Downsview Stories

DEFENCE AND CIVIL INSTITUTE OF ENVIRONMENTAL MEDICINE

Downsview has been the site of aerospace research for decades, but a lesser known chapter of scientific innovation concerns undersea and aviation medicine. As early as 1939 the Department of National Defense became interested in knowing more about how the human body responds to extremes in temperature and altitude as it related to the defence of Canada. They entered into research partnerships with academic institutions and labs including the Banting and Best Research Institute at University of Toronto to find out more.

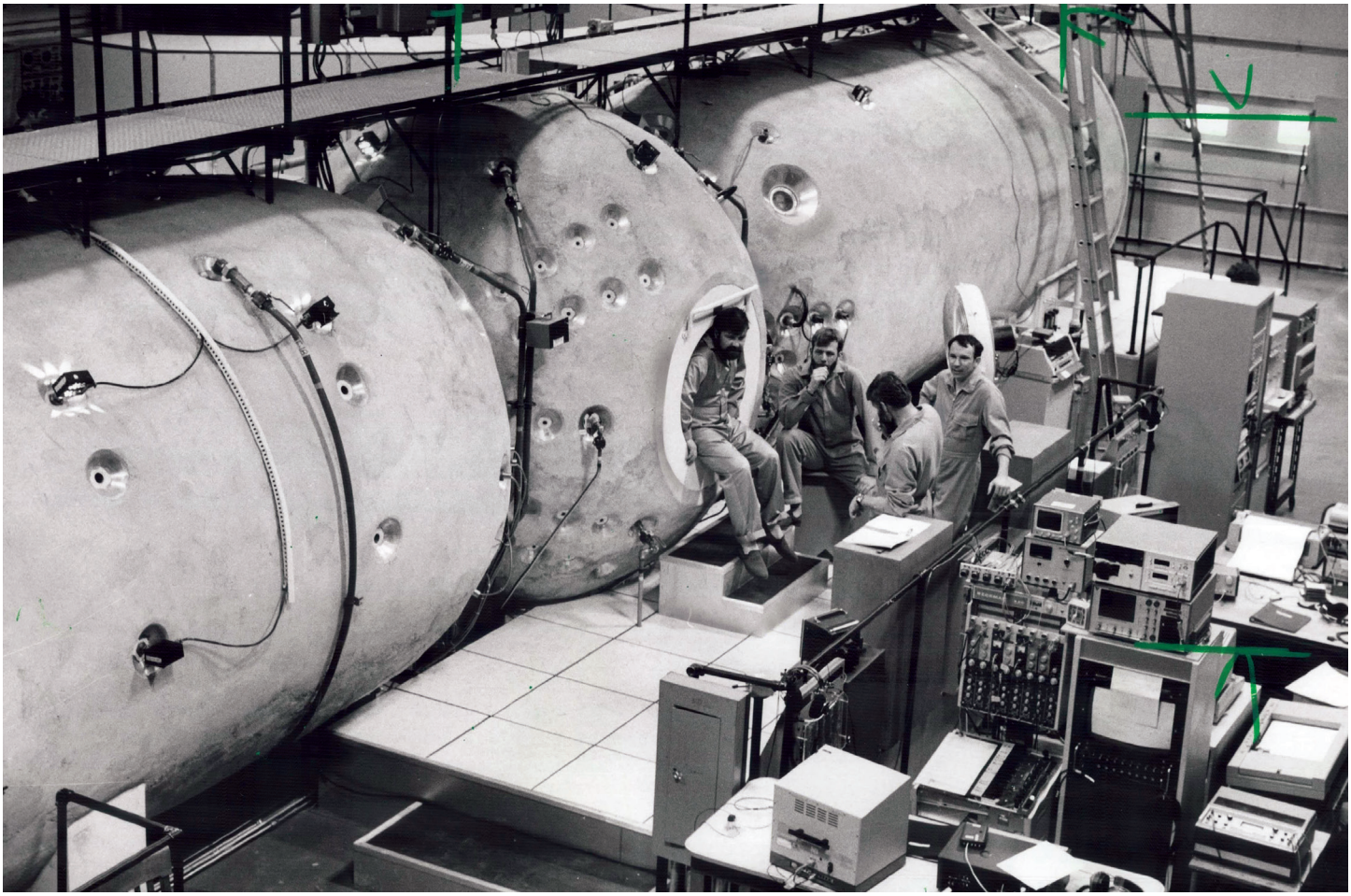
Throughout the 50s and into the 70s several unique facilities were created in Downsview to investigate the effects of occupational hazards such as cold, heat, impact and pressure on pilots and divers. Survival testing of clothing and food was also carried out in an effort to increase safety and assess risks.

The effect of G-forces on pilots was researched in a human centrifuge while hypobaric and hyperbaric chambers were used to study decompression sickness, aka 'the bends'. By the 1970s the research and staff working on these projects in various labs across Toronto were consolidated into one centre, the Defence and Civil Institute of Environmental Medicine (DCIEM) in Downsview.

The hyperbaric chambers included both wet and dry sections that could hold up to 26 people for days or weeks, depending on the research objectives. Data derived from the work done here were primarily used to validate industry-

Wilbur Franks in his anti-gravity suit in 1941. Frank's laboratory became the RCAF Institute of Aviation Medicine, which later became DCIEM

leading decompression tables and data—in other words, how long people could stay 'compressed' underwater safely and how quickly or slowly they could 'decompress' when surfacing. According to the Canadian Undersea and Hyperbaric Medical Association (CUHMA) website, these tables are still used worldwide "by the Canadian Armed Forces and other foreign navies, commercial diving organizations, and civilian organizations and recreational divers to reduce the risk of decompression sickness."



Canadian Forces divers undergo a 13-day simulated dive in DCIEM's compression chamber, 1981

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