



# Victorian Cancer News

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## NEEDS FOR CANCER RESEARCH THE VIEWPOINT OF A CANCER INVESTIGATOR

Day and night, in laboratories all over the world, men and women of science dedicate their lives to the critical, exhaustive effort to penetrate the mysteries of cancer. Although progress may seem disappointingly slow and unrewarding, to the scientist the past ten or fifteen years have witnessed important and exciting developments, as **Dr. Charles Heidelberger**, American Cancer Society Professor of Oncology at the McArdle Memorial Laboratory, University of Wisconsin, reports in this article.\*

These are exciting times in research! The fusion of biology, biochemistry, physical chemistry and genetics into the field that is now known as molecular biology has led to a depth of understanding of life processes undreamed of as little as five years ago. It seems that a solution to our understanding of life itself is almost within reach.

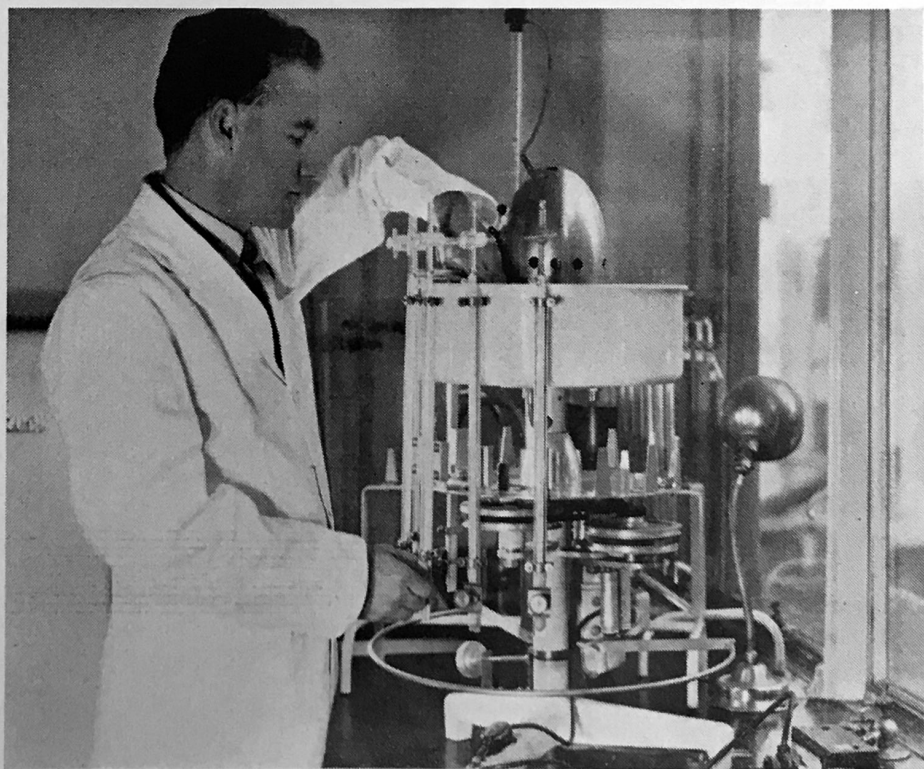
The control mechanisms that enable cells to respond with exquisite sensitivity to their environment are beginning to be understood. The structure and function of viruses — macromolecules on the borderline of life — are now yielding their secrets to investigators. From these viruses nucleic acids have been prepared that are, by themselves, capable of entering cells, subverting them to their own purposes and producing disease.

Vistas are now opening up of new experimental approaches to an understanding of the very complicated problems of cellular differentiation. And, perhaps most exciting, the code whereby the genetic information is read out into specific amino acids has been cracked, and within a very few years will be known in all its details. It is aesthetically very satisfying to note that throughout the hosts of micro-organisms, and plant and animal cells (including tumours) that have been examined, this genetic code appears to be universal.

\*Abridged from an address before the Society's Executive Directors' Conference, June 6, 1963.

Since the cancer problem is clearly a problem in molecular biology, the promise and excitement of this new knowledge is being carried over into cancer research. Indeed, cancer research has made many of the primary contributions to this almost dizzying progress.

How did this fortunate situation come about? I believe that this rather fantastic progress arose as a combination of circumstances. After World War II the peaceful by-products of the atomic energy programme, radio-active isotopes, became available to scientists and pro-



Here, in the laboratories of the world, the challenge of cancer has been accepted. Men like this in places like this — in Melbourne and Moscow, Montreal, Washington and New York, London, Geneva, Stockholm — continue the steady unheroic search for an answer. Each passing day brings some progress.

vided new tools of unheard-of versatility and sensitivity. Coupled with this development was the tremendous increase in the financial resources devoted to medical and biological research.

This availability of financial support to suitably qualified investigators stimulated more people to enter careers in research, and has enabled young investigators to carry out independent and original research at a much earlier age than was hitherto possible. This, in turn, has led to a renaissance of enthusiasm and intellectual inquiry in the field of biology. This generous, but not lavish, financial support also has encouraged a number of manufacturers to develop new and often very complicated and expensive scientific instruments that have made possible experimentation with completely new horizons of sensitivity and exactness.

#### NEW DEVELOPMENTS IN RESEARCH

Now, what of **cancer research** itself, in the light of the revolution in biology? I am glad to say that in the frenzied pace of modern research we are holding our own and making much progress. It is now beginning to look as though cancer cells and normal cells differ, in that the former may have defective control mechanisms and are not able to adapt as readily as the latter to changes in the environment.



Radiobiological research studies at Melbourne's Peter MacCallum Clinic have led to the development of hyperbaric oxygen equipment for the radiotherapy treatment of patients with advanced cancer.

*What are some of the most important and active areas in cancer research today? Here are six:—*

**1** *Viruses have been implicated in cancer causation. One of the exciting developments of the past decade has been the increased number of viruses that have been shown to produce tumours in experimental animals. Progress has also been made in understanding the nature of virus-cell interactions.*

*However, I believe it is a widespread misconception that viruses cause most human cancers. Thus far it has not been proved that any form of human cancer is caused by a virus, although such proof might be very difficult to obtain. It seems likely, in my opinion, that a few human cancers will turn out to be caused by viruses, but not the majority.*

**2** *The biology of cancer cells has received a new impetus with the recent observations of consistent chromosomal abnormalities in some human leukaemias. Other important studies involve investigations of the nature and control of the cell cycle in human cancer cells. New techniques of electron microscopy have made possible great strides in visualizing the ultrastructure of normal and malignant cells.*

**3** *Chemical carcinogenesis, which a few years ago, in the first flush of enthusiasm for virus-induced tumours, was considered obsolete, is certainly a major cause of cancer in man. Our increasingly complex civilization exposes us to a host of carcinogenic chemicals in cigarette tars, industrial smogs, automobile exhausts, rubber tyres, burnt foods, and food additives, to mention a few.*

*Increasing vigilance is needed to guard against these hazards, and the field of cancer epidemiology is burgeoning with efforts to correlate and understand environmental and geographic factors which may lead to cancer.*

**4** *Biochemical comparisons of the differences between normal liver and a variety of rat liver tumours of varying growth rates have revealed subtle differences in control mechanisms, and may pave the way for a closer understanding of the essence of malignancy and hopefully for a more rational chemotherapy.*

**5** *Extensive research in the realm of chemotherapy has led to the development of a few drugs that are useful in the palliation and prolongation of life of patients with advanced cancer. Very recent clinical investigations have led to new and more effective use of existing drugs, such as administration by continuous intra-arterial infusion, and combination with radiotherapy, with results that are often dramatic.*

**6** *The immunology of cancer is a very difficult and tantalizing field. Although there is at present very little in the way of concrete fact to go on, particularly in humans, there are a few hints that this field may become more firmly established. These hold out the possibility of the very elusive goal of prevention through immunization.*



*Hormones and other chemicals are tested for their effects on normal chick embryos and on cancers planted on the embryos — one of many steps required before they can be used against cancer in man. (Sloan Kettering Institute for Cancer Research, New York.)*

#### EXCITING PROGRESS

What, then, is the outlook? It -so happens that I am allergic to the word "breakthrough," which is overworked and abused. I believe that there is very great progress being made at a steady and impressive rate. We know and have achieved a great deal, particularly in recent years, as I have pointed out. It is my firm and unshakable conviction that some day cancer will be controlled.

**At the same time I believe that it is irresponsible and dangerous nonsense to mislead the public into believing that a cure is "just around the corner." The public will not easily forget promises that are not kept.**

These are the most exciting times cancer research has ever known — real and exciting progress is being made that needs freedom, flexibility, and adequate support. Research workers and facilities and organizations all over the world are uniting and pooling their knowledge and programmes to conquer this disease. **The conquest of cancer is inevitable. But this final triumph will not come quickly, easily, or cheaply, and will require great patience and understanding not only on the part of the investigators, but on the part of the public as well — the public that is asked to dig deeply into its pocket.**

Let us tell them — no, ask them — to have faith in the competence and dedication of the scientists and doctors who are battling this disease, who daily face disappointment and frustration, but who make the progress that is undeniably being made by coming to grips on a sustained basis with the maddeningly perplexing problems of cancer.

# PROFESSIONAL EDUCATION IN CANCER

Constant advances in diagnosis and therapy have changed the cancer picture radically in the past half-century. Over the past decade alone research in surgery and radiation and the development of chemical compounds in connection with these methods of treatment has significantly increased the survival rate in many forms of the disease.

The burden of early detection and treatment of cancer rests primarily on the doctor who first sees the patient. With limited time and facilities, however, keeping up to date with the latest diagnostic and treatment techniques becomes a real problem, especially when it is realized that the average doctor sees only a few cancer cases each year.

The Anti-Cancer Council of Victoria is therefore collaborating with the Melbourne Medical Post-graduate Committee and the Victorian Council of the Royal Australasian College of Surgeons in a joint Professional Education programme designed to place the rapidly-growing knowledge about cancer at the disposal of every medical practitioner. *Carlotta Kellaway reports on progress...*

## MUSEUM WITH A DIFFERENCE

In the Melbourne headquarters of the Royal Australasian College of Surgeons a Museum with a difference is now in preparation. Financed by an Anti-Cancer Council grant of £10,000, the Museum features aspects of the pathology, diagnosis, treatment and prognosis of various tumours, and when completed it will play an important part in the Council's professional education programme.

In charge of the collection is Dr. Edward W. Gault, who as Professor of Pathology at the Christian Medical College in Vellore, Southern India, established a similar museum considered to be one of the best of its kind in Asia. Dr. Gault combines wide personal experience and knowledge of contemporary museum techniques with an individual and imaginative approach. "To be effective museums must be attractive,"



Professor E. W. Gault inspects a Cytological Diagnosis display in the Pathology Museum (prepared by the Pathological Department, Prince Henry's Hospital).

he says, and he therefore plans to make full use of modern devices such as rotating displays, special lighting and contrasting colour schemes to present exhibits and to emphasise material of special interest.

## STRESS ON INDIVIDUAL

Work in progress is impressive. With the active assistance of several Fellows of the College, a large number of specimens has been collected and mounted in perspex cases. Supporting X-rays, photomicrographs and appropriate clinical histories are presented where necessary, so that all relevant details may be seen quickly and easily by visiting doctors.

"We are anxious not merely to display a specimen in a jar," explains Dr. Gault. "With each exhibit we want to give something that reveals the particular case. The stress must be on the individual, not the disease."

A useful reference for prognosis will be provided by a novel collection illustrating the course run by different forms of cancer. Exhibits

will be grouped together to show the comparative history of a rapidly-developing and a slowly-developing cancer, for example, while the history of carcinoma of the lung may be related to different smoking habits.

## PORTABLE EXHIBITS

To spread knowledge of current practice in diagnosis and treatment as widely as possible, the College is sponsoring portable displays for use at professional meetings both in the city and in country centres. Prepared under the supervision of leading Melbourne surgeons, the attractively-designed exhibits have been viewed with considerable interest wherever they have been shown.

As with the Museum exhibits a wide variety of techniques is employed in presenting the material. One of the first completed stressed the importance of rectal bleeding as a possible cancer symptom, and featured coloured photographs of cancer of the lower bowel viewed through a narrow tube, to simulate the appearance of this tumour at a sigmoidoscopic examination.

Another exhibit on carcinoma of the vulva makes use of a rotary slide projector with a synchronised tape-recorded commentary describing the conditions presented, while others have been prepared on the treatment and prognostic outlook of cancer of the larynx; the methods and importance of examination of the breast for detecting cancer; reconstructive surgery of the face; and the treatment of Wilms' tumour of the kidney.

#### A FILM FOR FRANCE

Films also play their part in the professional education programme. French medical men are now viewing a filmed record of a Melbourne surgeon's work on tumours of the parotid-salivary gland. Sponsored and financed by the Anti-Cancer Council and produced by the Audio-Visual Aids Department of Melbourne University, the film illustrates clinical features and diagnosis of these tumours, and the surgical technique developed by Mr. Howard Eddey at the Royal Melbourne Hospital.

In addition to supporting this and other high-quality medical educational films produced by Victorian film units, the Council has given extensive financial backing to the Television Project in the Department of Surgery at Melbourne University. The Project's director, Dr.

George Berci, has pioneered techniques for filming and televising cancer and other conditions affecting internal organs of the body such as the lung, stomach and rectum.

#### PROFESSIONAL MEETINGS

Under Mr. Eddey's chairmanship the Council's Professional Education Committee has developed other methods of keeping doctors informed of the most recent advances in medical science. One of the most effective has proved to be the organisation, in association with the Melbourne Medical Postgraduate Committee, of medical symposia devoted to cancer of specific body sites, at which specialists present short papers on all relevant aspects of diagnosis, treatment, and management of the disease.

Symposia held to date have dealt with breast and uterine cancer, cerebral tumours, cancers of the colon and stomach, and tumours of the blood-forming organs. Now an accepted part of the postgraduate education syllabus, attendance at the twice-yearly meetings ranges from 250 to as many as 400 doctors from all parts of the State.

At the Council's request cancer topics are also regularly included in week-end seminars held in Victorian country centres for the information of country practitioners.

#### TRAVEL GRANTS

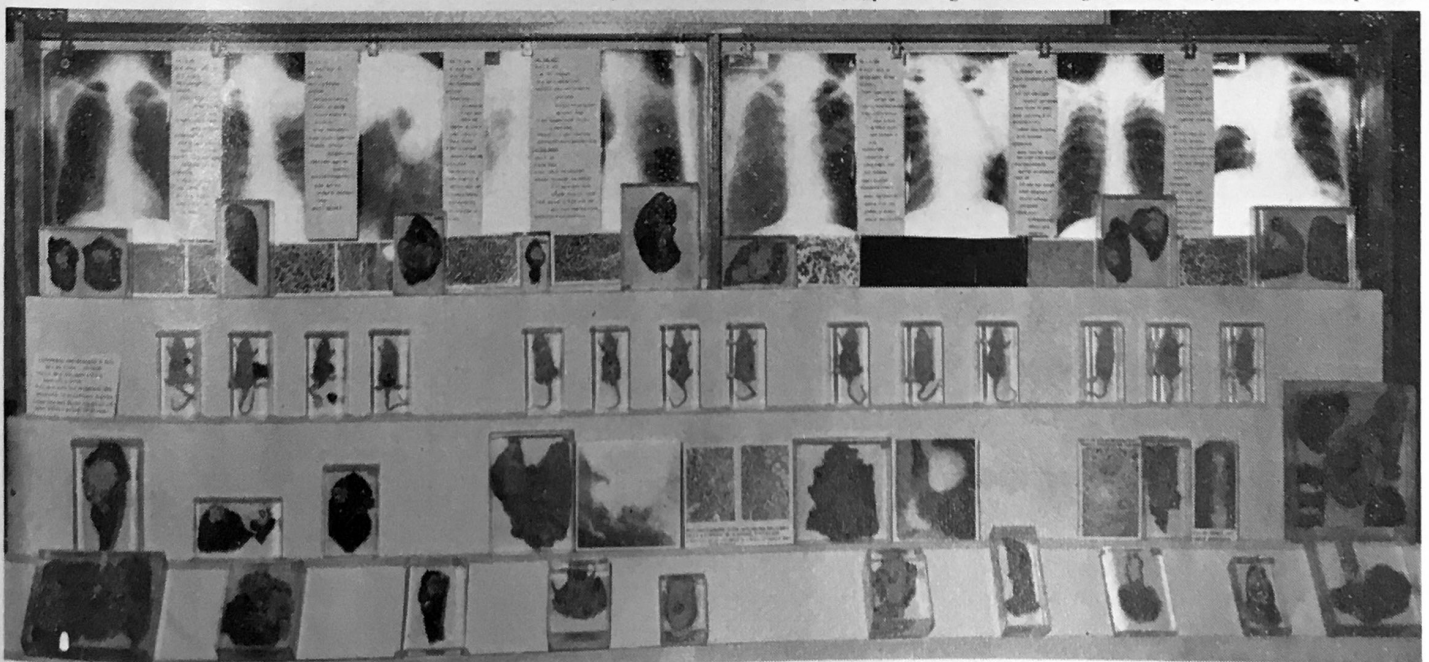
Each year the Council allocates funds to enable medical and scientific workers in the cancer field to travel overseas and increase their knowledge by sharing the experience of their colleagues in other countries. It would be hard to assess in exact terms the long-term value of this policy, but it is certain that the opportunity to exchange ideas with fellow-workers abroad, or to receive advanced research or clinical training in leading American and European centres, must prove of considerable benefit to doctors, patients, and the community generally.

In addition to these travel grants-in-aid the Robert Fowler Travelling Fellowship, a scholarship worth £1,000, is awarded annually to an eminent clinical worker who is actively engaged in cancer teaching. The 1962 Fellow was Dr. John H. Colebatch, who has been engaged on a study of the treatment of leukaemia at the Royal Children's Hospital, with the aid of a research grant from the Council.

The award enabled Dr. Colebatch to observe the most recent developments in this sphere abroad, and on his return he suggested that specialists caring for leukaemic children in hospitals throughout Australia

(continued on next page)

↓ *Exhibit on Cancer of the Lung links clinical, pathological, radiological and experimental aspects.*



# U.S. SCIENTIST PRAISES OUR CANCER WORK

Work done by Australian scientists in the field of cancer research was warmly praised by Professor John Higginson, a world cancer research authority who visited Melbourne recently.

Professor Higginson said that the standard of research work being co-ordinated and carried out by the Australian Cancer Society and the Victorian Anti-Cancer Council was as high as that anywhere in the world. He stressed that the Australian research was of a fundamental and highly important nature.

Professor Higginson, who has held the Chair of Geographical Pathology at Kansas University for the past three years, is Chairman of the Geographical Pathology Committee of the International Union Against Cancer. The Union groups 76 countries which are pooling knowledge and techniques in the fight against cancer both in the more advanced and the still developing nations of the world.

## CAUSES IN ENVIRONMENT

The Geographical Pathology Committee studies the environmental causes of cancer. To facilitate the Committee's work three sub-committees have been set up — for Africa, Latin America and the

Pacific (which includes Australia). This was done because not too much is known about the incidence of cancer in these areas, and because each region tends to have its own peculiar cancers. Professor Higginson is ex-officio chairman of all three area sub-committees.



*Professor John Higginson*

From Australia, Professor Higginson visited New Guinea, where he studied field work being done in the Highlands. He considers that the results obtained there could have a vital bearing on cancer research elsewhere. The Highland people of New Guinea present unique opportunities for studying a community which has had virtually no contact with other more advanced peoples of the world. "This opportunity will be lost if we do not carry out this work now," he said.

It would thus be possible to study the changes that occur in the incidence and types of cancers as the dietary and living habits of the people approach the standards elsewhere in the Territory.

Professor Higginson stressed that the mode of living and diet of a community had an important relationship to the type and prevalence of cancer. He pointed out that by establishing the causative factors of cancer, it should be possible eventually to introduce preventive measures which were cheaper and more effective than cures.

To do this it was essential to study communities living in widely differing conditions and environments. This made international co-operation of vital importance.

Similarly, the rapid advances in many fields of cancer research made it necessary for nations to exchange knowledge in order to avoid duplication of work that could prove highly expensive in terms of money and resources.

## PROFESSIONAL EDUCATION (continued from page 5)

should take part in a joint study to ascertain whether treatment results could be improved by using certain combinations of recently-discovered drugs. His proposal was accepted in all the States, and the combined trial, organised by the Australian Cancer Society, is now in progress under his chairmanship.

This year the Fellowship has been awarded to Mr. Ian A. Macdonald, whose main interest has been the study of gynaecological cancer.

## OVERSEAS VISITORS

When distinguished cancer workers from overseas visit Australia, either on invitation from the Anti-Cancer Council or from some other organisation, the Professional Education Committee arranges lectures and discussions for the benefit of local doctors.

Star visitor this year was one of the most eminent world authorities on cancer, Professor Alexander Haddow, who is Director of Britain's Chester Beatty Institute for Cancer Research, and currently President of the International Union Against Cancer. Visiting Australia as guest of the Anti-Cancer Council, his discussions with Melbourne doctors and scientists proved a potent stimulus to co-operation between research workers here and in other countries, particularly Great Britain.

And so the professional education programme goes on, constantly seeking to develop and utilise the most effective methods of informing busy physicians of the continuing advances in cancer control.

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## BOOK REVIEW

This book is based on the author's ten years' experience in cancer education gained as Executive Officer of the Manchester Committee on Cancer, an independent body originally established and financed by industry to undertake research into occupational cancer in the cotton industry. In 1952, with the support of local government authorities in the area, the Committee launched a three-year pilot educational project in South Lancashire, and now provides a permanent education service for an area of 500 square miles with a population of 2½ million. It is without doubt the most effective cancer education scheme in the United Kingdom.

Mr. Wakefield's work has received international recognition through his recent appointment as Chairman of the Public Education Committee of the International Union against Cancer. As Professor Ralston Paterson, formerly Director of the Christie Hospital and Holt Radium Institute, Manchester, points out in his Foreword: "The project . . . under Wakefield's direction has to my mind made a significant contribution to all thinking on this distinctly controversial subject. He has not only disproved the purely speculative criticisms that cancer education would cause harmful neuroses among the general public and overburden the general practitioner with imaginary complaints; he has also proved that, properly conceived and tactfully executed, public education can undoubtedly influence people to seek treatment earlier. This in itself can be a vital factor in saving lives that would otherwise be lost."

The book itself is divided into two main parts, the first dealing with the principles and practice of cancer education of the public, and the second with details of the organization of public education schemes. Mr. Wakefield recommends that before cancer education is commenced in a particular area a survey of public attitudes towards the disease should first be undertaken. Such a survey provides useful information for planning purposes and also serves as a base line for the later evaluation of results.

# CANCER AND PUBLIC EDUCATION

by John Wakefield

(Pitman Medical Publishing Co. Ltd., 1962)

The prime purpose of cancer education, he says, must be to lessen the atmosphere of fear and superstition which still surrounds the disease, and which in too many cases leads to delay in seeking medical advice. He quotes a Canadian survey which showed that 75% of women believed fear to be the most important cause of delay, and points out that any educational programme based on fear is doomed to failure. Nor is the mere provision of factual information



Mr. John Wakefield

about cancer symptoms sufficient to motivate action. "What is really needed," he says, "is for people to be 'emotionally' as well as 'intellectually' convinced that there is real hope for the cancer patient who is treated early." And again: "Education has not succeeded until those we teach use their new knowledge when occasion demands. Knowledge alone neither conquers fear of cancer, nor leads to rational behaviour; our first task, therefore, is to create an attitude of mind that will enable people to talk and think freely about cancer and eventually to receive, accept, and act on reliable information."

Mr. Wakefield considers separately person-to-person methods and the use of the mass media for informing the public. In Manchester the main emphasis throughout has been placed on talks to small audiences (to members of community clubs or societies, and to employee groups in factories, business con-

cerns, etc.); local newspapers in the area agreed to report these meetings and to convey short informative articles relating to cancer. Not surprisingly, he recommends those measures which have demonstrably proved successful in the project, and his commonsense advice about lecturing and audience participation will repay reading by all concerned with health education.

The most disappointing chapter in this section of the book, in this reviewer's opinion, is that dealing with the mass media. Admittedly, the author is primarily concerned with "what can reasonably be done in smaller areas," and his comments on the opportunities for publicity afforded by the local press are sound and practical. However, his discussion of the use of pamphlets, of posters, of displays, and of television and radio for educational purposes is cursory and selective, reflecting the limited experience of the Manchester educators in the use of these media. The omission of films from the discussion is surprising, in view of their proven effectiveness in other spheres of education and the availability at moderate cost of an increasingly wide selection of suitable titles.

In the second part of the book Mr. Wakefield deals with the organization of public education schemes, emphasising in particular the importance of good public relations—in other words the need to obtain the prior co-operation of the medical profession, local authorities and voluntary health organizations. His recommendations result from his experience in Manchester, and apply to the administrative circumstances of local government in the United Kingdom.

Despite these limitations, so far as Australian readers are concerned, the book remains an important contribution to the philosophy and methodology of cancer education. Written in a clear and convincing style, it provides much useful information and advice for all those in this country who are interested in developing our cancer education services.

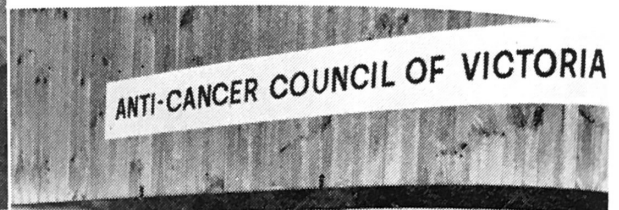
A. J. BROWN.

# ROYAL SHOW DISPLAY DRAWS CROWDS



*Public interest in the cancer education campaign is growing judging by the crowds who attended the Council's Information Stand at the 1963 Royal Melbourne Show. This year's display featured smoking and lung cancer.*

*(above) Anti-cancer films held the attention of these visitors to the Show.*



*(right) The press-button panel proved a great favourite with youngsters.*

## EDUCATION PROGRAMME FOR MIGRANTS

The Anti-Cancer Council is to launch an education service directed at major migrant communities in Victoria. First step in the campaign is the publication of a book-

let on cancer symptoms in six languages — Dutch, German, Greek, Italian, Polish and English. Distribution of the booklet is already under way.



*The Consul for Greece, Mr. D. G. Scouroliacos (second from right) chats with Professor E. S. J. King, Mr. W. A. Dick and Dr. E. V. Keogh at a reception for representatives of the consular corps and foreign language newspapers to mark publication of the new booklet.*