

SCIENCE DIMENSION



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Cover

Matter interacts in an infinitude of interesting ways, whether strung out in the graceful strands of DNA or spinning as starclouds around the centre of a galaxy. The search to understand these interactions, at the level of molecule, man, and macrocosm, is the goal of science. Appropriately, as the story on page 2 explains, it is also the theme of NRC's Open House at its Sussex Drive laboratories.

From genes to galaxies Sussex Drive Open House



NRC's Sussex Drive facility during construction in 1930.

Les installations du CNRC situées sur la promenade Sussex pendant leur construction qui remonte à l'année 1930.

Fifty years ago this summer, the National Research Council opened the double bronze doors to its new Laboratories at 100 Sussex Drive in Ottawa. For the scientists entering the elaborately designed structure on that August morning in 1932, the world was a vastly different place than it is today.

Astronomers were still confined to optical telescopes in their observations of the heavens; the radio receivers that would eventually open up an entirely new window on the universe, revealing distant beacons that would challenge the accepted cosmology, had not yet been pointed towards the sky. Biologists were busy investigating acids of high molecular weight in the cell nucleus, the DNA, but most suspected that some other substance, probably a special protein, carried the genetic code. Chemists were becoming expert at manipulating the 90-odd elements of the periodic table, but had not worked out the kinks in the great synthetic processes that would transform the face — and substance — of society. Across the Atlantic in that year of deepening world-wide depression, Britain's James Chadwick discovered a subatomic particle that would lead to undreamed of, disturbing changes — the neutron.

Today, as NRC marks the 50th Anniversary of Sussex Drive with an

Open House (19, 20 June 1982), much has changed in the scientific perceptions of the men and women who pass between the building's Doric columns. The radiotelescope, and more recently the satellite-mounted X-ray telescope, have shown astronomers just how full of surprises Nature can be. Out there in the depths of space, bodies strange beyond the imagination of the most protean thinker have been detected. There are pulsars, the crushed cores of exploded stars, broadcasting their locations with radio pulses of steady frequency. Powerful X-ray sources hint at even more bizarre cosmic behavior — black holes, for example, in which matter has been so crushed by gravity that it is actually driven out of existence. And beyond, at the very limits of the universe, are the quasars; supermassive, travelling at speeds approaching that of light, these objects may have been formed at the very beginning of time, the current radio signals perhaps only ghosts of what have long ceased to exist.

For biologists, 50 years of research have wrought similar changes in understanding of how living systems function. The genetic code and the manner of its unerring reproducibility have been discovered in the structure of DNA, the elegant, winding double helix in the cell nucleus. More impor-

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