
This book, which deals with how man has endured and adapted to changing conditions, originated in the proceedings of a two-day symposium held at the Australian Academy of Science, Canberra, in 1968. Many of Australia’s leading biological scientists contributed in carefully prepared papers, or in discussion. Professor R. J. Dubos, of the Rockefeller University, New York, also attended, and very ably summed-up in the final session. The opening address was delivered by Sir Macfarlane Burnet.

Before 10,000 years ago, our ancestors had been hunter-gatherers for at least 2,000,000 years, moving over much of the earth’s surface as nomadic bands. Then, relatively settled villages began to appear with a form of agriculture and the domestication of animals. About 5,500 years ago came irrigated agriculture and the growth of a few cities, but with most people still living in small villages. With the invention of steam power 250 years ago there developed some cities of 500,000, many of 100,000, and many villages of 1,000 persons. Thus the major changes in the social organization of man and his environment (which includes man) have occurred in recent times—the last few hundred years.

Infectious diseases such as malaria, tuberculosis, cholera, smallpox, measles and those caused by respiratory and enteric microbes increased in severity with urbanization. In affluent societies all the important infectious diseases of man have responded to improved hygiene, anti-bacterial chemotherapy and medical care, but are still important in the urban slums of developing countries.

Improvements in environmental hygiene and nutrition which followed in the wake of the industrial revolution have led to the attainment of reproductive age by an increasing number of children, with consequent rapid growth of population. In communities with advancing technology there has also been an increased expectation of life and a change in the main causes of death from infectious diseases to non-infectious disorders, e.g. coronary heart disease, cancer of the lung, bronchitis and external violence, particularly in males. Mortality records from South Australia reveal that in 1845 few more than 5% of all deaths were in persons over 50 years of age; at the turn of the century this proportion had risen to 40% for both sexes, while in 1963, 80% of all deaths in males and 86% of all deaths in females occurred in the over-50 age group. Today, cardiovascular disease and cancer account for two-thirds of the total mortality in both sexes. Lung cancer accounts in general for between 20% and 40% of deaths from malignant disease; the highest rate is in Britain, while low rates are found in Norway, Sweden and Japan.

Only 300 or 400 generations have passed since all mankind led a nomadic life. In as small a number of generations as this, little genetic change could have occurred in the human species in response to the new conditions. It is therefore proposed that man’s relatively successful adaption to the ever-changing conditions associated with civilization has depended on learning, and in particular on cultural processes.

Homo sapiens’ body and brain were shaped by the environmental influences that prevailed during his evolutionary development, and his genetic endowment will remain the same during the foreseeable future. He has now to live under the conditions created by social and technological forces which differ profoundly from those under which he evolved and to which he became genetically adapted. Since his surroundings and ways of life are forever changing, man can hardly ever achieve a true state of adaptedness to his environment.

This intensely interesting book is recommended for reading by all who meditate on the future, so that they may be aware of the trends.

C. J. Magee.