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was generally believed that the causes of ageing are unknown. P. B. Medawar (1952) chose the topic for his 'Lectures in biology', and this wide ranging discussion of ageing has been influential and frequently cited. Since that time much has been learned about ageing, but most in and outside the field of gerontology would believe that the mechanism or mechanisms involved remain elusive.

My own interests in ageing began in the mid-1960s, and in the following two decades I had the same viewpoint, because it seemed that progress in research worldwide was extremely slow, so the unsolved problem remained. More recently, I have become more optimistic and have come to believe that the biological basis of ageing is now well understood. This is in part due to a comprehensive of the biological reasons for ageing, from an evolutionary viewpoint. Also, the revised physiological and anatomical design of man-made is well understood. The changes that occur during human ageing are documented by an enormous range of studies on age-related pathologies. A great deal is known about the many homeostatic, repair or maintenance mechanisms which preserve the adult in a functional state for a given length of time and allow it to propagate itself. All this comprises a substantial part of ageing. I believe that to understand ageing one need only look at and appreciate the vast body of existing knowledge. Those who believe ageing is a mystery cannot see the wood for the trees around them. The trees are described in considerable detail, but by concentrating on these details, many miss what the collection of trees actually comprises. I stress that the understanding to which I refer is at the broad biological level, not at the level of the trees, which will come from future or later, molecular and genetic studies. This does not overemphasise the importance of such studies, because they are essential if we are ever to understand the origin of the age-related diseases. In countries with good health care where expectation of life is high, the treatment of the diseases of the aged consumes a greater and greater proportion of the total budget. Successful work such as cellular and molecular aspects of ageing will inevitably improve this situation.

One reason for confusion about the causes of ageing is the continual polarisation between so-called programme theories of ageing and those that are