

# The Hygrograph

HOW FIRE BEHAVIOUR WAS PREDICTED

## ARTIFACT DONATED TO CONAIR MUSEUM

Leigh Barratt donated his hygrograph, a BC Forest Service (BCFS) artifact, to the Conair Museum in the Tactics and Training Centre in Hangar 2, upon his retirement from Conair at the end of April. Leigh had worked in the BC Forest Service for four decades as an Assistant Ranger, Reforestation Coordinator, and an Air Attack Officer before joining Conair in 2015 as Safety Management Consultant.

The tool was used primarily in the 1950s and 60s by those stationed in Forestry lookouts to measure relative humidity which is used in calculating the potential for fire starts, volatility and rates of spread. High humidity meant less chance of sustained ignition; low humidity, a greater chance of fire taking hold and spreading more rapidly, depending on fuel type.

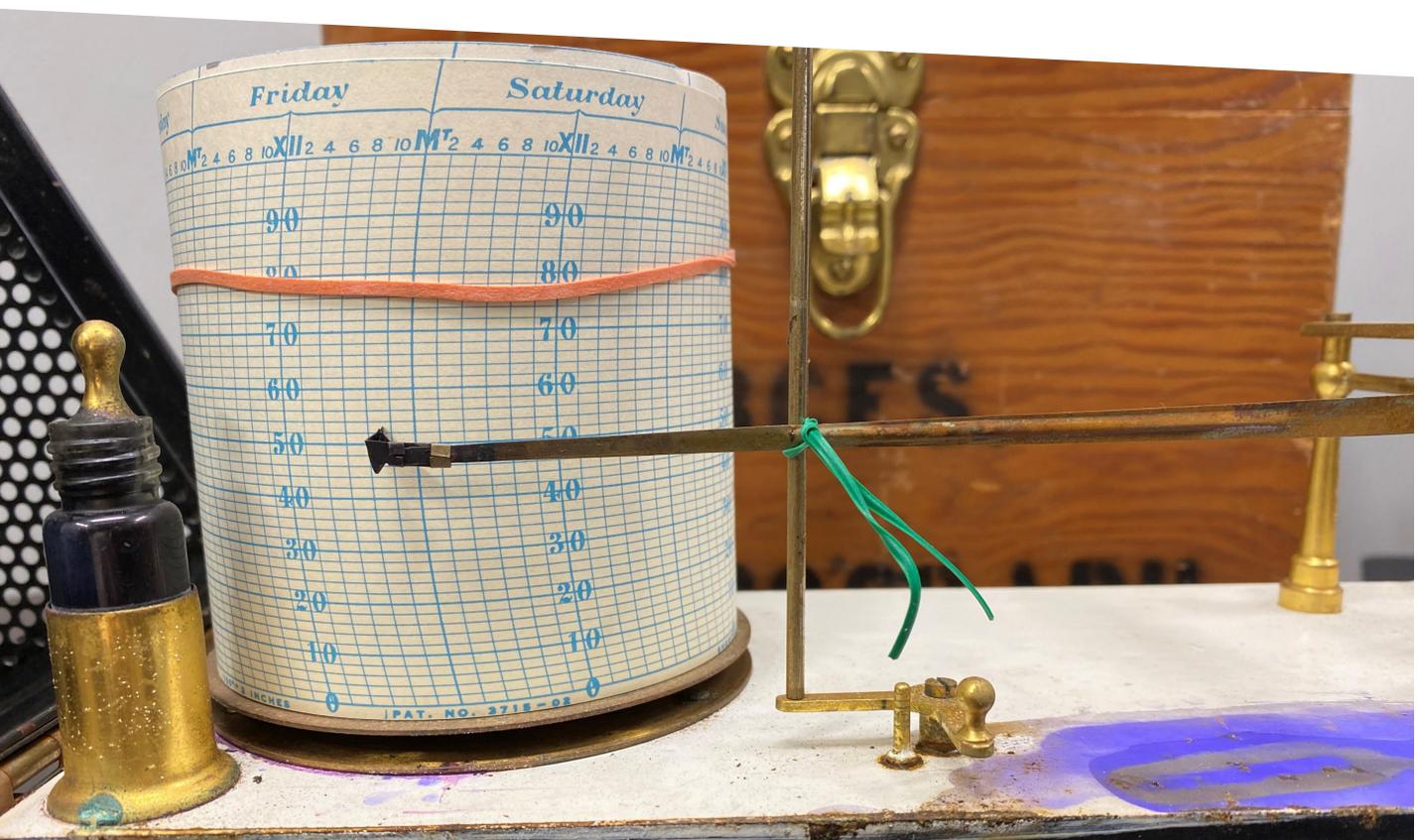
The Hygrograph is a mechanical device comprised of a 7-day wind up clock in the shape of a cylinder. Wrapped around the cylinder is a chart that allows a pen nib to scribe a line on the graph paper as it rotates. The pen nib is attached to a lever which is attached to numerous long strands of human hair. Human hair lengthens and shortens as humidity increases or decreases.

These instruments are stored outside in a Stevenson windscreen that allows for air flow yet protects the instruments from the weather. Readings were taken daily and radioed into the local forestry office who used this and other information to calculate the Fire Behavior Moisture Codes which are used in determining the potential for a fire to start, its ability to spread, and how volatile it can be in the fuel type that station represents. The country is divided into 17 different fuel type categories. Which burn at different rates.



Forestry personnel would be stationed alone in (hike-in, some drive-in, or fly-in) remote lookouts high on top of mountains for weeks at a time. The lookout job wasn't all flowers and fresh air. It could be a very scary place to be when a violent windstorm or lightning storm took interest in your small building. The job was simple enough but very important, which was to look for smoke and immediately report all observations using special maps and aerial photos and a radio. Other duties consisted of maintaining the lookout and take weather readings.

Additional weather instruments included an anemometer to measure wind speed and direction, rain gauges to measure precipitation, and thermometers for temperature. Back at the forestry office the weather information from the lookouts is used for planning purposes to determine fire potential, where to allocate resources based on values at risk, fire attack plans, crew delivery methods and safety issues.





In the early days forestry lookouts were established in areas of human development and essentially the fires detected were human caused fires. Over time the public, thanks to better communications, reported most of these fires. To fill the gap in remote areas of little human activity Air Patrols were used to find the fires usually started by lightning. Lookouts became obsolete and were closed down. Automated unmanned weather stations replaced lookout personnel who took the weather readings. These all-in-one weather sensing devices are small, autonomous units that send in automatic cloud-based data. Now BC Wildfire Service operates approximately 260 hourly weather stations throughout the province.