

THE PARLIAMENTARY AND SCIENTIFIC COMMITTEE

AN ASSOCIATE PARLIAMENTARY GROUP

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P R E S S R E L E A S E: 27 May 2005

A meeting of the Committee was held on Monday, 23rd May 2005 at 5.30 pm in the Boothroyd Room, Portcullis House.

“AGEING – PUTTING OFF THE EVIL DAY” POLICY - SCIENCE - TECHNOLOGY

The invited speakers were as follows:-

Tom Kirkwood, Head of the Institute of Ageing, Newcastle University

“The Science of Human Ageing - New Frontiers”

John Lever, Director, Department of Bioengineering, Imperial College

“Bioengineering Aspects of Ageing”

Reynold Greenlaw, Oxford Computer Consultants

“Technological Aids for Parkinson’s and other Diseases of the Aged”

An increasing number of people are living to an age when biological limitations are taking their toll on health and happiness through frailty, disability and disease. This poses a challenge for current research to acquire a better understanding of the biological basis of ageing and age-related diseases and to develop new science-based and technological solutions. These are designed to help the elderly maintain their freedom of movement and independence for as long as humanly possible, both for their own sake and that of society.

Tom Kirkwood found that the “ageing process has not emerged from the shadows, although there is a decade by decade increase by 2 years in the longevity of life” contrary to WHO predictions. Indeed “last year it increased by 5 hours in the UK.” As far as can be ascertained “there is no clock that drives the ageing process” and “there is no programme and there are no genes for ageing although longevity tends to run in families and studies of identical twins show that 25% of longevity can be accounted for in this way.” Studies of worms with simple and similar genomes point to “the high variability of the ageing process which is not under close genetic control.” Living organisms are “subject to random molecular damage which starts early in life.” No one is in the driving seat and there is no programme for life, but this results in an accumulation of cellular defects in which oxygen is a potent source of molecular damage. For example “the rate of shortening of telomeres increases five fold in oxidative environments due to oxidative stress resulting in premature telomere shortening. However the ability of DNA to undergo repair ultimately governs the rate of ageing, and food that is rich in natural antioxidants helps combat the damage from free radicals.”

John Lever pointed out that “bioengineering studies show that collagen confers stiffness and strength to body tissues while elastin confers compliance. Consequently, modification of the amounts and detailed structure of these two components alters the mechanical properties of the tissues, so not only does their appearance change with age but also their ability to perform their normal functions. Atherosclerosis plaques, osteoarthritis and osteoporosis are all amenable to a bioengineering approach that is of particular interest to female engineers.”

Reynold Greenlaw presented some of the latest information technology based solutions to problems associated with Parkinson’s rehabilitation. He showed a video which presented an instantaneous startling improvement and return to apparently normal mobility when excited by an external visual impulse. This technology can be incorporated into specially designed spectacles that enables Parkinson’s patients to walk unhindered. This could provide support for the aged and help them to maintain free and independent lifestyles for as long as humanly possible.

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A full report of the meeting will be published in Science in Parliament – Summer issue 2005

