

The climatologist in the criminal court

In Brantford, Ont., a man was convicted of killing his stepdaughter, in Sudbury a motorist was fined \$1,000 for attempting to pervert the course of justice, in Cobourg a plane crash that killed all six occupants was blamed on the obstinacy of the pilot and in Toronto, Peter Demeter was convicted of arranging for the murder of his wife. In each case and many more, a climatologist played a part.

Dave Murdoch, whose office is located in the Ontario Weather Centre at the Toronto Airport has a rare and sometimes exciting job. He is a forensic climatologist. This means that he spends a good part of his time in court. Fortunately not all though, since some court authorities merely require him to send certified documents to their offices rather than testify under oath.

Mr. Murdoch, who has been with AES and its predecessors for 28 years, specializes in criminal cases that require legal verification as to past weather. Civil cases in the region are handled by a 31-year-veteran, Tom Moyer, the head climatologist at the Ontario Climatological Centre. Mr. Murdoch also handles inquests and enquiries and occasionally assists Mr. Moyer with civil cases.

It was a simple-enough murder case that persuaded police to take Mr. Murdoch under their wing and give him specialized training. A Jamaican maid was found dead in a Toronto park on the night of a rainshower. She had been murdered, and in her purse was found a folded rainhat, still wet on the inside. This was enough to convince a pathologist that she was alive when the rain ended and it gave him important information on the timing of the crime. It was Mr. Murdoch's task to determine the time and place of the rainshower. Armed with this data, police were able to question people in the area about suspicious occurrences, and the murderer was arrested almost immediately.

In fact, police were so impressed, they decided to go to AES for forensic information whenever climate was involved. In Ontario region this meant consulting Dave Murdoch.

Mr. Murdoch is the first person in Canada to teach forensic climatology at a police college. Here he is seen showing a weather radar map to Inspector Elgin Austin of the London Police Department.



"That was in 1973," he recalls. "Until then the witness who had to appear in court was usually someone from the weather office who lacked the ability, or the experience, to spot a process-server coming across the tarmac—or the one who was conscientious enough to give his name to the police or to a lawyer."

This obviously wasn't fair either to AES or the law. Mr. Murdoch had abundant expertise, rounded out by police training and he was ultra-conscientious, so he fell naturally into the job.

Addressed Harvard associates

It's been hard work, but he must enjoy it because he supplements his court chores with frequent speeches before various groups, such as police, lawyers' and research organizations, and teaches courses at police colleges. A highlight of his career was being asked to address the

August Harvard Associates in Police Science, meeting for the first time in Canada on the new subject of Forensic Climatology. "It was quite something to find myself with other guests such as the Governor General and the Chief Justice of Ontario," says Mr. Murdoch.

Messrs. Moyer and Murdoch have colleagues who do similar work in other provinces, on a part time basis, but they are much less experienced in court work. In fact Mr. Murdoch is the only climatologist in Canada specializing in criminal cases.

Not every case makes news, but all of them require careful searches into climatological records, maps and satellite pictures, so that when Mr. Murdoch gives evidence in court, he does not have to back down under cross-examination, which is sometimes fierce.

The Demeter case was just one of the murder trials at which he has testified, but probably the most notorious. Mr. Murdoch's

role was a minor one. On the day of the murder, Demeter had told his gardener not to come to the house that evening because heavy rain was forecast. Mr. Murdoch was called to testify that the forecast that day was for good weather, which helped convince the jury that Demeter had carefully planned the murder.

A less spectacular case involved a snowmobiler who was frustrated in his effort to collect insurance when the insurance company charged him with deliberately setting fire to his cottage. The man claimed that his snowmobile had accidentally caught fire in a shed and the fire spread to the cottage. But Mr. Murdoch showed that, if this were true, sparks from the shed would have had to fly 63 metres on a very windy day – upwind.

In an incident where no crime was involved, the crash of a light plane near Cobourg in 1980, in which six were killed, was explained when Mr. Murdoch testified at the inquest that advisory warnings of fog, rain and low clouds had been given out before the pilot took off from Trenton to reach a ploughing match near Chatham. This enabled the Coroner to declare that the dead pilot had been negligent.

Helped convict child killer

A much more complex case resulted in the conviction of a man for killing his eight-year-old stepdaughter. There was a four-day search leading to discovery of the girl's body in a snowbank. Meanwhile Mr. Murdoch had supplied exact weather information to an expert on hypothermia that enabled him to determine the time of death, for which the killer had no alibi. Comments our forensic expert "I was proud of my involvement in the case. The Crown Attorney told me, that without my particular sort of expertise, the murderer would undoubtedly still be walking around free."

It is not always on the side of the prosecution that Mr. Murdoch testifies. Once he was able to help free a man accused of breaking into the home of a woman who claimed she could identify him because she had seen his face clearly in the moonlight. But there was no moon that night.

"We don't deal in opinion," says Mr. Murdoch, "so it's hard for our evidence to be refuted. We deal mainly in facts – but of course, our opinion is sometimes solicited, and it is presented as such."

Most of the cases involve simple accidents, but meticulous work has to be done to find if there was rain, fog, or freezing precipitation at some road intersection at



Dave Murdoch is often seen in this pose in the courtroom explaining an expert point to the judge. Actually this is an Aylmer, Ont. Police College simulation with Course Director Harold Tuthill playing the role of his honor.

a certain time on a certain day.

A suspicious circumstance occurred when three young American women ran into heavy weather and were drowned while canoeing in Georgian Bay.

One of their two canoes with their personal effects could not be found, and police suspected foul play. Mr. Murdoch's expertise was solicited. He studied the winds and the probable currents and told police where the canoe should be found. It was, and the coroner decided that an inquest was not necessary.

One case involved the Ontario Ministry of Natural Resources when a gamewarden suspected that a certain deer had been shot out of season. "We were able to prove it had," says Mr. Murdoch. "The hunters had left the deer hide behind their house, and it was covered with snow. There hadn't been any snow from the time the season had opened."

In another non-criminal affair the culprit was not one but many unsuspecting citizens. A few years ago, in the fall, forestry people asked if Murdoch could possibly find out why there were so many fires across the top of Georgian Bay, between Sudbury and Sault Ste. Marie. Was it because of thunderstorms? No. The weather was fine and summery. Adds Mr. Murdoch: "After further checking, we called in a couple of other ministries and finally we had the answer: it was the beautiful leaves on the trees that were causing the problem!"

"People would be driving along No. 17 Highway staring at the magnificent scenery from the bridges and they'd see a valley full of trees with colorful leaves, and they'd say, 'Isn't that beautiful? Let's get some pictures.'" So they would park their cars at the side of the road, go back and

take pictures. Often where they pulled over, there would be tall grass, which would be heated up fiercely by the vehicles' catalytic heaters operating at 700 degrees C. The cars would drive away and the wind would whip the smouldering grass into flame."

An odd case involved a mailman suspected of stealing letters. A quantity was actually found in his home, but he claimed he had just taken them home to dry them out because they had been rained on in his bag. "But," says Mr. Murdoch, "we proved that there had been no rain around his area for several days before or after the postmarked date on the letters."

Satellite picture clinched case

Then there was the occasion when, probably for the first time, a satellite picture was used to clinch a case. It involved a Sudbury motorist, accused of failing to stop at a stop sign. In court he produced a picture which, he said, was taken just after the alleged infraction, showing that the sign had been knocked down. Consequently, he could not have known he should stop.

Mr. Murdoch was called in to testify about the weather, and he was able to produce a satellite picture for the day and time of the offence. It showed that the sky over Sudbury was cloudless. The motorist's picture showed an overcast sky, but later he confessed he took the photo five days later.

Even after a lengthy interview, Mr. Murdoch confesses that he has only brushed the surface of his many and varied experiences which have included 300 court appearances in eight years and involvement in 46 homicides. □