

## Introduction to Ageing: science, medicine, and society

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## INTRODUCTION

I would like to welcome you all to this two-day Discussion Meeting on Ageing held jointly with the British Academy. The Royal Society has usually held one joint meeting with the Academy each year, the three most recent being Artificial Intelligence and the Mind, The Evolution of Social Behaviour Patterns in Primates and Man, and last year, Science and Stonehenge.

There is no shortage of such topics which stretch across the traditional boundaries of learning. We expect the frequency of joint meetings to increase when the British Academy moves into its new premises in Carlton House Terrace, and we have more interactions with our new neighbours.

The impetus behind the meeting today is implicit in its full title—Ageing: Science, Medicine and Society. The subject is naturally of interest, or should I say concern, to the Royal College of Physicians, and I would like to thank the College for its generous assistance towards the cost of the meeting, and for contributing to the organization of the programme.

The average expectation of life today in an industrialized country is about 75 years, with women living some seven or eight years longer than men. For most of human history it has been closer to 30 or 40 years. It has been clear for some time that this transformation is having a profound effect on western societies.

The advances in medicine, increased standards of living and of health care mean that western populations are ageing rapidly. But at the same time this increased life expectancy has been accompanied by a rise in chronic disease and disability, with tremendous burdens on health services and on those who have to care for the elderly. The social and economic implications constitute a major problem for society, and will appear to be moving steadily towards crisis conditions. At this meeting, we shall try to take stock of the matter.

The first session is concerned with the biological aspects of ageing: first, its origins and how it relates to evolutionary processes, and second, the pathology of ageing—a hundred or more physiological and biochemical parameters are said to change during senescence, presumably owing to the breakdown or malfunctioning of normal maintenance mechanisms. A special feature of this is dementia, particularly Alzheimer's disease which is the most prevalent destroyer of the quality of human life in the aged. Yet, oddly enough, Alzheimer's disease is the neurodegenerative disease about which most is known—for two reasons. First, because there is a familial form of the disease, one can carry out genetic linkage studies. Second, the disease, unlike say Huntington's, has neuropathological hallmarks, senile plaques and neurofibrillary tangles, which have enabled us in the last ten years to turn a clinical problem into a biochemical and cell biological one. Hence, some of the genes and abnormal proteins involved in the disease have been traced. This foothold, however, does not yet mean there is a clear path for therapeutic intervention, although there are some leads.

So research into ageing has become a priority in our modern society. There are studies on lower animals—worms and flies—which show that their life span can be doubled. The point of this work is to find the genes involved. For humans, however, prolonging human life is not the aim—as a recent WHO report puts it: 'Health expectancy is more important than life expectancy (or as a popular paper put it, 'the aim is to die young as late as possible')'.

I end by quoting from an essay written by the late Peter Medawar, more than 40 years ago. Originally entitled 'An unsolved problem in biology' it was republished in 'The uniqueness of the individual' in 1982. With his customary insight and fluency he got to the nub of the problem: 'the proportion of its members within each age-group of life, is in many civilized countries shifting slowly towards old age. In forty years' time we are to be the victims of at least a numerical tyranny of greybeards—a matter which does not worry me personally, since I rather hope to be among their numbers. The moral is that the problem of doing something about old age becomes slowly but progressively more urgent. Something must be done, if it is not to be said that killing people painlessly at the age of 70 is, after all, a real kindness. Those who argue that our concern is with the preservation of life in infancy and youth, so that paediatrics must forever take precedence over what people are beginning to call 'gerontology', fail to realize that the outcome of paediatrics is to preserve the young for an old age that is grudging them. There is no *sense* in that sort of discrimination.'

7 May 1997

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President, The Royal Society

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