SCIENCE DIMENSION

National Research Council Canada / Conseil national de recherches Canada

Vol. 13, No. 2, 1981

Indexed in the Canadian Periodical Index
This publication is available in microform.

CONTENTS

4 Beaming black hole?
Stellar schizophrenics

10 New NRC Research Institute
Boon to Quebec industry

16 "Do you hear what I hear?. . ."
Computer-assisted testing for auditory discrimination

20 Briefly. . .

22 Student engineers produce
Classroom off campus

26 Through the eyes of research
Triple support to Trans-Canada Contact Lens Ltd.

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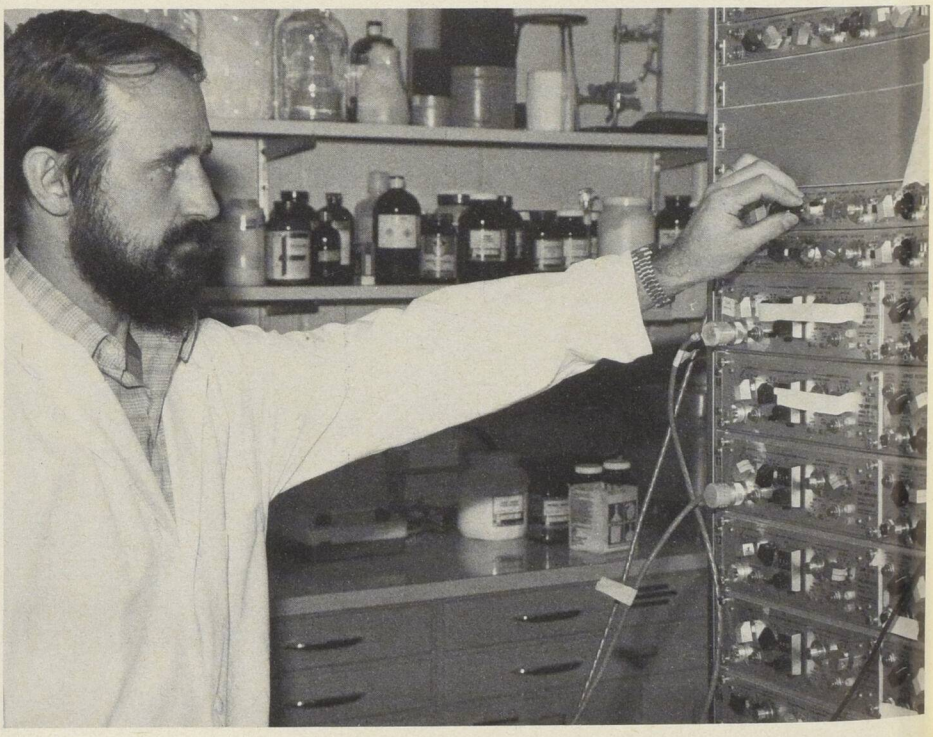
Design Banfield Advertising Ltd.
Printed in Canada by Beauregard Press Ltd.
31159-0-0858

Microwaves and the brain

During the last few years, NRC physiologist Dr. Edward Preston has been trying to verify the results of American research on microwaves and their possible harmful effects on living tissue. Fortunately for all of us, he has been unable to do so. The U.S. reports, published since 1975, indicate that microwaves cause changes in the blood capillaries that supply the brain tissue, specifically in a special capillary property known as the blood-brain barrier. "As the name implies," says Preston, "this barrier is highly selective in what substances are allowed to cross from the blood stream through the capillary wall and into the brain environment. This selectivity, or 'permeability' to use biological jargon, is altered by microwaves according to the American research, and can lead to serious consequences. Abnormal leakage of materials into the brain causes it to swell, a dangerous feature of conditions such as heavy metal poisoning, concussion, severe convulsions, and certain other diseases."

While there are several ways to test for changes in the barrier's permeability, a method of choice involves the use of radioactive tracers injected into the blood followed by monitoring for any abnormal increase in their penetration into the brain. Using carbon 14-labelled sucrose, proteins and other test substances normally excluded by the barrier, and various intensities of 2 450 MHz microwaves (the frequency used in microwave ovens), Dr. Preston could not detect any changes in the permeability of the barrier in the brains of laboratory rats. As for the original U.S. reports, he states that it is now commonly acknowledged on the basis of research here and in the U.S. that they were due to experimental artifacts, such as faulty tissue preparation or change in brain blood flow. The latter could be associated with "hot spots", regions of the brain where the microwave energy may have focussed because of the particular experimental conditions employed. Concludes Preston: "Studies being carried out here and in the U.S. on the brain's response to microwaves, both at weak intensities and higher levels producing heating, further our understanding about the real and imagined hazards of microwaves in our environment. They also tell us something of the high temperature which might be induced in the brain by microwave devices for destroying tumors, or by conditions like heat stroke and fever." □

Wayne Campbell



NRC's Dr. Ed Preston. No sign of the expected changes.

Le Dr Ed Preston du CNRC. Aucune manifestation des modifications prévues n'est constatée.