamp fever in horses. If I am to be judged by what I accomplished in the study of this disease during the next six years I am afraid I shall be regarded as a failure,

because I was never successful in discovering a cure or in establishing the exact way in which the disease was carried from one animal to another. It cannot be said either that I published articles on the disease which had to be refuted by other workers. I met one man in Minnesota who had spent longer at it than I had, who frankly confessed that in ten years the only thing he could point to was a method he had devised for sawing the long bones to expose the marrow. He eventually resigned and started a medical course.

We did, nevertheless, establish certain facts which I still believe are useful in combating the disease. I quote from an address given before the stockbreeders: 'The disease starts between July 15 and September 15. Most cases occur in animals out in the pastures, fewer cases are seen in work horses, and none in city horses.' It was recommended that horses be stabled as much as possible, and kept away from sloughs and ponds during the period between July and the middle of September. At the University twenty-six purebred horses took swamp fever and eleven of these died shortly before my laboratory was ready. This was unfortunate as regards my studies, though for the sake of the University horses I was glad that no more outbreaks occurred during my stay in Saskatoon. Drs. Norman Wright and J.S. Fulton cooperated with me in the work.

Following my usual practice I never overlooked other interesting problems which were noticed. In the summer of 1923 with Fulton I continued my studies on warble flies which were published at Cambridge the following year.

Round Worms (Ascariasis) in Horses

In 1924 a very interesting problem presented itself at my back door. In a field near the laboratory a number of Clydesdale mares and foals were at grass. Seven cases of broncho-pneumonia developed in the foals, the mares remained healthy. Two of the foals died and a third some time later. The remainder coughed and ran at the nose but eventually recovered. In thinking about these fatalities I wondered if round worms might have something to do with the trouble. I knew that in pigs Ransom and Cram had shown how round worms might cause pneumonia, but nothing was known in that regard about the round worm of horses. Experiments began at once to ascertain what happened when the eggs of *Ascaris equorum* were given to foals.

Experiments

A young suckling colt twelve days old was given two doses of worm eggs. On the sixteenth day the colt began to cough. Four days later it was destroyed. Many worm larvae were found in the lungs which showed evidence of inflammation.

The experiment was repeated on another suckling colt which started to cough on the seventh day following a dose of worm eggs. I found that after the worm eggs were swallowed they hatched and the larvae made their way into the liver, thence into the lungs where they remained for a time, causing irritation and inflammation. This forced the foals to cough up the young worms. They were swallowed with the mucus and returned again to the place they had started from, the intestine,

where they would now remain until they were full grown. In horses the worms grow to be nearly a foot long and lay millions of eggs.

I pondered over the reason for the worms making such a journey through the body when their permanent home was to be the small intestine. I gave it up in despair. So I carefully followed the trail of lesions in the body and found that wherever the larvae were or had been, the white cells from the blood, the cosinophiles, were present in large numbers. I was not the first to notice this fact; two Frenchmen, Weinberg and Seguin, thought that these cells could neutralize the toxins derived from worms. I thought the cells did something even more complicated. Young colts suffered more ill effects from a dose of worm eggs than the older animals. Did these have some way of resisting the worms which the young did not possess? The first dose of eggs given to a colt would be unresisted because the body would be unprepared, but the second or third doses should reveal some bodily resistance. A third colt was secured which already had worms. Eggs were given, causing a rise in the percentage of cosinophiles in the blood. Later another dose of eggs caused a temporary disappearance of the cells, but they soon came back in larger numbers than before, proving that the cosinophiles rose and fell in the circulation according to the presence or absence of worms.

The cosinophile is easy to recognize in the horse because the granules in the cell are larger than in any other domesticated animal. Under the microscope they look like pink raspberries. They surround the worms in large clusters, both the living and the dead. I therefore concluded that the cells secreted a substance which was harmful to the worms and actually killed them. This explanation of immunity does not take into account those worms which successfully evade or pass the barrier of cosinophiles, because some of the worms may do so and reach the intestine where they attain a neutral position in the body. They accomplish this mainly, it is believed, because they move more rapidly than the cosinophiles, though many perish in the attempt. [Dr. Murray Fallis, my scientific associate at the Ontario Research Foundation, has lately published a preliminary paper on the repeated administration of Ascaris eggs to guinea pigs, which confirms and adds scientific proof that the oedema of the lungs is coupled with an increase in the cosinophiles. This work pleases me mightily.]

Some time after the experiments were ended, Dr. Wright treated the four surviving foals for round worms. They passed large numbers of them, one over three hundred.

Now I will answer the reader who says, “What’s the good of all this practically? There are some very good drugs which expel round worms, but your colt is already damaged and his growth stunted. You can prevent infection and practical people should like work.” Well, then, when one of your mares is going to have a foal, heat a lot of water to the boiling point, wash the walls of the box stall intended for the mare with a strong solution of lye, scrub everything well, then rinse with boiling water. Boiling water will kill the eggs. The mare herself should be washed with warm soap and water over the udder and hind parts to remove any eggs sticking to her skin and hair. This should protect your foal for at least ten days, even in warm weather. When the mare and foal go outside, beware of the paddock you have used year after year; it is loaded with parasites. Plowing

and rotation of pastures is indicated wherever horses are raised. …

University of Saskatchewan

In looking back on the time spent at Saskatoon I find myself recalling many pleasant episodes and my family does the same.

Our first Christmas and all those which followed were always happy. Dr. and Mrs. Murray gave parties for the whole staff and all the children at Christmas. How they remembered the names of the children and the newcomers each year was wonderful – no child was ever overlooked.

In have mentioned a number of the problems I tackled in Saskatoon and though I did not publish a large list of paper, I shall always feel that my time was by no means wasted, because I am constantly referring to the things I learned there. In other words I carried on from Agassiz to Saskatoon and from Saskatoon to the Research Foundation in Toronto. I shall therefore mention one or two problems on which I worked but did not finish there.

One day Dr. Murray asked me if I would go to Edmonton to cooperate with Dean Rankin and Dr. Shaw who were experimenting with BCG, the Calmette-Guerin vaccine for tuberculosis. I served mostly as a witness at the post-mortems held on vaccinated and control animals. It was a pleasure to me to exchange views with the researchers who were altogether without bias in their work. Personally I felt that, as the disease can be completely eradicated from herds of cattle through the use of the tuberculin test, the administration of vaccine would only prolong the time when our herds would be free from tuberculosis. In man, the problem is entirely different and not my affair. Calmette's vaccine was not new to me as I had visited his laboratory in France in 1909 when the work was in progress.

Hunting Buffaloes

In 1927 Dr. R.M. Anderson of Ottawa and I were each offered a wood buffalo bull if we would go to get them in the Buffalo Reserve near Fort Smith, North West Territories. A small portion of this reserve is actually in Alberta. This was one of the most arduous trips I ever made. We drove, rode and walked three hundred miles to get those buffaloes. There are one or two incidents I shall mention about the trip. First of all, I had better explain that the wood buffalo was supposed to be different than the plains buffalo. It had been named *Bison bison Athabasca* by Rhoads.

As several thousand plains buffalo had been liberated in the reserve, it was expected that the wood buffalo would soon disappear as an entity. The newly introduced buffaloes were all young, hence at the time of our visit any old buffalo would necessarily be of the woodland species. The woodland buffalo was credited with being darker in colour and heavier than the plains buffalo. It was also thought that his 'shaps' were short, i.e., the long hair which grows towards the knee on the outside.

We drove to the famous Salt River where Franklin and all the pioneers going North used to take on a supply of salt. In the reserve there are innumerable sink holes, formed by the dissolving of the underlying layer of gypsum by water. Some of these are small enough to jump across. Others are several acres in area. There were signs of buffalo everywhere, well-worn trails, wallows, but no buffaloes. We got down as far as Peace Point on the Slave River, and then retraced our steps. On the way Anderson shot a young she-bear. I saw its insides within a few minutes after it was dead. I was very keen to examine its stomach to find out what it was getting fat on before the autumn. Its stomach was so full of berries that it was hard; there were three or four pounds of them, nothing else – blueberries, bearberries and cranberries, the high bush and the low. Most of the berries had been swallowed whole. So that is how bears get fat. The only part of the stomach where digestion was taking place was at the exit near the pylorus. Here was a new cure for thin people and not unpleasant at that.

Two days later it snowed, then rained very hard. We got wet through. When we reached our camping places we built a big fire and took all our clothes off. We held out our underclothes to the blaze and as each article dried we put it on. I forgot to mention that as we got close to our camp we found bits of linen on the trail. Finally a larger piece was seen. It was the remains of an old-fashioned nightshirt I had hung up to dry. A bear had been playing with it. Anderson said, “Don’t tell your wife what happened.”

We went across country to the salt plain, and camped on a small saline creek. Anderson shot a muskrat. He said, “I will skin it and then you can make a stew.” After cutting up the rat I found the liver was full of small tapeworm cysts. I showed them to Anderson as I was making the stew. Anderson said, “Do you know what they are?” I answered, “No, they are new to me.” The stew was not much of a success as far as Anderson was concerned, but it was the only meat we had.

We moved camp and just at sundown we found a small herd of buffaloes. Anderson saw a bull he like the look of and shot it. Dempsey, the Chief Warden, and his man took the horses back to Fitzgerald to get some fresh supplies of food and some more horses, but first another buffalo was shot and eviscerated. That night it froze. Early next morning the hide on the buffalo was stiff with frost, and very hard to remove. I went back to the camp for a pot to put some meat in. I thought I would try and get at the tenderloin under the backbone. To do this I had to crawl inside the buffalo to get at the meat. After a bit I heard Anderson calling. I let him call for a bit, then I answered loudly. Anderson jumped up and ran around the buffalo, then he saw me and we had a good laugh. I had several pounds of good meat, perhaps seven or eight, which I stewed for about three hours until it was tender; then I added a double handful of rice which was all we had left in the way of provisions, except tea. Anderson, our Indian, Susie Marie, and I sat down to eat our stew, and we almost finished the whole lot at one sitting. Susie Marie had the lion’s share.

It took us several days to dry and salt the skins. The bones were a terror to disarticulate. The first buffalo was not so bad but the second bull fairly stank before all the bones were cleaned and separated. The black flies bothered us a good deal when the sun was hot. Eventually the job was done and we loaded nine horses with our spoils. One hide was a load for a horse.

As we neared Fitzgerald we heard the whistle of the last steamer going South. We waited at Fort Smith for several days, then it was arranged for us to go out on a barge with the 'Candusa', a tugboat, to push us along. We started out early one morning with a lot of Hudson's Bay men and a portion of the annual fur catch. We had Bishop and Mrs. Stringer on board and a number of men of all sorts. One of the Hudson's Bay people was a Frenchman, M. Herodier, who was an expert fur man. We had a number of interesting talks together. Talking with my French friend reminds me of an interesting fact about the Indians in the region. They actually talk modern French, which differs from the old-fashioned French spoken in Quebec, the reason being that their missionaries in this region came direct from Brittany. Another new idea to me was the giving of feminine names to men, like our guide, Susie Marie. It was explained that when the father's name was not known to the priest he named the child after its mother.

I was looking forward to seeing the autumn migration of birds at Fort Chipewayan on Lake Athabasca. Anderson and I tried to get someone to take us down ahead of the barge, but unsuccessfully. When we arrived it was too late to do anything. In any case no one will leave a post when a steamer arrives, because to the inhabitants it is as good as a show. Mr. Loutit, the Hudson's Bay manager, told us he had once bagged eight-five galoots (Ross geese) in one evening.

We were supposed to leave at four a.m. but the Bishop was not on board. The captain of the tug stamped up and down over our heads and swore. I got up very soon on account of the noise. Finally the Bishop arrived. Then we heard the skipper again stamping and swearing. He said, "And now the damned dog has gone ashore." It was his favourite dog. If it had been someone else's dog he would not have waited a minute.

As the tug pushed us along that morning, the mists were rising off muddy banks and islands and we saw innumerable ducks and geese. It was an unforgettable occasion. Bishop Stringer and Anderson were old friends, having been together years before on Hershall Island. I enjoyed hearing them talk.

One incident I must relate about our cook and a carpenter on the scow, as it shows how efficient some of our Westerners are. When we left Fitzgerald we walked onto an empty-barn-like scow with a pile of fur bales in the centre. At one end there was a stove minus a stovepipe, and a pile of groceries, canned goods and flour in one corner. A young man sauntered up. The stovepipe was put up and the fire was lighted in the stove. A boy began to peel potatoes. The cook stood a sack of flour on end, undid the stitching, poured water, salt and baking powder in and soon had a big ball of dough. The carpenter had made a table for the cook and it was not long before a batch of biscuits (scones) was in the oven. When the first sitting for lunch was called, there were boiled potatoes and steak, biscuits, two sorts of pie and coffee. The cook never hurried, and smoked and chatted with the passengers. The carpenter had made benches to site on and before night had two tiers of bunks on each side of the scow. No fuss or worry over the matter. …

A Change from Brown to White in Showshoe Hares

In 1927 I began a work which was only brought to a conclusion some years later in Toronto. For a long time I had wondered how northern animals turned white in winter and why they did so. The newspapers publish something about this most years and quote the Indians who are supposed to predict hard or mild winters, depending on the early or late appearance of white animals. In natural history books one reads that the animals turn white when the snow comes to render themselves invisible, though in most scientific books there is a division of opinion about the nature of the change to white. The literature goes back to J. Richardson in 1829 and F.H. Welsh in 1869.

Five wild hares caught at Durban, Manitoba, were shipped to me at Saskatoon on December 24th. The animals had turned white earlier in the year, so that I had to wait until the following autumn to witness the transformation. I put two of the animals in outside cages and the three others in a steam-heated room.

Shortly before the winter fur was shed a microscopic study of the hair revealed that the outer fur, the pile hairs, which constitute the bulk of the hair cover, had a peculiar construction. The outer white portion is broad, then it becomes quite thin and threadlike. Whenever one of the hares bumped into the side of its cage these hairs broke off in tufts, leaving brown patches in the fur. Thinking that this might be the reason for the animals rapidly turning brown in the spring, one of the hares was plucked by hand, shortly appearing quite brown in colour. Later I examined the normally shed hairs and found that in nearly all cases the hair roots were still attached to the hairs, contradicting my suspicion that the white portion of the hair broke off normally in the spring.

The winter coat is made up of two nearly equal parts, the outer white layer is succeeded by a narrow dark brown strip, then a fulvous one and next to the skin a wide band of blue.

In examining the hairs under the microscope it was found, as one would expect, that in the coloured layers all the hairs carried pigment, even the stiff solid guard hairs which help to keep the fur erect. Seeing that the bands of colour vary in share, it was evident that at certain periods during the growth of the hairs, different kinds of pigments were elaborated in the skin. This explains the parti-coloured banding of the fur in the snowshoe hare, but it does not show how the summer fur is replaced.

The summer coat came in about May 15th. There was no significant difference in time between the indoor and outdoor hares, though it was thought that the indoor animals might have shed their coats earlier seeing that they had been in a warm room.

The summer coat lies flat on the body, making it appear much shorter than the winter coat, though when measured it is nearly as long. No noticeable change in the colour of the animals was seen until September 23rd, when a white tinge was noted in the hair of the feet and ears. A month later, on October 23rd, the changes which had been slowly taking place now proceeded more rapidly. On the head there were white rings round the eyes and white areas round the base of the ears and on the

lower part of the nose. White areas on the flanks were noted, creeping up to the back, finally leaving a distinct brown line along the top. The changes in both outdoor and indoor hares were simultaneous. Only one hare, a young one lately acquired, was slower than the other five.

Thus it was definitely proved that the temperature at which the animals were kept had no appreciable influence on the change to white. The reason for the tardy change in the small hare was most probably because he was born late and was not yet fully grown.

In discussing the reasons for the bands of colour in the fur with my colleagues Drs. Alty and Harrington, it was thought that the combination of colours would make the coat warmer than if it were wholly white. The white hair would reflect heat rather than absorb it, the reflections would travel from hair surface to hair surface until they reached the dark layers in the fur where they would be absorbed and held. Anyone who has slept under a snowshoe hare blanket knows what a warm covering it makes.

My conclusions about the change to white in the autumn showed that there was no regular moult. I said that, "though some shedding goes on during the change, it represents only a very small percentage of the total hair covering." Seeing that there was no extensive moult like that in the spring, it was assumed that only the outer coat turned white, for which various microscopic changes were mentioned and photographs taken. This, in brief, constituted my first attempt to solve the riddle of how animals turn white in the autumn.

… A curious result emerged from our studies. I had rather expected that the people connected with the fur industry might be interested in our work. To my astonishment it was the police. At Saskatoon a sample of hair was brought in by a policeman. A horse had been stolen which had a white star on its forehead. The policeman thought the thief had dyed the white star, so he cut off a lock of hair. In this instance it was detected that the dye was on the outside of the hair and in some of the lower parts of the hairs the dye had not adhered. The thief was convicted for stealing the horse.

In Toronto I was asked to assist the medico-legal people in identifying some rabbit hairs which were found on the clothing of a murderer. This is what was found. The hairs had some unnatural twists in them. The hairs lacked pigment where it should have been present. It was shown that a blue dye had been applied. Later it became known that the hair had been bleached, dyed and spun into a sweater. The photographs in my papers assisted in definitely identifying the hairs as rabbit hairs of certain kinds, such as pile and under fur.

Smoke Investigation

During the spring of 1929 I was requested by Dr. Murray and President Tory of the National Research Council to investigate suspected smoke damage to animals in the Northport area in the state of Washington, U.S.A., and near Trail, B.C.

When I arrived in Northport I soon discovered that the work I was to undertake had a character which differed from anything I had attempted before. I heard some of my colleagues referred to as “smoke hounds”. What I was called behind my back I do not know, but I had a straightforward job to do which was to examine as many animals as possible and report on which I found. There was only imaginary smoke damage to the animals as far as I could determine. Later I was called to give evidence before the International Joint Commission at Washington, D.C. Mr. C.A. Magrath was Canadian chairman. I confess I did not like the cross-questioning but in ended finally. On the way home I travelled with the Chief Counsel for our Government who invited me to dine with him and told me I had done well, which cheered me.

This was the last work I did in the West as a member of the University of Saskatchewan.