

# THE MEDICAL PROBLEMS OF PHYSIOLOGICAL AGEING\*

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The first half of the 20th century has seen vast changes in the social scene. Much of these are the result of the almost fabulous discoveries that science has made during this time, revolutionizing our way of life. Nor has medicine lagged behind in the fields of research, with the result that today we live in a world where mortality at all ages has much diminished, and the proportion of the aged in the community has increased spectacularly.

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This fact must have become obvious to everyone with eyes in their heads. But most people who have not made a specialized study of this new and ever-increasing generation of ageing people, have little idea of the extent of this change of balance in the different age-groups. The Department of Labour in America shows that in 1900 people of 65 and over made up 4·1% of the population; whereas in 1930 they made up 5·4%, in 1940, 6·8%, while in 1950 the percentage had risen to 8·4%. In 50 years the proportion of those aged 65 years and over has doubled itself. Dr. Dennis Hill, an American authority on geriatrics, predicts that the ratio

of aged people will be 1 in 7 in 20 years' time. Professor J. L. Sadie, of the University of Stellenbosch, who has carried out researches on the ageing population, foretells that at the end of this century the structure of the white population in South Africa will be as follows: 0-14 years 24.1%, 15-64 years 65.3%, 65 years and over 10.6% (in 1946 it was 6.2%). There are many factors to be taken into account when assessing population statistics of the future. I am referring to the unpredictable influence that such factors as war, migration, epidemics and the fertility of individuals exert over the ratio of the different age-groups to one another. There seems, however, no reason to doubt that, owing to improved care and medical knowledge, people are going to live still longer, with the result that the world population will continue to increase. This increase in population is not entirely a credit entry in the national ledger, for these people—one might almost call them a new generation of senescents, living, if not on borrowed time, at least on reclaimed time—are subject to the disabilities of age and not always able to be independent or self-supporting. And their needs and requirements are creating a very urgent and, as yet, not fully understood problem for society.

#### PLANNING

It is, therefore, essential for us—members of societies for the care of the aged—to survey the present position in our country, undertake or promote research work on the subject, and do all in our power to help these old people, who as yet are not numerous enough for their problems to be considered urgent or national. I am not belittling the good work of the Social Welfare Department and the help it gives on so many fronts. But we, at this conference, are specifically interested in the care of the aged, and we are here to discuss their needs from all angles and every point of view, in the hope of creating a common policy both for voluntary organizations and State institutions.

A great deal of research has already been done, but there is still much work to do. But one very satisfactory thing is becoming more and more apparent—there is a great upsurge of interest in the subject amongst the general public and an eager desire to translate this interest into practical help. The foundation of the Cape Peninsula Welfare Organization for the Aged, is only one manifestation of this. But the problem is far too great for one society, however efficient. Most important of all, we need social security for our ageing compatriots, and State support. For the time is not far distant when the Government will have to recognize that the ever-increasing number of senescent citizens is its responsibility, and will have to plan accordingly.

#### MEDICAL AND PHYSICAL

For the purpose of today's discussion it falls to me to deal with the medical and physical side.

##### Senescence

When does senescence begin? According to Dr. J. W. Shuman, another American authority, the normal cycle of evolution and involution of mind and body is as follows:

Babyhood, 0-3 years, mind and body are in the ascendant.

Childhood 3-13 years, mind and body are in the ascendant.

Youth 13-21 years, mind and body are in the ascendant.

Stress Age 21-50 years, mind and body are almost stationary.

Pause Age 40-55 years, mind and body are slightly degenerating.

Break Age 40-65 years, mind and body are slightly degenerating.

Senescence 40-75 years, mind and body are slightly degenerating.

Old Age 70-90 years, mind and body are sharply degenerating.

Dotage 80-90 years, mind and body are sharply degenerating.

Breaks in the mind and body may occur between 40 and 50 years in the stress and pause ages, breaks in the body alone may occur between 60 and 70 years in the break and senescence ages, and breaks in both mind and body may occur between the ages of 70 and 80 years.

But, in reality, the answer to the question when does old age begin is not so simple. Ageing should logically be measured in terms of time, but innumerable external factors play their part in producing premature old age.

1. *Stress.* Hardships, afflictions, overwork, family disagreements, fear, insecurity.

2. *Bad hygiene in industry.* Obnoxious trades, toxic processes, fatigue, mental strain.

3. *Obesity.* Throwing strain on the internal organs.

4. *Alcohol.* Only when taken to excess does it hasten senescence.

5. *Worry.* Which causes neuroses.

6. *Infections.* Especially in early life, lay the foundation of premature degenerative cell-changes.

7. *Climate.* Excessive heat, cold and humidity all have an influence on longevity.

8. *Environment.* Town life is generally considered more detrimental to health than country life.

9. *Heredity.* Bad heredity may result in early senility.

Thus, in making provision for the adequate care of senescents, our problem is further complicated by the impossibility of knowing where for practical purposes we should draw the dividing line between young old people, who though high in years are still entirely capable of coping independently with life and old young people who are sadly in need of assistance. There can be no arbitrary rules for this and each case should be considered on its merits; but in this matter, relating to quite a large percentage of our population, we have neither the time, the money nor the trained personnel to tackle so gigantic an undertaking at the moment.

##### Physical Changes

But though we cannot lay down any hard and fast rules about the beginning of old age in its widest sense the outward signs of its physical onset and progress are unmistakable to the trained eye. It is curious, though that we ourselves are the last people to notice these signs on our own persons. The progress is too gradual.

*Skin.* The skin indicates the on-coming senescent stage before anything else and the first sad wrinkle is the warning of worse to come. The loss of fatty and elastic tissue in the skin itself, causes it to fall into folds. The skin dries and becomes slightly yellow and pigmented, while dilated veins become very noticeable under their thin covering.

The hair changes colour, and at times excessive growth may be noticed on the eyebrows, ears, and, in women, upper lip and chin.

Apart from being distressing to one's outraged vanity, these senescent changes of the skin have no direct influence on health. Medically, their only significance is that the devitalized skin is readily subject to certain conditions such as ulcers, pruritus, callosities and circulatory disturbances.

*Eyes.* The cells of the eyes are the most highly specialized of any part of the body, and the senescent cells of the different parts of the eye are very susceptible to degenerative changes. Presbyopia, for which most people need spectacles in middle age, is due to a change in the lens which is one of the earliest disabilities of age. Hardening of the small arteries inside the eyes are responsible for opacity of the lens (cataract), and changes in the nerve cells of the retina may lead to total blindness. Senile skin-changes of the lids, which draw them back from the eyes, give rise to watery eyes so common in aged people.

*Hearing.* If physiological degeneration and retrogression proceed normally, deafness, another of the major disabilities of old age, would not be a very common problem. The organ of Corti, the reception nerve-cells in the inner ear, degenerate very gradually. Unfortunately, however, there is a disease called osteosclerosis which accounts for the majority of cases of deafness in the aged. Due to unknown aetiology and hereditary factors, it first changes the bone formation of the ear, causing impairment of hearing, but the disease is, alas, progressive. Deafness causes more unhappiness amongst its victims than most other diseases of old age. Some authorities advocate the formation of societies, like the St. Giles Society for Cripples, where deaf people can meet and find comfort in one another's company. Lip reading should be one of the main points of contact for deaf people with the outer world, but astonishingly few make use of this amelioration of their condition.

*Mobility.* The last of the more obvious physical disabilities of old age is the impairment of mobility. In the ancient tablets of Egypt, the symbol for an aged person was a thin stooping man leaning on a staff, which is interesting as showing that to them the outstanding characteristic of the aged was the need of support when walking. It also indicates the usual physiological changes in bone and muscle. The muscle tissue itself wastes and is replaced by fibrous tissue, thus leading to fatigue of the muscle and loss of power. Hence the slowing down of the tempo of movement. The bones become brittle and easy to fracture. The cartilage covering the articular surfaces of bones degenerates, causing stiffness and creaking noises on articulation. The calcification of the rib cartilages makes breathing more difficult. And the spinal

column shortens and curves, resulting in stooping and an altered gait.

These are the inescapable penalties that nature exacts for the inestimable gift of long life. But is the price too high? No! A thousand times no! And if at times you sometimes wonder—or even doubt—remember the words of the ageing Hadrian, in a letter to his successor Marcus Aurelius:

‘This morning it occurred to me for the first time that my body, my faithful companion and friend, truer and better known to me than my own soul, may be after all only a sly beast who will end by devouring his master. But enough! I like my body; it has served me well and in every way I do not begrudge it the care that it now needs.’

*Memoirs of Hadrian* (Marguerite Yourcenar).