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# CANCER SCOURGE.

## How it is Being Fought.

"Cancer," said a well-known authority, "is a disease the mere mention of which fills us with dread, and the fear that it may fall to their lot to be affected by it causes many persons constant anxiety."

It is consoling, however, to learn from the same eminent writer that "hundreds who are predisposed to it by inheritance pass through life frequently free from it." Cancer is one of the greatest scourges of the world, the causation of which, despite every effort on the part of the medical profession to elucidate the problem, still remains unsolved. Scientists all over the world are working with the object of discovering the cause of cancer, for once this is revealed the cure should not be difficult to find. From time to time hopes of cure are raised by announcements that have so far proved premature, but it was consoling to learn from a cable from London, published in The Register on Wednesday, that, at a meeting held in connection with the Empire cancer campaign, the belief was expressed that the discovery of the cause would not be long delayed. It was a coincidence that Sir Neville Howse, V.C., Minister in charge of Health and Repatriation, should have been in Adelaide at this time, and, speaking on the question of the malignity of cancer and its increase in Australia, said he would be glad to assist in any way possible in the inauguration of a South Australian cancer research fund. He having made reference to the work carried on in this connection at the Adelaide University during the past two years, a representative of The Register called on Professor T. Brailsford Robertson, Professor of Physiology and Bio-Chemistry, at the University, on Wednesday, with the object of learning at first-hand what advance in the matter of research had been achieved.

### Professor Brailsford Robertson's Views.

Professor Robertson's name has been identified for a considerable time with cancer research. "Yes," he said, "Sir Neville Howse is correct in saying that for the past two years we have been working on the subject of cancer. The work has been done in my laboratory, and our object has been to understand cancer a little better. We are satisfied with the advance made. Naturally, it has been slow, but you can't expect any quick advance in work like that. The position in regard to cancer is that we lack fundamental knowledge, and in the absence of that knowledge all attempts to find a cure become a pure matter of guesswork. There is no sign at present that we are getting any nearer the elucidation of the problem, but we know from the historical development that we must be getting nearer to it. I am sorry to say, however, that we can't see through the fog yet. Cancer is essentially a disease of old age. But the old must die off, and it really forms a less serious problem than tuberculosis, which attacks the young, and as regards the increase of cancer cases in recent years that is attributable to our greatly improved hygiene. During the last 30 years the average length of human life has increased 11 years, which means that ever so many more people are living on to the cancer age than formerly, and the man or woman who now dies of cancer would, in a previous generation, have died of some infantile affection, or of typhoid in middle life."

### Effect of Meat Consumption.

Asked if he thought that the large amount of meat consumed by the people of Australia had any bearing on the increase of cancer cases, Professor Robertson quoted from a work on physiology, written by him some time ago, and in the course of which he said, "Taking Australia as an extreme instance of a community which is accustomed to a high protein intake, we find from the pre-war statistics of the Commonwealth Government that the deathrate was extraordinarily low, nearly one-half that which prevailed in Italy and Austria, lower in fact than in any country excepting New Zealand, which is also a community of high protein consumption. The cancer death rate was intermediate between that of Italy, and that of France, two communities each consuming far less meat per capita than the Australian. The birth weight of Australian infants of British parentage exceeds that of British infants born in England by over 10 oz. No trace of deleterious influence of the high proportion of meat in the dietary is thus perceptible. On the other hand the diversity of climatic and social, and economic conditions forbids us from drawing the opposite conclusion—that the high protein intake is positively beneficial."

Professor Robertson was then asked if he thought it was not possible that the alleged increase in the number of cancer cases might be attributed to our greater knowledge of cancer, and the care exercised in locating it at post mortems which, owing to our large number of public hospitals, were more frequent than formerly. He said that he thought part of the rise in the percentage of deaths from cancer might be due to the cause mentioned.

### Opinion of a Scientist.

The suggestion of Sir Neville Howse to inaugurate a cancer research fund in Adelaide, was brought under the notice of another well-known scientist, who has had considerable experience in this particular class of work. For professional reasons he declined to allow his name to be published. He said:—"It is not merely a question of getting together a big sum of money and having a number of people working on cancer, believing that necessarily a great advance will be made in the direction of discovering its cause. It is more a question of working methodically to discover some likely avenue of attack, which may help us to unravel the mystery of cancer, and to control it. According to Sir Neville Howse's figures, it looks as if there was a big increase in cases of cancer, but the public should not be alarmed, as some great authorities even go so far as to deny there is an increase. The majority, however, think there is, but we have to consider how of late years, the expectations of life has been increased. Infantile mortality has been greatly reduced, and a greater percentage of people, therefore reach adult life. On an average many more people now reach the cancer age than would have been the case previously, as they would have probably died from infantile diarrhoea, or from tubercle before they were 25, or from infectious diseases such as typhoid, whereas now they reach the age when cancer is likely to occur. This, however, being the case, it behoves everyone to do all they can to help in attacking what is a menace to every one of us."

### Methods of Treatment.

Asked what advance had been made in the way of treatment, this medical authority said that recently a method of treatment had been developed in Great Britain which appeared to be well worth following up, and it looked as if in some cases it would help in controlling the disease. If it was able to do this in one instance out of 20 it was certainly worth elaborating. Work in this direction had been started quietly in Adelaide, but of this Sir Neville Howse was probably unaware.

Those conducting the Imperial cancer research work invariably considered any suggestion which gave any promise, however slight, of advancing our real knowledge of the disease. Naturally they were bombarded with suggestions, many of them quite ridiculous, but they were invariably made in good faith by people who had no real knowledge of what cancer actually was. All over the world to-day hundreds of scientists were working in the hope of solving the cancer problem. It was being attacked from every possible angle, and many definite advances had undoubtedly been made. The medical man could now certainly exercise greater control of cancer in its early stage, thanks to surgical aid, and it was no longer to be dreaded to the same extent as it was in the old days. The public themselves could assist in this control by seeking early medical advice for any unusual symptom that might manifest itself. This particularly applied to people who had reached middle life. In a great many cases the trouble would probably be found to be a simple one that could be easily remedied. When cancer was recognised in its early stages, in the great majority of instances it was readily controlled by surgical means.

### A SPLENDID BENEFACTION.

WELLINGTON (N.Z.), Wednesday.

The sum of £40,000 has been bequeathed by the late Mr. William Henry Travis, a very old resident of Christchurch, for the assistance of individuals capable of scientifically investigating the cause and cure of cancer and consumption.

### The Chief Secretary's View.

The Chief Secretary (Hon. H. Tassie) was questioned regarding the statement by Sir Neville Howse. He replied that all he wished to say at the moment was that he was thoroughly in agreement with the contention that there was necessity that everything possible should be done in the direction of research for the discovery of the cause and cure of cancer. He did not know, however, that any good purpose was served by giving such details as had been quoted by Sir Neville in respect to the prevalence of the disease in Australia. From the somewhat limited reading which he had, personally, done in relation to the influence of the mind on the health of the body, he was rather inclined to think that the publication of details of that character would be more likely to have a prejudicial than a beneficial effect upon certain people.

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## Lecturer and Research Worker

Students of physical chemistry at Adelaide University are fortunate in having so brilliant a mentor as Dr. Stuart Wortley Pennycuick, D.Sc.

He came to South Australia five years ago laden with laurels won at Queensland University. An inspiring lecturer he has set many of his students on the path of useful research and at the same time has himself done valuable work in the laboratory.

Mr. Pennycuick was born in Queensland and graduated at that University as a Bachelor of Science with merit in every subject. He won a research scholarship and a gold medal for outstanding merit, open to students of all faculties. Mathematics was his principal subject at first, but he later transferred to chemistry. While senior science master at Brisbane Grammar School he took his Master of Science degree, and continued his research work.

In 1922 he accepted the post of lecturer in physical chemistry at Adelaide Univer-

DR. S. W. PENNYCUICK, D.Sc.

sity. At the end of 1923 he was awarded his doctorate for a thesis on "The Kinetics of Sucrose Inversion." He published two papers on the same subject in the journal of the American Chemical Society and in the journal of the Chemical Society of London.

His writings on kindred subjects have been published in the Australian Journal of Experimental Biology, and in the proceedings of the Australasian Association for the Advancement of Science.

Dr. Pennycuick has always been engaged in some avenue of original research. At present he is working on problems of solution, and on the structure of colloidal metals, with the collaboration of Messrs. R. J. Best, B.Sc., and A. E. Scott, B.Sc. His work is his hobby, but he occasionally plays a round of golf to keep himself fit.

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## DISCOVERY OF MATTER.

### Development of Atomic Theory.

The first of a course of three lectures on the "Discovery of matter" was delivered in the physics lecture room, at the University of Adelaide, on Tuesday night by Professor C. Stanton Hicks. There was a large attendance, and the lecture, which was illustrated by lantern slides and classical experiments, was followed with attention.

The earliest knowledge man had on the subject, said the professor, was gained by the Chaldeans 6,000 B.C., who knew of copper. About 2,500 B.C. they came to a knowledge of lead, tin, iron, silver, and gold. The Hindus, in 2,000 B.C. had a definite notion of arranging the elements. They considered the elements to be fire, earth, and ether, and Kanada developed an atomic theory. In China five elements were defined in 2,200 B.C., water, fire, metal, wood, and earth. Egypt had only two substances, fire and earth. The Greeks, being a much more observant people, noticed that things which grew from earth and water went back to earth and water when they died, and about 450 B.C. one of them went as far as to say that there were four primary elements, earth, fire, water, and air, which were combined in different proportions throughout the universe, under the influence of two defined powers, akin to love and hatred. That was a distinct step forward in reasoning. Democritus and Lucippus developed the theory of the atom. Democritus referred to the differences in properties. It was not until the age of the alchemists in the sixteenth century that the next element was discovered. The alchemists stumbled across arsenic and antimony in their search for the philosopher's stone. Until the middle of the fourteenth century it was believed that all combustible bodies contained fire, the ancient element, and in the eighteenth century this belief was given a great impetus by Stahl calling the fire element phlogiston. The next step was taken during the French revolution by Lavoisier, who by making careful weighing measurements was able to show that when a body was burned the total products of the combustion were heavier than the combustible body, and that that something which increased the weight came out of the air.

### Dalton's Atomic Theory.

In 1801 Dalton tabulated his famous atomic theory, which with Avogrado's law, laid the foundation of nineteenth century chemistry. Dalton's theory restated the old atomic view and Avogrado introduced his notion of a molecule, which contained two or more atoms. Prout, in 1815, suggested that the fractional parts were due to analytical faults. On further investigation the fractions became worse, and Strutt recently pointed out that the probability of Prout being right was one in 20,000 million. In 1829 Dobereiner drew attention to the fact that chemically arranged elements showed a constant difference in atomic weights, and he arranged them in sets of three. Thirty years later Pettenkofer established an arithmetical relationship between atomic weights, and a craze for groups followed. In 1862 Dr. Newlands suggested his law of octaves, and posthumously, 25 years later, the Chemical Society, which scoffed at him, awarded him the Davey Medal for his discovery. In 1869 Mendeleef and Mayer independently, and by different roads, came to the conclusion that the properties of the elements were a periodic function of their atomic weights. They showed that the elements, as arranged by Newlands, fell naturally into groups. Mendeleef fitted the elements into groups and where there were gaps predicted discoveries to fill them, and even described the properties of the elements and the probable way in which they would be discovered. Within 20 years many of his predictions were fulfilled.

### Latest Discoveries.

In 1885 Ramsay and Rayleigh discovered an hitherto unsuspected group of gases in the atmosphere, and so extended Mendeleef's table. Becquerel discovered that uranium emitted a continuous stream of rays. This was followed by M. and Mme Curie's experiments with thorium and pitch blend and the discovery of a new element, radium, which took its place quite naturally in Mendeleef's table. Radium was also found to be emitting "rays," and Rutherford and Soddy were able to show that the elements, otherium, uranium, and radium are unstable, and that the so-called "rays" were fragments of themselves ejected into space from exploding atoms. That brought them to the point where the new knowledge began; but the old views of the nineteenth century and its periodic table of elements stood like a cryptogram challenging interpretation, and, although far from being deciphered, the first step towards finding a key had been taken by Soddy.

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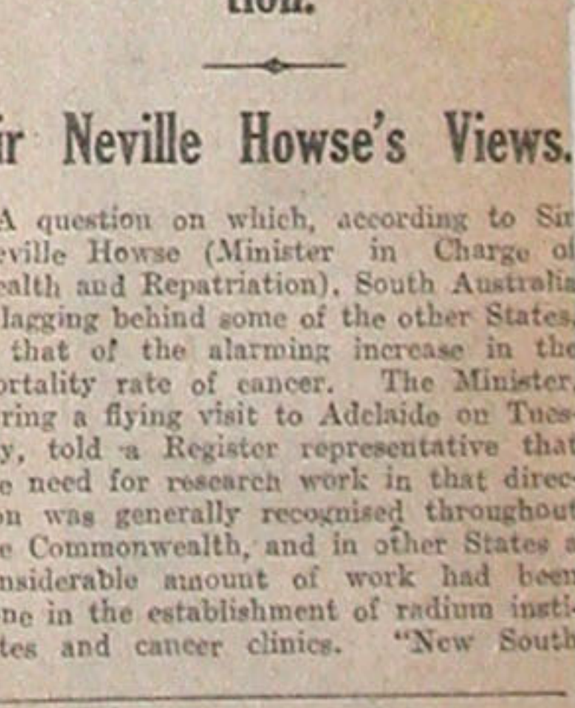
# CANCER RESEARCH.

## An Important Recommendation.

## Sir Neville Howse's Views.

A question on which, according to Sir Neville Howse (Minister in Charge of Health and Repatriation), South Australia is lagging behind some of the other States, is that of the alarming increase in the mortality rate of cancer. The Minister, during a flying visit to Adelaide on Tuesday, told a Register representative that the need for research work in that direction was generally recognised throughout the Commonwealth, and in other States a considerable amount of work had been done in the establishment of radium institutes and cancer clinics. "New South



SIR NEVILLE HOWSE