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GERIATRICS AS A MODERN SPECIALTY

by

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GERIATRICS AS A MODERN SPECIALTY

INTRODUCTION

It seems in this day of specialization and streamlining that it is proper in the field of medicine to add consciousness, attractiveness, lines, curves, glamour, and beauty to that period of life which we most dread and whose ending we most fear. Surely through the proper insight and through education of life in its completeness that age could be made a period in life most desired, the period of most complete happiness with a calm quiet ending in which all are ready to glide away into that eternal realm on the clipper of "deep peaceful sleep."

In order to love life, we must form an accurate idea of the conditions which keep it in being. This once understood, we must sustain it and by constant and oft repeated efforts end by creating a love for existence. The old, in order to be really alive, must act; instinctively they should love life and not fear death which they alone can delay by their own persevering efforts. "A beautiful old age is for all men who see it a beautiful promise, for each one can conceive the hope of it for himself and for his children. It is the age at which we hope to arrive; seen in perspective, we like to see that this age has beauty, a period of life in which one is the king of his people and enjoys all those beauties of nature and civilization through travel, reading, watching and admiring the progress of philosophy and science."

What a curious fact in such an enlightened century as ours that the human mind has always shown a definite aversion to the acceptance of old age and death as a natural biological process. In the years of evolution
and maturity the possibilities of the inevitable hour for each and every human being are suppressed, almost wholly, by the average human individual. Youth, and the mature before the peak of life is reached, live as if they were immortal, as if the span of life had no relatively short fixed limits to which they themselves must inevitably yield. To the young, age and the aged appear foreign, almost as people representing another race of beings of a lower value, to be pitied, tolerated or ridiculed, as occasion offers. This is undoubtedly a normal psychologic state for the immature mind of the species at this stage of its evolution. We feel this so strongly that we look upon the serious contemplation of age and death by a young person, as unnatural and psychopathic. Serious thoughts on age and death do not usually appear in the human consciousness until the peak of life is reached, and their appearance then may actually be an indication that the downhill path has been entered. Only in those who have progressed some distance along this path do we regard the discussion of age and its problems as natural and normal. Instead of recognizing and treating old age as a normal process we set ourselves to its concealment and denial. Surely this is an abnormal defense reaction of the common brain, intrinsic and inherited from the psychologic experiences of our human ancestors. We fear both age and death; we do not like to talk sensibly and scientifically about them; we are depressed by the scientific view that they are biological processes, necessary and inevitable. We have no philosophy of life in which they are rationally considered and evaluated. (4)

Most unfortunate is the strange disparity between philosophy and science of the aged. For those who investigate the phenomena of old age
they are as if lost in an inextricable jungle whose countless trees unceasingly change their place and shape. Old age is crushed under a mass of unknown facts, incapable of being described or defined in algebraic equations. Age is not only the prodigiously complete being analyzed by our scientific techniques, but also the tendencies, conjectures, and aspirations of humanity. Our concepts of the aged are imbued with metaphysics. They are founded on so many and such imprecise data that the temptation is great to choose among them those which please us. Our idea of the aged varies according to our feelings and beliefs. Thus many still cling to the concept of an unfound fountain of youth and dream of a physiological and morphological rejuvenescence. In such a confusion, we need a philosophy based on the species and not the individual for a better understanding of man's purpose on earth.

Age, from a scientific view, is considered to be biologically an involutionary process preceded by those periods of life evolution and maturity in the development of the individual which is not merely a simple process of cell increase and differentiation. The organism rises on tiers and stages of its own substance and its own formation, temporary scaffolding and supporting structures, temporary energy machines—as energy distribution contrivances are created, play their role and functional use, then transformed, are rebuilt or cast aside useless, having served their purpose. Involution is as necessary as growth in the complete building plan of the animal organism. But is the mystery of protoplasmic involution any more astounding than that of progressive growth and differentiation? Indeed, in the economy of the human energy machine, the two processes have been
coexistent from the time of the fertilized ovum and beginning of cell division. Throughout the whole period of development both intra-uterine and post-uterine, retrogression or involution of certain temporary structures take place, these serve their purposeful usefulness and gradually disappear. Service is the economic keynote of organic development of the individual body—as in the development of the species as a whole; so it is with the individual in a serving but a temporary role. (1)

The scientific problem of the aged becomes a broad biological problem since there is no adequate theory to explain this normal but completing period of life. And the first thing that one is concerned about in age is a state of tissue, a period of time, or an accumulation of events leaving an impression on the cellular protoplasm of the individual. Is there a satisfactory statistical norm for old age? Can it be with a selected heredity, and an optimum environ that there can be an increase in longevity, prolonged vitality, and the efficiency of the ending years greatly enhanced? From all indications of growth and aging time, there is a significance in which physiological time is to the individual as the biological time is related to the species. Is it true as many believe, that time has no influence on age—only the events that occur in a measured interval? Do pathological processes always need to gain a footing in senescence? With age confronted by a spiritual, mental, physical, and social environ, imbued with a hereditary make up of a constitutional nature and a pattern of instincts, then is it correct that illness is a maladjustment to the environ? If age does not result from cause and effect, then is it a result of totality and parts which are interrelated dynamically.
reacting to each other and the environment? What is the possibility of controlling age through deliberate alterations chemically of blood and other body fluids? How accurate is the conception that the age of the nervous system and biological important tissues of phylogenetical order do not break down as readily as the recently developed tissues, and that they are not so readily vulnerable to disease processes? If feeling old hastens aging, is it possible to delay aging by continuing life activities? How does the will power modify the aged? How is the mind influenced by the state of the organism? Does it not seem that the concept of the psychosomatic unity of the organism is of most importance since the older individual faces life with all the emotional patterns of the past? How can we eliminate the bitter experiences of the past which cause so many to withdraw in themselves thus twisting their personalities, which makes it so hard for their illnesses to be treated? How can we prevent the degeneracy of the age in this modern civilization? These many questions of health and care of the age are mostly in connection with the prolonging of life, elimination of maladjustment, malfunction, and disturbances which cause suffering and social dependents of the age. (1)

Since the beginning of the twentieth century, we find from the saving of life that there has been a marked increase in the population of people over sixty. With this oncoming preponderance of late adults, the medical profession is confronted with an avalanche of degenerative disease processes and innumerable complications. So besides the scientific problems of senescence there is the ever pressing medical aspect in which efforts must be directed to the staying of degenerative diseases, and the postponement
of senescence—making the age of retirement one of useful efficiency.
This requires special aptitude not only from the standpoint of management
of the diseases themselves but most of all from the wise handling of those
in whom they occur. The many problems dealing with these aged seems to
be in parenchymal changes, water metabolism, calcium increase, vasomotor
upsets, disturbances in the circulatory, renal, and nervous systems, with
atrophic changes in the glandular systems. The limitation of diagnostic
procedures often tend to further disturb the elderly patient. The prin-
ciples of treating these people is markedly different from those of the
preceeding periods of life. Here also we are confronted with those prob-
lems and habits of the use of laxatives. Mental deterioration is not in-
frequent and loss of memory for recent events is the rule. It seems most
necessary to have the proper psychological approach and sympathy for these
folks, or we seemingly drive them to the cults and ever increasing use of
patent concoctions. Most assuredly in working out these medical problems
of the aged, we recognize that prevention and proper care of the period of
maturity, the period of evolution, greatly diminishes the suffering and
maladjustments of the aged. An ever increasing task of the profession is
to recognize when the adult begins to break under the stress of modern
civilization. How well we know, "He would avoid premature senescence who
early relaxes from that eternal drive." (42)

How disheartening with all the excellent medically trained men only
few seemingly dare to try and unravel the many conditions which lead to
the innumerable aches and pains of the lovely old people. The physician,
as most others who inadequately care for the aged, sees no reason for ex-
tending that period of life which seems to be a pathological state so
unbearable that to shorten this period seems to be the trend. But it was
not so long ago, in the later part of the nineteenth century, that it was
seemingly easier to let babies die, believing those dead were the inferior
beings of the species. Still against the current thought of his profession,
Dr. A. Jacobi realized that there were too many deaths in infancy, so cour­
ageously and untiringly, he studied those conditions which seems to be most
common in destroying the human infant. Gradually in the mass of entangled
problems he found many causative factors and means for treating these
processes, until his success in caring for the infants and investigations
interested many associates and finally an entire medical profession.
Surely within a short period of time the works and studies of those physicians
who are now dealing with the problems of the aged shall unravel those many
conditions which seem to add misery to the last period of life. With the
ever increasing old age population--the attitude of the physicians must
change--he must realize that the last period of life is that part of life
for which the first part was made, and through his efforts old age should
cease to be a disease of advanced life, which we are doomed to endure, but
through proper education and understanding make this a period most desirable
in which the aged fit most harmoniously and happily into the ever changing
social environment. Thus the physician becomes a great humanitarian who
in his close association with the aged, their problems and cares, is intim­
ately bound with those mysteries of life and death; and who, through his
efforts, finds those conditions favoring longevity, gives the aged a will
to live, and to make the future human race a happy and beneficial prospect,
with an active mind and body so resistant to disease, and finally extending
one's usefulness further into the senescent years, becomes increasingly
important. (2)
Thus through the problems and techniques of saving life, the medical profession have added numbers of aged people to society, which has created a serious issue in the political state. For it seems in this educational and economical social pattern, the aged seen socially unwanted, and only a burden to the family, instead of a social security attained for the useful outlets for the maturity and wisdom gained through the worthwhile and continual intrinsical experiences of these elderly people. These problems have no precedent in history and by using the biological basis as the roots which take place in the economical, political, and cultural contexts. We need to know the ways in which the social contexts react into the biological processes, as well as to know the ways in which biological processes condition social life. If these conditions were completely understood—nothing is better than growing old in peace. Here science and philosophy meet on a common ground in joint interests in discovering processes for normal growth and care of these aged. (1)

How naturally we find that these problems of senescence are as distinctive as those of the other periods of life and lend themselves quite readily to a special field of study and investigation. In this symposium of current knowledge in regard to the aging problems with interrelated findings and diverse viewpoints, it is hoped to enlist wider interest in a synoptic view of aging and to further the study of some of the many questions thus revealed. And what a misfortune it is to think that those neglected aged spend millions in cults, resorts, and patented medications which rightfully could aid greatly in formulating a specialty for the treatment of the aged. Naturally so great a field cannot be covered in one
article still certain aspects have been selected to indicate the complexity of the problem and to eliminate some of its more significant phases. (42)

GERIATRICS

Geriatrics, as well as all other subjects and objects, takes on that colorful trend of the period with its concepts ever changing to broader and more attractive thoughts. It is so in harmony by its entering the specialized fields and its streamlining by the changing of its thought from that of fear of old age to that of age being a period beautiful and most desired.

Once Geriatrics was merely considered as that branch of medicine which treats the diseases of old age. Then it became that part of medicine which deals with old age—not limiting its field to the diseases alone but entering upon other views in which old age is a normal physiological process of involution.

But now Geriatrics is that branch of medicine which deals with the problems of old age, characterized by the combination of viewpoints of science and philosophy in a better understanding of these problems. It enters also into the preceding periods of life searching for prophylactic measures, and continues still beyond into the field of eugenics or matching of genes for developing stronger constitutions, all with the desire at some future period, senility maybe a period of life free from suffering, maladjustment, and malfunction to the social environ, instead a period of life where the group of people shall be so happy due to their usefulness to society. (3)
That the problems of the aged require special study and investigation has long been recognized, but not so acutely realized until this last century, since society of industrial organization, whose keynote is speed, finds no place for these ever decreasingly active folks. Now with an ever increasing number of old people in our population and with their numerous complicatin pathological and social problems, with these facts most evident, still the greatest portion of the medical profession neglect the study of old age. Why? Is it that the mass of problems are too numerous? Or does it require too great an understanding of medicine to comprehend the complexity of the complaints the aged have? Or perhaps it is not wishing to keep these old folks in a society which seemingly has no place for them? If because of these reasons and more, would it not then seem quite desirable to have a specialty that deals with these bewildered and unfortunate old people?

Throughout the history of man, we find the aged folks with various problems and in several social positions during the different civilizations. The earliest recorded civilization is that of the Egyptians (3000 B. C.). At this time we find that the Egyptian people were practicing the art of lengthening life. They insured longevity through routine use of emetics and sudorificies at definite intervals. Two emetics were used each month. Then in their art of longevity, they sought the control of perspiring. Was it then that this civilization found old age such a grand period of life that to continue it became an art of their culture?

However, the Grecian civilization did not take so kindly to the aged (1100-200 B. C.), but in general devoted their time and energy in glorifying youth, while age was hated and often destroyed. Still the
Spartans of this civilization and known throughout history for their strength and courageous spirit—respected and loved their elders. Thus it seems that the wisdom and the spirit of their aged added that touch which gave to them their courageous characteristics. Plutarch, one of the beloved of the Greeks, left a few observations of the aged, "To keep their head cool and their feet warm."; "Instead of employing medicine for every indisposition, fast a day."; "While attending the body, never neglect the mind". Another great personality of the Grecian civilization was that Physician Hippocrates, who, in observing the aged, found: 1) that these people complained less than the young, 2) the diseases acquired by these people seldom left, and 3) his list of most common ailments included, dyspnea, catarrh, cough, dysuria, joint pain, nephritis, apoplexy, cachexia, insomnia, dimness of vision, and deafness.

During this period, about 950 B. C., we note the Hebrew attitude toward the aged from the Bible. The book of Ecclesiastes, by King Solomon, relates his general feeling that there was nothing desireable, for he too felt that there was no end to the infirmities of the aged, which he clearly expressed in his remark that, "the body returneth to dust and the Spirit to God from whence it cometh."

The Roman Civilization (290 B. C.—400 A. D.) placed the aged with its wisdom and experiences on a high plane in its social, political and cultural life. The basis of this civilization was the family life which created a powerful protectorate for the aged, because of a strict adherence to the belief and practice in a paterfamilias. The government was that of the Senate, composed of the grey-beards of the Senatus social class.
The value of the wisdom and wise counsel, derived and coming from their wide and varied experiences in life, of the aged was fully realized and appreciated by one of the leading and greatest Roman men of thought and letters, Cato.

From the 400 A.D. to the 14th century during the Reign of the Kings we find this keen perception: "Let none give over their patients when they come over burdened with the infirmities of age, as though they were incapable of having any good done unto them. Those that are negligent to aged friends are very near kin to those inhuman barbarians who both kill and devour."

In this period Roger Bacon wrote on the Cure of the Old Age.

During the Dark Ages when science, religion, superstitions and all were in a chaos, there were several ways suggested in which the old might be rejuvenated, such as by sleeping between two young healthy people, also by bathing in magic public baths or certain rivers, and by various and sundry exercises and fastings.

Not until the 18th century was there much advance in the thoughts and observations of the aged. And as in most subjects the philosophy of old age preceded the scientific studies. Joseph Addison, in his translation of Medieval literature from "Long Health and Correction of a Bad Disposition", found suggestions in proper exercise and temperance in the use of divine medications. Other treatments for old age as expressed by the Englishman, Sir John Floyero of Litchfield was, moderation in all things and the use of hot and cold baths. Another countryman, George Cheyne, prescribed protection from the vagaries of weather and reduction of their diets to actual needs, for the extenuation of life for the aged. Hufeland and Christoph, and English philosopher and physician respectively, disliked
and heartily condemned the attention and patronage the cults and quackery were receiving from the aged.

Through the 19th Century, with the progress of modern civilization, there are numerous viewpoints and opinions with regard to old age and its subsequent complex problems. Already in 1805 Dr. Bengas Rush in the Medical Inquirer and Observations, expounded that longevity was due to heredity, temperance, mental vigor, equanimity, and marriage. Then Anthony Carlisle, in 1819, condemned the use of opium at the close of a fatal or painful disease from professional and moral consideration for comfort or amelioration.

But in the latter part of this century we finds that scientific views coming into play as the general trend were curious as to what old age might be and the cause of death. In 1867, Charcot in his Disease Of The Aged, believed that old age was the disease of maturity and increased in severity with advancing years. Then in 1890, Seidel though of the aging body as an incurable disease with numerous pathological processes.

In the 20th century there are various viewpoints on old age, for around 1900 C. G. Minot worked out a theory on the rate of growth and cytormorphosis to explain the phenomena of old age. About 1910, Letchimikoff, a Russian scientist, from his observations of the many old people who lived on goats' milk championed the theory that old age and death were due to an auto-intoxication. Then in 1917, A. Lorand promoted the conception that the degeneration of the endocrine organs was the cause of old age. Then in 1914 Nasher the father of modern study of old age applied the term Geriatrics to this field of medicine but he considered the aging body as a physiological process in which there was a marked decrease in response of tissue against
disease. His book deals mainly with the diseases of the aged. During 1925, L. B. Williams was strongly promoting his work on endocrines and was in hopes that the implantation of animal glands into the human body would rejuvenate and revitalize our aged. Not until 1929 did A. S. Warthin write a book in which he set forth a combination viewpoint, involving the philosophical attitude of the individual serving his time and contributing the best he could toward the advancement and betterment of his species, and the scientific suggestion that old age was a normal involution process. (6)

Now old age is considered as a normal phenomena in which the spirit as well as the infirmities of the body are considered. But how true that the aged has either been a burden to society or a group respected, depending on the social pattern of the time in which they lived. How clearly this history shows that old age is inevitable and shall always be with us and that death is its natural termination, just as birth is its beginning. But in no civilization was it suggested that the pain often endured by this group could not be minimized, and neither was it suggested that the aged need always be a burden to society.

From the experiences of the past, the environs of the present, and the desires to be accomplished in the future, Geriatrics has for its fundamental principles:

1) Senility is a physiological entity and not a pathological maturity.

2) Disease in the aged is a pathological condition in normal degenerative tissues.
3) Treatment should be to restore the diseased tissue to a normal state of senility and not to conditions normal in maturity.

4) The individual is a psycho-somatic unit in which the mental attitude of the aged must be put into a peaceful state.

5) Prevention of disease most common to senility should be investigated and studied.

6) Hereditary conceptions should be in general education, to aid in increasing longevity and build for stronger constitutional patterns to resist disease.

7) It is also well that attention be directed to the stress of modern civilization on premature senility.

With the ever increasing number of aged in our population, it becomes of great importance that these people are socially useful far into the senescent years. So Geriatrics involves not a limited field of disease processes and their treatment, but also the problems of the aged in adjusting themselves to a social pattern of the civilization. Because of the many problems of the aged and the need of more accurate judgments in the care of the aged it seems quite necessary for a modern specialization in this phase of medicine. Such a specialty would deal with this group both from scientific and philosophic viewpoints using not only all the scientific diagnostic techniques and measures of treatment but also practice the art of medicine in its best form; such a specialty could be maintained and progress far into the problems of the aged by so understanding their problems so thoroughly and caring for them so satisfactorily that these patients are willing to remain under its
care, thus gradually eliminating cults, quackery, and diminishing the use of patented medications and concoctions. (3)

THE AGED

With age as the basis of a specialty it is necessary to have a common concept of old age which we may consider as the last period of human life characterized by decreasing physical and mental activity, manifested by fatigue, with a shortened and bent body, a wrinkled and slowly responding integument developing a personality which is either sweeter or embittered by the experiences of life and the psycho-somatic response of the individual to the environment. Old age maybe a physiological involution, but too often it is a product of pathological conditions.

The onset of old age varies in the different countries, being accelerated by higher temperatures and increasing nervous stress. So stealthy is the beginning of senescence that commonly it is not recognized by its victim. Though unconscious of the changes in himself he notes it in his contemporaries. The information that he is old maybe suddenly conveyed to him by overhearing a chance remark of others, or by catching a reflection of his bent body in the mirror, but the commonest warning is the feeling of fatigue. (10)

Since every subject begins with an idea we have several theories as to the possible cause of old age which shall be proven true or discarded as they are tested by the sciences of the times.

1) Aging is wearing out of organs and tissues as parts of a machine.
2) Aging is produced by secondary nutritional changes preceded by vascular changes.

3) Aging is due to the limitation of a vital substance in organism.

4) Aging is due, according to Letchnikoff's theories, to tissue phagocytosis and auto-intoxication.

5) Aging is due to changes in the blood and the acid-base equilibrium.

6) Sir Victor Horsely's and Lorand's theories of aging caused by the degenerative process of the ductless glands especially the thyroid.

7) Hasher's theory of tissue-cell evolution until the cells were so few, or replaced by a lower degree cell that the organism was unable to continue to meet the environment.

8) Degenerative processes exceeding the regenerative process as a possible cause of senescence.

9) Conflict of growth inhibiting and growth stimulating factors as possible cause of old age.

10) Physio-chemical changes in the blood, as changes in water balance and colloidal state might be a causative factor in aging.

11) Accumulation of toxins and metabolic products as a cause of aging.

12) Disturbances of intrinsic conditions as reverse growth due to nutritional factor changes as a possible cause of aging.

13) Involutionary process increased over physiological evolutionary processes as cause of aging.
Turning to the old age problems, all take note of old age and the societies responsibility to do something about it. In cultural societies the aged cannot be disposed of so easily and are accorded treatment which seems to us more humane. As in other social problems the need is for factual guidance. If society demands persons of senescence to do his part, it should check the validity of its traditional assumptions as to the proper cultural load for such an individual. (243)

PHILOSOPHY OF OLD AGE

With the more modern conceptions of Geriatrics, we notice two schools of thought dealing with old age, that of philosophy and that of science. Since the later consider the psycho-somatic unity of the individual it then seems proper that philosophy and science need join on a common ground in developing a more complete understanding of old age and its problems. (2)

That old age is inevitable is an established fact by biology and history. Only those escape who meet fatal accidents or a premature pathological death. The deferring of old age or the rejuvenating of the senescent individual is but idle talk. (12)

In the saving of a greater number of lives by improvements of medical care, dietaries, and measurers of public sanitation there has been brought about a great reduction in infant mortality which has greatly lengthened the span of life and created a social disturbance. This is in the great increase in the number of old people in our population both of the fit and unfit. More individuals shall achieve their biological limits of life. Ultimately there will be a much greater increase in the number of senile, more or less useless human being in the eighties and nineties. What advantage is gained for the individual or for the race by increasing the numbers of human dependents? (4)
That the aged are so dependent is largely due to their neglect by both the public and physicians. There is very little written on the welfare of "old age" which could guide them along suitable diets, proper clothes, proper exercise and recreation, and proper sleeping habits.

We can readily account for the public neglect of the aged. Human sympathy is universal in its scope, but not in its application. Instinctively or subconsciously, economic values, social relations, the esthetic sense and other factors influence the direction in which sympathy is applied. It seems that the aged become economically worthless, aged people are not considered beautiful, and from a purely esthetic standpoint, the aged are too often disagreeable, and repulsive which overcomes the sympathies or interests of others in trying to help them. Consequently we find that there is a universal tendency to shift the responsibility and also the care of the aged upon others, usually upon the community at large.

True, in the medical profession, not only the things that cause the public to neglect the aged, but the complexity of their problems has caused the greatest proportion of medical men to still be indifferent. As a result we have a lacking altogether of the sympathy for the aged which is so very vital and essential to their welfare. (3)

But with the increase of old age in our population, what is to be done? Already we have seen society take a step in formulating a pension for these old people. It is the medical profession that shall meet the issue with a courage and common sense that will be highly essential and highly instrumental in the final solution of their problems. Moreover there is the changing of ones attitude on a problem which aids in seeing things in a different light.
For in this day of haste and rapid change, things rarely appear the same twice. So seeing the depressing side of old age, let us change and see the other side of the old age problems. The possibilities of a normal old age are great; it may be a period of ripeness of experiences and observation, of the contemplation and philosophical evaluation of the world about us, in quiet calmness with creative possibilities still active. The compensations of the seventh and eighth decades are many because of longer preservations of the spiritual and mental functions, and perhaps, instead of considering the aged useless, might find their true value.

There is a real value in the aged for in the cultures of civilization we find that it is the aged who have created the greatest works in art, music, poetry, and science. To "stay in harness" in ripe old age seems to be the keynote in obtaining the best there is in old age. Many old men are our resources of knowledge, and it is far better for the young and old to work together than for the older people to make way for the younger ones. In many instances it seems that old age increases a man's power of energy. Many of these aged people have desires of doing and if encouraged may leave some thought or perhaps a work that would make the world a richer place to live. These folks have met many disappointments and are more stabilized in their judgments. Thomas A. Edison is a good example known and beloved by all, and he shows us how valuable the aged may be.

The aged grow in spirit and when they are active in many fields of interest we find old age truly sweet in a great many instances. It has often been said that Oliver Wendell Holmes never had an unhappy mood. He trained himself to meet his problems gracefully and his whole object in life was to make the world a better place to live.
Naturally it seems that to instill the proper insight or goal to be attained into the aged and encourage their spirits and give them a place in the social pattern would not only make their life more abundant but make them socially independent. We find that service is, after all, the economic keynote of organic development of the individual as it is of the broader progressive development of the species as a whole.

Stanley Hall says of the aged, "Old people is a class in the community that is somewhat alien--its intrinsic nature but little known and its service little utilized."

Growing old happily is being of service to society. In a quiet sedentary manner, the aged receives a peace of mind, which he finds in an economic security, sound health, satisfactory social relationships with his fellows, an established home, and a variety of hobbies. Happy then is the senescent who can approach his inevitable end with a normal rate of involution still capable of intellectual achievements, with a speedy and final release into eternal sleep. (13)

SCIENTIFIC VIEW

With no general theory of aging that has been accepted for the present senescence must be considered within the large biological field of study.

There are two conflicting views held today in regards to the aging man. 1) In one aging is an involutionary process which operates cumulatively with the passage of time and which is revealed in different organic systems as inevitable modifications of cells, tissues, and fluids; and 2) the other one interprets the changes found in aged organs as due to infections, toxins, traumas, and nutritional disturbances or inadequacies, which have forced cells,
tissues, and fluids to respond with degenerative changes and impairments. It appears, however, that at least some of these changes serve to maintain functioning and are therefore protective. The issue becomes sharply focused upon the possibility of distinguishing between the cumulative but physiological involutions that inevitably take place in all individuals as they grow older and pathological changes that occur in aging individuals as the result of adverse environmental conditions.

The "life span" properly conceived, is the limit beyond which old age does not extend even in the most favorable of circumstances. For some reason, homo sapiens very rarely has the ability to pass the mark of 100 years of life. Whether we may predict when science occupies the preponderating place in the nature of man as in organizing inorganic materials and old aged becomes more thoroughly investigated if the life span shall be extended must remain to be seen thru the progress of time. (26)

In longevity we are concerned with the average length of life or that of the individual. There are indeed several factors which influence the individuals prospects for a long life. Heredity is one that shall remain outside of human control. The environment is one that man can bring within his control. His hygienic habits do much to insure added years. Functional activity and the driving power to live, especially seems to add years of life to the aged. It seems at the present time that the diseases of the heart and cancer are causing the greatest mortality of the aged, but these may be held in check through physical examinations at regular intervals. Then acting collectively as in current public health activities it should be possible to extend the average length of life to a maximum of 75 years. (23-27)
The rejuvenation of old age or the permanent delay of old age at the present time is not a possibility, though by various hormones for small periods of time the gonadal hormones seem to relieve symptoms of age. Thus far any data secured to prove that by the use of the gonadal hormones aging may be delayed is not accurate information for they lack the factors of diet, heredity, infections, and vascular adequacy.

Perhaps to understand the problems of the aged more completely is to get an accurate conception of the various systems of the senile organism, since it is believed that old age is a natural physiological state in which the psycho-somatic unity of the individual is considered.

In the circulatory system we find that there is a change in the heart as age progresses. The striated muscular fibers remain largely the same. At present it is not known whether there is any change in the innervation of the heart, but there is a change in the stimuli conveyed by the nerves. There are definite structural changes in the arteries as time continues in thickening of the vascular walls and in function there is a difference in permeability of the arterioles. In age the capillaries are markedly decreased due to the atrophic changes of the body tissues. Although there is little noticeable change in the blood there is a diminution of antibody formation probably due to the changes of the reticulo-endothelial system, so it seems that the organs of circulation and their functions change with time. (15)

The various lymphatic tissues of the human body develop rapidly in early life and tend to begin involution earlier than the other body tissues. The diversity which is to be expected in the relations of cell and fluid through the body may not be without influence on the lymphatic cells by
promoting differences in rate of involution in different regions. As the
circulation becomes impaired in old age, one would look for reflected changes
in the lymph nodes of the aged. We cannot yet evaluate the importance of
this factor in the involutions of the aging process. Lymphatic tissue is
an important part of the defense of the body, both against inanimate particles
and living invaders. The lymphatic streams are essentially avenues of absorption
of both harmful nutritive material from the tissue fluids throughout most of
the body and the gastro-intestinal tract. Yet most people live and die
without serious handicap from the failure of this tissue to function
properly. Often disease delays the involution of this tissue or induces
a new formation of this tissue, which as yet constitutes an important
factor, but as yet very imperfectly understood. Until much more is known
of the function of the lymphatic tissue in general, little can be said as
to the significance of the position of morphological changes in the phenomena
of aging. (15)

On consideration the digestive system, the questions of prime importance
to the aging person arise: 1) Is there a likelihood of death from disease
of the digestive system? 2) What is the possibility of individual digestive
organs wearing out prematurely? and 3) What can the aged person do to prevent
pathological processes of the digestive organs? At the present time there
is no data available which shows that those diseases and atrophic changes
of the digestive organs associated particularly with aging can be prevented
or postponed by any general method or procedure. There is no evidence indic-
ating that achlorhydria is compatible with good health, nor that the capacity
of the colon for absorption and for the secretion of mucus is decreased in
elderly people. There is no reason to believe that constipation is more common in the aged, but it is the consensus of opinion that it is generally a life formed habit. Death in the aged is apparently only rarely due to a wearing out of the organs of the digestive system. Most elderly persons die with a digestive system, when not directly affected by cancer, a toxic or infectious process, that is capable of functioning beyond the ordinary span of life. Atrophia changes as a consequence of aging or of injury by external agents may cause death or serve as a contributory cause. Whether these changes contribute to neoplastic growth, which is so common in the digestive system, is uncertain. The symptoms of the aged referable to the gastrointestinal tract occurring more frequently than those referable to any other system is because the alimentary tract is so supplied with nerves as to be readily influenced reflexly by mental states. That aging is a factor in the etiology of hemorroids, data available does not permit this conclusion. (14)

The problem of the urinary system are not definite. The aging of the kidney has been looked upon as a primary parenchymal involution due to a decrease in the vital energy of the cells. Or is the involution of the kidney secondary to the normal aging condition of the renal arteries? The disturbance of renal function in aged man is determined less by the degree of change in the function in aged man is determined less by the degree of change in the functioning parenchymal tissue of the kidney than by circulatory failure, and accompaniment of similar senescent changes in the cardio-vascular system. In only the usual instance is the factor of renal failure important, and such an eventuality is not a part of normal old age. A disturbance within the aging kidney, that may determine the entire course of a senescence, is that which follows
renal ischemia and results in hypertension. Its importance may be judged by the fact that over half of the aged die by its effects. (27)

In the skeletal and locomotor systems except the blood and body fluids are the somatic tissues of the body. As time extends the changes in these tissues are chiefly those of dehydration with reduction of intracellular fluid and increase in intercellular fluids and in addition a certain faltering in the orderliness of tissue pattern. Changes in the skeleton is in the pattern of bony deposition which is evident in texture and in disposition of osseous material. These changes are largely due to modifications in vascularization. The halisteresis which supervenes in advanced age is a measure of the failure of mineral replacement. Cartilage also shows a change in advanced age. But in bursae, synovial membranes, tendons and ligaments, and smooth muscle there have been no changes recorded. Striped muscles reflects its functional activity in the thickness and contour of fibers. As age increases both its connective tissues and elastic fibers multiply. The chemical changes of the muscles indicate a decrease of intracellular fluid. The changes in the teeth confine to the diminution of permeability of enamel, and increase in calcium content and to the rebuilding of the fibrillar texture. It seems the criteria of healthy aging are of necessity different from those of youth for our elasticity and resilience are lessened by the honorable scars of resistance and repair. (30)

The skin is unique as a field for the direct observation of aging processes. With retrograde processes dominating the picture during aging of tissues at large, the senile skin contrasts with most other organs by presenting two unequivocally progressive lesions, acrochordon, and seborrheic keratosis. An endocrine factor might contribute to their development, and the same might
cause senile elastosis if it be true that the process concerned is really hyperplasia. Physiological changes are numerous of which chilliness and itching the laity are familiar. There are cycles of sebaceous activity at certain periods of life. Since endocrines are known to influence the distribution and quality of hair they may conceivably be the basis for senescence of hair. The role of vitamins attaches interest and perhaps significance to this fat-storing tissue because so much recent knowledge is available. Certain chemicals are conspicuous in the skin and sufficiently involve factors of one or the other sort to merit attention in research on aging. In short, it appears that the skin is a storage place not only for fat but a number of other substances. Lack of accommodation for them in the skin may possibly have a bearing upon general bodily welfare. In any event, the observability of the skin, and its accessibility for study make it an ideal field for investigation of the processes of aging, not only of itself but possibly also of important internal organs. (31)

The role of hormone production may play an important part in the aging process of the other physiological machinery. The relation of hormones and vitamins to food assimilation at present need further study. The dependence of the rate of hormone output on the vascularity of the specific endocrines seems both reasonable and probable; but, so far, this dependence rests on assumptions. The matter of mutual control among the endocrines presents fundamental but extremely complicated questions for solution. The search for a secretory nerve mechanism in controlling hormonal output has centered mainly on the thyroid gland. This mechanism seems particularly pertinent for the endocrine phase of the aging problems, since instability in the nervous machinery is
part of the aging process. If we have nerve control of hormone output, disturbance of this control in the aged is at least a probability. Until these variations are cleared up as to cause, we will continue to commit sins against science, especially in our generalizations in this field. (16)

In the reproductive systems the aging involves accentuation of involutionary processes. Declining of endocrine function is one of the major factors in the aging of the genital system. In the female menopause is the indication in the decrease of ovarian hormone secretion. Instances of diseased conditions including female genital cancers usually associated with aging processes are mentioned and experiments described which bear upon endocrine factors. The relief of postmenopausal symptoms are often relieved by endocrine therapy. But the problem of male impotence to aged is so complex, and the sexual life of older men is so complicated by changes, both in the inner physiological environment and the external social surroundings, that little can be said at present. It has been stated that while the aging process leaves its effect on the genital system of the male, it is not so uniform in its expression by chronological years as in the woman. The changes reflected in the structure of the aging prostrate appears to be more pronounced than in the testes, and more generally applicable to men of definite decades of life. The areas where age might affect the physiological and psycho-sexual aspects of men have been inadequately explored. (14,20)

The neurological features of debility processes in the old age is scanty and incompletely understood. Although there are certain facts available. Changes in the nerve cells comprise first a numerical atrophy with an increase of neuroglia tissue. The senile brain is also characterized by depositions of various kinds throughout both gray and white
matter. In the spinal cord within the gray matter ganglion disappear from vascular changes, and pigmented atrophy of the ventral horn cells of a systemic character. Special attention is given to the possibility of involutional changes being localized to certain neuronic systems and appearing therein at an exceptionally early age. The problems of senium praeos and premature old age are also evident. Clinical and pathological study of the nervous system in senility suggests that ageing is not entirely a simple physiological process nor yet an exclusively pathological state. It is to be inferred that both feature are operative though their relationship cannot as yet be determined. The pre-senile psychoses and the phenomena of precocious and premature senility offers avenues for research. (18)

By comparing the expectancy of sight with that of life it is clearly demonstrable that the normal life span of the eye as a functioning organ exceeds that of the body as a whole. There is, a steady decrease of the average efficiency of all measurable visual functions with advancing age even in healthy eyes. The characteristic senile morphological and chemical changes of the ocular tissue may be summarized as increased density, loss of water, increased interstitial fibrillar tissue, accumulation in some portion of an increased amount of inert material, loss of fat and elasticity together with isolated forms of tissue atrophy. In relation to the eye, as in relation to other organs, the dominant and at present insoluble problem of senescence is as to whether these changes represent inherent tendencies of mortal flesh or they represent cumulative effects of potentially avoidable disease and non-ideal environments. (21)
The more severe impairments of hearing for high tones, when low tones are well heard, can usually be correlated with simple atrophy of the nerve or the nerve endorgan, in the basal turn of the cochlea. The causal atrophy is not known. Proof is lacking that ageing of itself causes any organic lesions of the inner, middle, or external ear. There is no correlation between chronic systemic diseases and the average impairment of hearing at any age or between systemic diseases or the amount of atrophy in the cochlea. Absence of reports of ageing decline in the functions of the vestibular apparatus may mean merely that the methods of testing are too crude to reveal small differences. (22)

Since most of the cells perform their duties outside the blood vessels in the tissue fluids all which are not of uniform temperature, acid-base equilibrium, composition or fiber content throughout the body. It is already evident that some of these tissue fluid environments are fairly characteristic and exhibit special properties. We may find clues to the nature of the processes of ageing by balancing local alterations in cells and fibers against changes in fluid environment. It would be interesting if different fibers aged differently in the same fluid environment. Many techniques are available, yet they have not been applied for the lack of cooperation between the cytologist and biochemist. (17)

Resistance to psychological age deterioration is the accumulation of information and the exercise of the intellectual functions, together with the controlled organization of emotional attitudes,
make possible the development of human wisdom. This is the characteristic prevogative and contribution of well preserved age. Where the physical stamina and energetic alertness are of relatively greater account for production than is considered practiced, youth will exceed, but in comprehension, reasoning, and judgment, age alone can develop a broad philosophical objective. Personal goals become better defined, one's own abilities better understood, and the emotional stresses of frustration and disappointment are met with less expense to the personality. The intellectual traits depend for their effectiveness upon the stability of the emotional elements. Intellectual persistence is not wholly dependent upon physical energy; it springs in a large part from interest motivation and social habits. In a society which dictates pushing the elders from the field of active life, makes the old people face a double difficulty; involution changes that are physiologically intrinsic, and the social morals that are psychologically extrinsic. Effectiveness in later maturity can be increased by the recognition of the physical decrement and through organized effort in psychological compensation. The happiness and comfort of the old involves the recognition of their potential contribution of wisdom. The old can improve the opportunities and further the projects of the young. Again, it is the individual personality and not the age that sets the final limit. Corot, at 77 years, is reported to have said; "If the Lord lets me live two years longer I think I can paint something beautiful". It is this spirit of persistent idealism that is timeless—it knows no age.
MEDICAL ASPECT

To properly lower the pathological mortality of the old aged, may be approached from two major views. One to study and investigate those pathological processes which most commonly produce death in the aged; and the other is to practice the art of medicine with these elderly people, for to them a faithful friend is the medicine of life. But in either approach to the patient's problem, these folks must be considered on the psycho-somatic basis. (1)

The diseases which are most common to this elderly group are 60% die from cardiovascular renal disease, 15% die from respiratory diseases, 15% die from cancer, 7% die from disturbances of the gastrointestinal tract, and the remaining of injuries, and other disease processes. It must be realized that the pathological processes occur in normal degenerative tissues, and the return to repair can only be that of the normal condition of the tissue. In the elimination of the disease processes in the age it cannot be too strongly emphasized that the prevention of these conditions must be searched for in the preceding periods of life. That the constitutional pattern of the individual plays an important role in the resistance of disease. It is being alert to these various conceptions which shall greatly aid in properly understanding the illnesses of these old people. Then it is by the study and control of the above diseases which shall lead to the control and investigations of other diseases, until old age may in the course of time be able to live to normal death practically free from suffering. (36)

In the practicing the art of medicine it is necessary to make
a proper approach to these elderly people so that they feel they have a friend upon whom they can rely. It is the understanding of the patients problems, and the sympathetic interest which one must take in these patients, for often their troubles are only functional or an escape from some undesirable situation. To keep the old persons confidence and by conscientiousness may learn of habits, insight or oppressive situations which may be the basis for the patients problem or mental unrest. Surely if this mental condition especially that of depression we find that it tends to reduce the resistance of the individual making him more susceptible to the pathological processes. Thus it becomes most important to instill a peace of mind to these individuals. Again from a medical view it is becoming increasingly important to recognize when the stress and strain of modern civilization is too much for these people of the preceding generation to stand. (42)

The method of diagnosis varies with these old people and need to be more complete, for the signs and symptoms usually arise from two or more pathological conditions instead of one. The first point is the amazing absence of pain, the low grade fevers, and the indefinite objective signs. The second point is to have an idea of normal physiological involution so as to distinguish it from pathology of disease. The third point is to readily recognize those diseases which are most common to this aged group. Forth point is that too extensive laboratory procedures cannot always be used for there may be too much disturbance with the condition the patient already has for him to withstand. And fifth the mental state or attitude of the
patient must always be considered. (36)

In the treatment of the aged there are several phases, the prevention of disease, the medical care, the surgical care, and the dealing with the psyche of these folks.

The prevention of disease processes in the aged requires the minimizing the diseased conditions in the preceding periods of life, and begining at thirty five or forty having these people visit their physician at regular intervals, for physical and mental checkups. Also the welfare of the old person must be explained to them so that they are able to form hygienic habits that aid remarkably in the prevention of disease.

Medical care of these people is that of medications and diets, and keeping these folks active and out of bed, if possible.

At times there are acute processes which require surgical care, and with the modern anesthesias there is little hazard in these patients if there condition is accurately known, they are prepared properly and watched closely postoperatively—too giving intravenous fluids and keeping them from going into shock. In these cases passive exercise is essential, and distention can be nicely handled by Wagensteen method of intestinal deflation. The restlessness may be controlled with barbiturates, and any anemia by small repeated transfusions. (35)

It seems that these aged people have a tendency to become depressed during illnesses. Not infrequent it is the spirit of these folks that conveys them over the hill back to health. They must be constantly reassured, and as they are able to do small duties. They
should be encouraged to carry on some hobby or piece of work that is pleasant and not fatiguing to them. It is when they have a peace of mind and are happy that the physiological processes readily repair the conditions of the disease.

How encouraging it is to the medical profession to realize that it is possible for several people above eighty to be active and in good health. Some of these individuals drive their own automobiles, still make a livelihood, and most are active in play. Most of them have hobbies, and mentally they are active and alert. It seems that heredity is one of the fundamental requirements for their longevity. They have had little surgical treatment, and moderation and temperance were found to be the rule. How regular most of these folks have been in hygienic habits, which was expected. They have received careful medical examinations for their conditions which all within the normal range. Truly everyone of these people still find living a great thrill. Thus it seems if we can accept our various disabilities in a philosophic spirit—a useful degree of compensation is possible.

"Poor man, the turbulence of his own temper and apprehension of his own decay made him conceive advance life as a miserable condition;—on the contrary, it is almost a gay life, when one can be sensible of it and all its enjoyments." (32)

The position of the physician in dealing with these old people is to relieve suffering, decrease the disease processes through methods of prevention and medical and surgical care, to instill in these people a proper insight, and a will to live. To give them a
peace of mind which seems so essential to their happiness. Lastly to direct his attention to the prevention of the stress of modern civilization from causing premature senility in the mature. For the physician to be able to do this he must understand the complete nature of the human being, and have the ability to gain the confidence of these folks so thoroughly that they can be guided into usefulness far into their senescence. (40) (33)

NEED OF A SPECIALIZATION

At the present there is no field in medicine that offers quite the challenge as does that of geriatrics. Since the beginning of the 20th century there has been an increase of 52% in the aged of sixty years or over. The increase of these aged bring with them a multitude of degenerative diseases and complications into a speedy industrialized society which seemingly has no place for them. The conditions that confront the old man are quite changed from those of a generation ago, and it is this old man that challenges our efforts to stay the effects of modern life in producing premature senescence, and the innumerable psychic and somatic diseases. (42)

With the problems of old age so distinctive as those of the other periods of life, they readily lend themselves to specialization in which there is soon to be marked progress, and success for those who spend unlimited time in caring for these most worthy people. It is true that at present this field of medicine is in the making, but within our generation we shall see it develop into one of the major specializations.
Because geriatrics does not deal with the scientific problems of old age alone, but deals also with the nature of the individual fitting him into a social pattern where his spiritual growth is unlimited, that we shall see the greatest cooperation between scientists, the educators, sociologist, and politicians to modify the social and cultural patterns to meet the newly-discovered needs in making that last period of life most beautiful, and most desired.

In medicine, we shall require an increasing number of highly trained men who will specialize in geriatrics to keep pace with the already social changes being made in formulating old aged pensions. Because there is so little written on the welfare of the old folks it becomes increasingly important to teach a short course of geriatrics in the medical schools in order to instruct the young and on coming physicians how to train his patients of the middle age to prepare themselves for later life--so that in old age they can be contentedly occupied as far as possible, and continuing in social usefulness. These physicians should be instructed to point out to them the growing tendency of elderly people to live apart from their children, so if they wish homes of their own that the folks of the middle class should make timely provisions for their later lives through established trust funds or annuities, and mitigate the hardships now suffered by the aged poor. Each physician from the time of his graduation should keep in mind the nature of the problems that are associated with old age, and should be expected to do everything in his power to make them happier and helping them to contribute to the cultural side of life.
In the formulation of a specialty there is a greater organization of the problems to be handled in caring for the aged. With such a broad field and the complexity of the innumerable problems it would be desirable to have such an organization 1) to form a place in the medical scheme for the care of the aged, and 2) to develop the art of medicine to such an acme of perfection that the aged would prefer more accurate medical care in preference to cults, patented medicines, and quackery.

There are several suggestions how the care of the aged might be properly placed in the scheme of medicine. This is to establish an institution in connection with a general hospital where the acute conditions could be cared for with all the modern facilities and procedures. In this same plan there should be an occupational unit in which the aged may be of use to society by carrying on certain duties that would be guided by social workers. Another suggestion is to form an Old Age Welfare League of America for the promotion of the health and social adjustment of the aged. If such a league could be organized one would expect to see a most valuable results in the continuing the level of our social culture.

To perfect the art of medicine—nothing has quite the tonic value as an optimistic viewpoint and an assuring attitude—in dealing with these elderly people, and the millions they spend annually for cults, patented medications, and quackery could well be brought into the fold of medicine for the maintenance of the most needed specialty, geriatrics. (41)
SUMMARY

It is with the thought of those beloved old folks; as Clara Barton the head of the Red Cross and who in her life did so much charity work in her advanced years, as Thomas Edison who in his advanced life contributed much to the comforts of the present time through his scientific accomplishments, and as Will Rogers who all dearly loved for his simple yet sound philosophy of life; that one is encouraged to endeavor to bring many other personalities into the beautiful and serviceable period of life "old age."

On first thought a person would not realize the application of the above to a study of geriatrics. It is a very important lesson, however, because it illustrates not only the great accomplishments of old age, but brings out what seems to be an important secret of geriatrics, that is, keep the aged at work, and still more important, if they are sick keep them out of bed.

"Staying in the harness" is the real secret of bringing about the best results from our aged minds. The older a man gets the more work is necessary to prevent senile changes. Many times, cases of toxemia in the aged which were cured when they were active and at work.

Psychologically, too, "staying in the harness" keeps their minds from the senile death warrant "old age", and the responsibility of work helps them beyond measure.

Attention to the aged, appreciation and glorification of their accomplishments produces a wonderful mental effect upon them. It
stimulates them to "keep on the wheel" and give out from their store of experiences and spirit something that will make the old world better.

We all know the extreme comfort in seeking counsel from older physicians, lawyers, and other men with years of thought stored in their brains, to be able to get from them something that will make our daily life productive of better results.

Truly old age is sweet in a great many instances and if we give the aged more attention and stimulate them to greater activities, we would be richer in a great many ways. (44)
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