

Professor Ana Aslan and Gerovital-H3, the Original and First Anti-Aging Medicine
By Mircea Dumitru MD Ph.D. (by Ana Aslan's personal physician).

Who was Ana Aslan?

Ana Aslan is renowned for her essential contribution to gerontological research as well as for having patterned the best geriatric treatment influencing the aging process. Ana Aslan was the first person to rule out the fatalistic approach to aging, providing a new method in gerontology by opening the way to the prevention and treatment of old age.

I worked with Professor Ana Aslan for 25 years, from 1963, first as a researcher, then as chief physician and afterwards as the Director of the National Institute of Gerontology and Geriatrics in Bucharest, Romania, between 1978 and 1990.

In the last 3 years of her life, Aslan chose me as her personal physician and three months before her death she asked me to do some personal things, including to write a book about her life and her work. So I took notes at her bedside as a moral testament.

In addition to her life, she talked of her views of politics, religion, euthanasia, dying, death and love. As such I had the opportunity to know her private thoughts and personal thinking.

On her 90th solemn birthday celebration at the Romanian Academy in Bucharest on May 22nd, 1987, on behalf of the Romanian National Institute of Gerontology and Geriatrics, I said; "I want to express my emotion and say how difficult it is to talk about Ana Aslan, being such a complex personality, the story of Gerontology might as well be the story of Aslan."

"Ana Aslan's life can be seen in her work. She has battled courageous fights, all for the service of good, to make man's dream to live with dignity for as long as possible. Now we celebrate the inventor, the scientist, the physician, and the professor. For 35 years since 1952, she has led us as the first Institute of Gerontology in the world. Ana Aslan is the Ambassador of Gerontology and a brilliant woman.

As a scientist she is an inventor, not an imitator. She has played such an important role in Gerontology at the world level. She has given the world decades of research that revealed that Gerovital-H3 is the most effective treatment in geriatrics. Ana Aslan is the original contributor in the basic research concerning cellular and molecular aging, and researching her product reaction in the body.

She has a special empathy for the elderly and has always fought to improve their condition all over the world. She worked with others to initiate the General Assembly of the United Nations Organization on aging, held in Vienna, 1983. Aslan has a remarkable understanding and appreciation for beauty and culture. At one time she visited Hippocrates grave and on which she stated, "I now realize how small I am."

As a disciple and collaborator, and being inspired by the University Hymn, I declare
"Viva Academia! Viva Professores! Viva Ana Aslan!"

Aslan's distinctions

1. Commander of the order "Meritor Della Republica," Italy, 1969
2. Commemorative Gold Medal, Nicaragua, 1971.
3. Cross of Merit, first class Order of Merit, Germany, 1971.
4. Hero of Socialist Labor, Romania, 1971.
5. "Augusto Pinaud," Medal, Venezuela, 1972.
6. Cavalier de la Nouvelle Europe, Prize Oscar, Italy, 1973.
7. Knight of the Order "Les Palmes Academiques," France, 1974.
8. International Prize, "Eva," Italy, 1974.
9. Commander of the Order "De Orange Nassau," Holland, 1975.
10. "L'Ordre du Merite," Grande Officier, Senegal, 1976.
11. "Dag Hamarskjoeld," International Prize, Italy, 1977.
12. "Dama di Collare Del Santo Graal," Nice, 1978 (granted by Italy)
13. Honorary Foreign Citizen and Honorary Professor of Sciences, Manila, Philippines, 1978.
14. President and Honorary Guest of the Symposium, "Ageing Comes of Age," Philippines Academy, Philippines Association of Geriatrics and Gerontology, 1978.
15. Officer of the Order "Merito Della Republica Italiana," 1979.
16. La Medaille et le Prix "Leon Bernard" La 35eme Assemblee Mondiale de la Sante, 1982.

Aslan is quoted in all of the following

Who's Who in America (1972) Who's Who in the World (1971) Who's is Who of Women (1971) British Encyclopaedia (1974) Who's Who of Intellectuals (1976) The International Men of Achievement (1976) International Biographical Association of England (1978)

Dr. Dumitru comments

We are witnessing a spectacular alteration of the age pyramid. Furthermore the process of the demographic aging of the population will continue to increase in the coming decades. I feel obliged to sound an alarm at the apparition of this phenomenon unique in human history, at least in relation to how the appropriate tactics and strategies should be adopted.

Human society has the duty to benefit in an organised way from the knowledge, experience, wisdom and the free time of the elderly.

Activity, as a way of life for aging and aged people, creates for them a mental and physical well being, changing old age into a useful period, not only at the individual and family level, but at the social level too.

The traditional image of the elderly incapable of working, needing help, care and with a tendency for solitude is being reevaluated. Elderly people do not appear as a homogenous category of population, but as a very heterogeneous one, from the demographic, medical and social standpoint.

The concept of the "elderly" from the social standpoint is becoming outworn and out-of-fashion, and is frequently considered in a merely functional sense related to the elderly's capacity of assuming a role in the community.

Interdisciplinary researches are apt to offer solutions for promoting an Active Old Age. As a supporter of an optimistic conception of the third age, in the data that I am submitting, I will propose measures to forming a new attitude towards this last stage of life.

"The everlasting ageless youth" has always been one of the great desires and concerns of mankind. Especially in the latter decades, if the thoughts of the last thousand years were put into a microscopic lens then the complex equation of human aging would begin to reveal some of its unknown values, however man cannot accept the idea of aging and death.

I have discussed the topics of aging and old age with my patients during the last 40 years of my pregeriatric and geriatric practice; these years having been dedicated to scientific research relating to the aging diseases; their prevention and treatment.

I worked for 25 years at the National Institute of Gerontology and Geriatrics in Bucharest, of which I was the Director and the closest coworker of the famous Romanian physician-Ana Aslan for 11 years. I have had the opportunity to examine patients of different ages from all over the world, to know their thoughts, their concerns and their varied questions.

For example, I've talked with many young people, for whom aging, death and disease were states, which they hadn't accepted yet as a possibility during their life. Other young people I have dealt with had diseases and pain and wished an end as quickly as possible. Some considered that they ought to try everything as soon as possible and had no respect for their health.

Some women believed the menopause was the starting of their old age and other healthy old (often-centenarian) people who were in full activity pleaded for the beauty of this age and regarded life from the height of their wisdom. Of course there were also their children abandoned those elderly who had severe chronic diseases and were living alone having. All this has been a fantastic lesson for my pregeriatric and geriatric practice. But only fate made me the personal physician of Professor Ana Aslan during the last three years of her life. During this time we became closer in spirit and in our long conversations she shared many of her private thoughts of her life experience fighting against old age and its sufferings.

Asking her many questions that I was concerned about gave me the opportunity to learn the convictions of one of the most famous personalities in the world, her ideas were pioneering in the fascinating field of Gerontology and Geriatrics.

In the afternoons and in the evenings on the terrace of her apartment at the Otopeni Clinic, (where she was convalescing), she told me her thoughts, and interrupted only by nightingale trills, she talked of the 84 countries she had visited. The people, their cultures, the famous personalities she'd met, and normally, about the history of her only son- Gerovital-H3- the product that could improve the quality of life.

After 40 years of age (which is a critical period from a biological point of view), many people begin to ask; "What is old age? What about the aging process? How can we fight against it? Can old age be delayed or prevented? What are the factors accelerating the aging process? Should we learn to die? Has a person the right to dispose of his or her own life and decide when the end is to be? What about sexual activity in old age? Can it be improved? How will relations between the generations be affected? What is the older persons role in society and family?" and so on.

My understanding of the concerns of gerontology schools in the United States, Great Britain, Germany, France and Romania regarding the "Life Extension Research" and from my geriatric practice, in time, I appreciated that "those good habits" give strength and active life in aging.

Today we have discovered what was originally thought to be a compulsory condition of old age, namely the presence of heart disease, arthritis, diabetes, depression. Presently and especially in the near future these are (and will) no longer be the facts of aging. Everything depends on the way you live from birth to death and what kind of supplements you are taking.

The behaviour is based on the way of thinking to remain young, on the strategy to fight against gaining weight, to prevent paralysis, to fight against the stress and to maintain a young at heart spirit.

In the following pages, I will try to answer some of these questions and to draw the way to live, remain active and to retain dignity in older age.

"To grow old in a beautiful and dignified way is at the same time a science and an art."
Ana Aslan.

The aging process and old age

Ana Aslan remembered with pleasure a question asked by many reporters and research workers; "What made you in the 1940's- when very few people thought about geriatrics- dedicate yourself to the study of aging and to the care of old people?"

Ana Aslan's answer was always full of nostalgia; "At the age of 50 I changed my career and I started another life dedicated to Geriatrics. I was a specialist in Internal Medicine and Cardiology and in 1945 on January 1st, I received a congratulation card, which I keep with my precious possessions. This card was signed by many of my patients who wrote- On the occasion of your birthday a group of old patients, some of life's broken toys, wish you good health and many happy years! - I read and re-read- these words

many times and they continued to stir me and even to obsess me. I told myself, that in fact, these broken toys could be mended, and I wondered what help I could give old people? Those words and that card, together with the impulse given by one of my professor's, were the seed which sprang in my mind and made me dedicate the rest of my life to the study and treatment of old people. It was the elderly showed me that TIME is the killer of organic substance and it puts its definite imprint on the human organism."

In our contemporary society, we are witnessing two essential tendencies, the aging population and the technical progress.

The understanding of demographic tendencies, therapy and recovery from the diseases of old age are priority problems with economical, political and social implications.

Each of us is a witness to a spectacular increase of the average life span, which increased from 40-50 years in the last century, and now, to more than 78 years old. Grandfathers take care of their grandchildren, and their great grandchildren, and they share with them their life experience, a feat not possible before in the history of mankind.

In the year 2000 those over 60 years old will represent 15-20% of the total population of the earth. The rate of those over 65 increased from 200 millions in 1950's to 400 millions in 1985, and to an estimated 600 millions in 2000, and to more than 1 billion in 2025!

What are the implications of the presence of such a segment of elderly within the population? Should they stay outside of the normal social life? The answer to these questions has an impact not only on Gerontology, but in philosophy, religion, politics and economy too. Geriatrics deals with the medicine for the elderly, and Gerontology studies the modifications of the human organism in time, as such Gerontology can define the aging process and can distinguish between aging and disease. Alone they cannot answer and solve the fundamental aging questions, but together they become a powerful science.

* Aging is a plurality of normal changes of mankind due to the lapse of time, the change in the frame of mind and in the physical condition of each of us. * Disease is an accident, a pathological process, abnormal, which can occur occasionally in childhood, adulthood and is not compulsory in old people.

Disease can be prevented, treated, or if it becomes chronic it can be alleviated. Disease can also often hide aging and for this reason we should pay attention to the change due to time "per se."

The aging process is suggestively illustrated in Figure 4. It shows the increasing presence of aging from the period of embryo, childhood, adulthood and into old age. In this conception, old age is the last period of the life, when the aging signs become evident; signs such as the gerontoxon (or arcus senilis), a degenerative change in the cornea occurring in persons over the age of 50 and the ceasing of the menstrual cycle etc.

For the reader it is very important to know that aging is subjected to the influence of genetic and environmental factors. Under the influence of these factors, the aging rhythm can be normal, accelerated, or delayed.

Each person has his or her own biological clock, which can function normally, or it may have an accelerated or delayed function.

The nutrition, physical, environmental factors, way of life, presence or absence of diseases, stress and the eutrophic treatment with Gerovital-H3 influences the aging rhythm.

After the age of 40, the proportion between muscular and fat tissue changes. Around the age of 60- 30% of the muscular mass is replaced by fat tissue. The articular flexibility, muscular strength, pulmonary ventilation, vascular elasticity and cardiac efficiency decrease with advancing age.

Visual acuity and ovarian function are among the first changes, which announce the period of senescence. In bone structure, important changes take place, which should be prevented with the necessary steps.

At the age of 65 we can no longer do what we did at the age of 30 and this fact we all understand.

Old age is often a "state of mind" and the human spirit is the strongest treatment, which should be fed with understanding, useful constructive work, love, tolerance, kindness and friendship.

Old age can be a period of pain, loneliness and disease, with high medical cost and social complexity; Grieg described it as "diminishing also has its beauty," Juvenal however, said, "old age is worse than death."

In everyday life, in literature, in fairy tales, old age aureole is not missing. In popular wisdom, the old man appears as a positive character, kind and clever. The elderly are capable of useful activities for themselves and for others, they can solve difficult situations, to value their creativity. They are a treasure of wisdom and preserve a "living history," they are the keepers of history, and by vocation, character and inspired choice, become as much important as inventors.

When I asked Aslan, "what is aging and old age and how do we fight it?" she answered, "Old age is full of suffering and pain and I regard this as a parasite of life which develops slowly and whether you know it or not, it takes hold of us. From the age of 50 onward, I declared war on aging and old age. Gerontology and Geriatrics have enough possibilities to slow down the aging process and to delay old age onset. We are obliged to guard against and to explain to healthy or sick patients, what it means to grow old, and what they have to do in order to extend their life in conditions of quality. My treatment and my method is a solution, Gerovital-H3 is not only a treatment, it is hope, and when there is no hope, there is nothing."

Ana Aslan's incredible adventure

(IN HER OWN WORDS) "I accepted that I had to leave Bucharest in order to be by myself. This was not easy for me, but in those years, the air that I was breathing was not enough. Brilliant lights are attractive to creative spirits, but they can also deprive you of sight.

The magnificent oaks have too much shade, and under their magnificent crown you can find the smallest trees. Their seeds should be taken by the wind to fertile places."

Ana Aslan had many personal ideas, one of which was to start a medical school in Timisoara, the western Romanian town situated on the banks of the Bega channel.

It was here that she met Dr. Pius Branzeu, a student under the famous Professor Loriche. She discussed his methods of Novocain treatments on post-operative incisions and later learned about Dos Ghali's method of intravenous administration of Novocain in patients with bronchial asthma.

Ana Aslan passionately studied Professor C.I. Parhon's work as well. After 30 years of clinical and experimental observations, Parhon reached the conclusion that aging is a disease and that it can be treated. In 1908 he published his observations of two cases of senile osteomalacia and in 1925, he introduced the term Iikibiology, meaning morphological, chemical and physiological variations related to age.

"I taught at the medical clinic in Timisoara and learned the basic notions of gerontology. I read all the works of Marinescu, Parhon, Metchnikoff, Charcot and Burger (the principle disciples of gerontology) and I also maintained a relationship with Dr. Parhon. Since 1946, he was the Director of the Institute of Endocrinology in Bucharest and the chair of the Endocrinology Department of the University there. I returned to Bucharest once a month just to talk to him."

"Parhon was a pioneer in gerontology. He treated aging patients with extracts of epiphysis, gonads, insulin and vitamin E, in 1909 he published the first book in the world of endocrinology and in 1955 published the book *Biology of Ages*, which was translated all over the world."

"Parhon had a universal mind and was a wonderful man. Our privileged relationship was in the field of gerontology; this was where his heart was. He believed in rejuvenating and ardently maintained that life cannot be only a one-way direction. He knew everything, botany, zoology, endocrinology, psychiatry and anthropology. His mind was like an encyclopaedia! Above all, Parhon was a man of great generosity and dedication. He sacrificed many things for medicine, even including some family relationships, he was quite different from Danielopolu but without the two, I would not be what I am now!"

In 1946, Aslan published her first research on Novocain, *The Novocain Action on the Respiratory Rate when injected in the Human*. "After the first results with Novocain injections in the vascular embolias, I tried this treatment on patients with arthosis and

those with a tendency to ankylosis. Because these diseases are chronic, I administered each with more injections. With great joy, I noticed an improvement in the local symptoms, and even more importantly, a great improvement in their overall general condition. Before the treatments, the patients avoided any movement due to pain, and then they were willing and wanting to walk, sit up and read, and talk. The biggest reward was to notice an increase in their interest in life and for their families."

"These improvements also came along with much more restful sleep for the patients. This led me to the hypothesis on Novocain's general effect on the neurophysical system. Maybe it had effects here as well as locally. I noted these observations for two years until I could test my hypothesis."

"On April 15, 1949, a GI Medical student with arthrosis arrived in our clinic. For 3 weeks he'd had terrible pains and blocked articulation. I explained my idea about Novocain to him and after receiving his permission, gave him an intra-arterial injection with 1% Novocain. His knee was mobile immediately and he could flex his leg outright. What happiness! I administered this treatment for another two weeks, after which he completely recovered."

"There was a nice park close to the clinic in Timisoara, and one April afternoon while I was there I noticed an old man. He was leaning on his crutches and when sitting down, he laid his head in his hands. I later saw him in one of Van Gogh's paintings! He embodied despair. My attention then turned to an old couple who was walking with small steps, patiently leaning on one another. They did not talk, but their dry wrinkled faces told enough about their many years. Their gait was a symbol of their fraternity and support they have given, and will continue to give, to each other for the rest of their lives."

"I then said to myself, why can't I help these people? Why do they have to suffer such pain and suffering? If this young man had started to walk after the injections I had given him, maybe these people could be helped? They could smile again and regain their own sure steps." "I did not go to Bucharest at the end of the week as I had been doing on the weekends."

Instead I returned to this park. All I could focus on was old people. I was overwhelmed with age; I began to feel an unusual sympathy. Something had touched me deep down, and I began my quest. At night I thought about the Novocain shots Loriche had administered around wounds. If such rapid healing occurred, couldn't it benefit these people as well? I became obsessed." "After doing pharmacodynamic research in 1946 with Dr. Danielopolu, this conviction crystallised in my mind between 1947-1949. I was using Novocain to treat bronchial asthma according to Dos Gahali's method and to treat arthritis and embolias according to Loriche's method."

"I practically ran to Bucharest with my results! Dr. Danielopolu advised me to share this with Parhon immediately. His words to me were, "Novocain has an effect on aging. You should carefully carry out this research. Come back to Bucharest and lead our

Experimental Department here. I'll make all the arrangements, just say you'll come." I agreed and in a few months I was back in Bucharest."

This adventure that began in Timisoara continued in Bucharest. But it was here that the struggle really began. In order to clear up the Novocain mechanism of action in arthritis, Aslan followed its effects on experimental arthritis induced by formaldehyde (according to Seyle-Brownlee's method).

"In the fall of 1949, I wanted to present my first observations to the Academy of Medicine. It was then that I realised the envy-taking place among my colleagues, and how it was increasing. In a chorus, Milcu, Lupu, Nicolau and Benetato were adamantly against it. "You need at least 25 cases" they argued. Finally, they refused to include my research in the agenda being set for the Academy's meetings. It doesn't matter, I told myself, Alzheimer presented his observations on a single case, and Hodgkin on only six!"

"After Parhon left the Institute of Endocrinology, those that followed caused me much frustration. (They did, however, do one good thing, for which I want to thank them, they agreed with my resignation and return to Bucharest)."

"With the passing of time I learned that the opposition made me more and more ambitious. I knew that I was right and I had to prove it. Life would be too dull without controversy, and in my case, unfortunately, the controversies overstepped the bounds of academic dispute. All of this doesn't matter now, I forgave them many years ago."

"It was the co-operation with Parhon that does matter. He was very good to me and was convinced by the results I was obtaining. He was my moral support, and it is because of him that I continued with my research."

As soon as Aslan began publishing and sharing her method, more and more people, most of them ill, started to visit the Institute. The Institute, situated in an anonymous place, gradually became the Mecca of the ill.

Scientists came to learn from her as well as to undergo treatment. Some remained perplexed, listening to the testimonies of the old people who had regained the joy of life, returned to their favourite activities, found peace in their battles with insomnia.

More importantly, they found their place in society, a society who before had alienated and repulsed by them. Their spoken and written words are proof of the effectiveness of her treatment, method and product, Gerovital-H3, which had bought so much relief and hope to the suffering.

Many physicians came to the Institute for training in gerontology and geriatrics, and to learn Aslan's method. In return, Aslan visited them in their countries to acknowledge and celebrate their results. With special appreciation, she remembered Dr. Marion Bucker Bode of Germany. Besides leading a center of geriatrics, she also had serious concerns for research. She talked also of Dr. Pop Michel of Cyprus, these and many others, were considered her disciples in the fight against aging.

Some of the many testimonials

After visiting the Institute in September of 1958, Academician R. Bacov, Director of the Pavlov Institute in Moscow, wrote, "I found the activity carried out at the Institute of Professor Aslan to be very interesting. The problem they focus on fascinates the world. I think Professor Aslan has found a real way to maintain the activity of the nervous system and to prolong the normal functioning of the entire organism. I myself am convinced that Aslan's method is a success. Thank you for the wonderful demonstration of your results."

Robert A. Homes, MD, chief physician in a hospital in Washington D.C., confessed that he learned much from Aslan's revolutionary treatment. Hollings E., Senator S.C., Washington D.C., expressed his admiration for a real mother nature, as well as Senator Howard W. of Nevada, who remarked on the wonderful work in such an important field.

Professor Aslan thoroughly studied and diversified the research, a fact that was noted in the pharmacology department of Harvard University as well.

These were world-wide acknowledgements, the Minister of Health in Belgium, Nameche Louis, stated that he was "impressed by the social action developed by Aslan and convinced of the prophylactic results."

Ever since 1966, Lord Amulree of London appreciated "the work Aslan developed in order to cover all of Romania with a network of care centers for the elderly. These could very well be imitated by other countries and I hope this wonderful work by Professor Aslan will be very wide spread."

Dr. Iderwal de Carvalho, Professor of psycho-pathology at the Sao-Paulo University in Brazil was "full of admiration for all he saw and felt at the Institute when he personally noted the stateliness of Aslan's work and the magnificent results in treating aging with Gerovital-H3 and Aslavital."

From the Institute of Geriatrics and Gerontology of the University of Florence, Italy, Professor Francesco Antonini, "admired the work carried out with such intelligence." A letter of gratitude from Professor Mario Giacorezzo from the Medical Clinic of Rome University, thanked Aslan "for this masterly lesson."

Journalists, writers and poets whose fantasy took them beyond the limits of reality soon visited the Institute seeing the results in old patients. For example, Galina Seredrinkova wrote, "Faust's dream, the alchemists fight for life has been solved by the well known woman of our century, Ana Aslan. The gratitude and enthusiasm towards her talent and her deep scientific thinking includes anybody between the walls of her institute."

A news journalist by the name of A. Umar, considered Aslan's results not only prestigious for Romania, but for the entire world.

During her life, Aslan received thousands of letters. They came from the most remote parts of the world. Sometimes the letters were directed with no address, but a simple "Ana Aslan" on the envelope. The country and address was not necessary, the entire world knew of her! In most letters, patients expressed their thanks, for regaining strength, hope and confidence. They expressed their gratitude for her competence and devotion. She had four secretaries who helped her answer each and every one. They had a difficult job, working in the rhythm and time that Aslan demanded. She did not consider this impressive correspondence as simple politeness and responsiveness, but rather as a constitutive part of her own medical activity as a doctor. The exchange with research institutes, such as the "Institute of Aging" in the United States and in Kiev, meant contact. From her travels and fame, Aslan made friendships everywhere. Many of them became patients and followed her treatment for years and years. One of these was Mr. Hans Matguart of Germany; he was a man of remarkable culture, honour and honesty. After he learned of Aslan's death (a month after she had actually died), he took a plane to Bucharest. He went to her grave and quietly remained there for some time, as homage and out of respect.

He went on to address me; "It is a pleasure for me to speak about Professor Ana Aslan, as she was, in my opinion, a world authority and a remarkable person. My first encounter with her took place in 1982. Ana was herself an old woman, but yet maintained all of her mental capacity. Her long medical experience proved very useful. Ana was also being treated with Gerovital-H3. Her intellectual capacity, maintained to the end of her life, is proof of the drug's success." "I had begun my treatment (Aslan's therapy) on August 12, 1980 and continued without an interruption.

She herself personally cared for me. She examined me and decided on which type of therapy. For ten years, at regular intervals, I have been treated with Gerovital-H3 by injections and by pills. I am now 76 years old; therefore I started therapy when I was 65. Since then, I have continued leading negotiations in my field and making all the necessary decisions about my activities. Would I still if I wasn't using Gerovital-H3? I definitely say no!"

"In the last 10 years I have accomplished my daily tasks with great joy. When we think that the normal man retires at 65 or earlier, then these 10 years are even more astonishing. I have held honorary positions and been appointed several times as president of different organisations. This activity is proof of my capacity. It should also be mentioned that in the last 10 years I have also had no serious disease, more proof of healthy conditions due to Aslan's therapy."

"Throughout these 10 years I have often talked with others in this long term treatment, and not once have I heard a negative word. Of course this therapy cannot make miracles alone. Positive results only appear when regular treatments are given and the physician one is dealing with is seen regularly."

"Above all, I hope her knowledge will be spread to all the people in this country and to all of human-kind."

During this visit, Mr. Matquart was intrigued and puzzled about why her death had not been immediately announced. "Ana belonged to mankind, not only to Romania. Surely, Belu cemetery would have been full with people from all over the world?" But under communism, the people of Romania had no possibility to taste and to know of Ana Aslan's international success.

Biological basis of Gerovital-H3 treatment

Ana Aslan at the Institute of Gerontology and Geriatrics in Bucharest, Romania experimented with Gerovital-H3 between 1951 and 1958. Since 1951, Aslan stopped the use of hydrochloric-procaine; the research results materialised a different product with a new formula- Gerovital-H3. In the new formula, adding benzoic acid to procaine and inducing a greater access of procaine into the hydrophobic cellular compartments modified the pharmacological action of hydrochloric-procaine.

Between Gerovital-H3 and hydrochloric-procaine there is a difference of pharmacological action. Hazard showed that the procaine-based product has a stability of 6-months, whereas the Aslan product has a much increased stability of 2 years and 6-months.

Once introduced into the human body, the procaine molecule is hydrolysed by procainesterase into two metabolical fractions; Paraaminobenzic acid (PABA) and Diethylaminoethanol (DEAE). The absorption of the two metabolites is better when they result from the in-vivo hydrolysis of Gerovital-H3 than administered as such. The absorption takes place in a competitive manner, which means that the two metabolites compete for the active sites or mechanism that govern the absorption. The DEAE's absorption is particular to the brain as compared to other organs.

The procaine from Gerovital-H3 has a greater capacity of wadding the medium (pH), due to benzoic acid, reducing the degradation speed of the product. DEAE splits into Ethanolamine, Glycine and Urea. Ethanolamine enters the synthesis cycle of Choline and then acetylcholine. In the case of Gerovital-H3, the chromatographic techniques showed that there are intact procaine molecules in the blood and heart of experimental animals 6 hours after the product was administered. There are two possible explanations for the important difference in the procaine metabolism.

It is considered that hydrochloric-procaine is differently metabolised depending on the pH of the solution. At a pH of 7, the procaine is permeated "en mass" into the blood, but at a pH of 3.3 the procaine is gradually set free from the blood.

An acid solution will decrease the sudden release of the substance, a quality that Gerovital-H3 possesses. Cohen (1) shows that benzoic acid will arrange itself in space in such a manner that it protects the procaine molecule at its weak point from the action of procainesterasis. Important are also the K ions, which amplify the procaine action at the level of the nervous, and the muscular system (2). Gordon (3) has compared Gerovital-H3 and Procaine and found that there are significant statistical differences in favour of Gerovital-H3. The experiments carried out by Aslan (4) showed significant differences

between Gerovital-H3 and Procaine inducing the vascular conditioned and unconditioned reflexes in old patients.

Gerovital-H3 acts upon the human body both under the form of an intact molecule and through the hydrolysis products PABA and DEAE, which participate in the regulation of the intermediary metabolism.

Gerovital-H3 favours the acetylcholine synthesis and it is a source of folic acid. In fact, a series of researches suggest the hypothesis that procaine, by means of the PABA, can stimulate the intestinal flora and the production of folic acid, vitamin K and tyramine. The cellular effect of the Aslan product bears different characteristics and dimensions regarding the organ in question and its role within the body. The improvement of the superior nervous activity presents a particular importance. Yau (4) made a pharmacological study upon Gerovital-H3 and summarised its basic mechanism as:

- *Gerovital-H3 competitively and reversibly inhibits monoamineoxidase (MAO).
- *Gerovital-H3 acts as an antidepressive through the modification of the monoamine level in the brain.
- *Gerovital-H3 is very selective in the oxidase desamination inhibition.
- *Gerovital-H3's oxidative desamination of monoamine is done in such a way as to eliminate the hyper-blood-pressure peak, so typically present after administering of other MAO inhibitors.
- *Gerovital-H3 is considered to play a role in maintaining the physiological status of the nervous cell membrane, restoring the equilibrium between the processes of excitation and inhibition at the level of the cortical and subcortical systems.
- *Gerovital-H3 exerts an important regulatory action upon the nervous vegetative centers. Further experiments reveal procaine's anabolic action. Studies on Infusoria (*Colpidium colpoda* and *Vorticella*) show the proliferation of cells as a result of a weak procaine solution (6).

The investigations on rats drew the attention of procaine's anabolic affects improving the quality of the hair. Berger obtained similar results with 6mg procaine / Kg bodyweight in a study on 3-month old rats (7). On the other hand, Verzar used 25mg procaine / Kg bodyweight (the amount which inhibits oxidoreduction) and did not notice any modification (8). In order to solve these contradictory results, Aslan initiated a study on 1800 white rats treated with Gerovital-H3 (9). The results pointed out an improved general tropicity, an increased resistance to pulmonary disease and less myocardial modifications. Fewer spontaneous tumours occurred in the treated group as compared against the controls.

Gerovital-H3 action upon the lipid mechanism is reflected by the lypotrope, heparinoid and lypoconverting characteristic (10). Aslan's procaine-based product exerts its effects on the atherogenesis process by several mechanisms:

- *Gerovital-H3 diminishes the level of plasmatic lipoproteins and lipids.

*Gerovital-H3 exerts an effect on the erythrocyte membrane (an increase in membrane fluidity and a protection against osmotic hemolysis).

*Gerovital-H3 has an anti-oxidant mechanism that reduces the oxidative stress exerted on the membrane structure. Russu et col. Found that Gerovital-H3 exerts an inhibition on the generation of the superoxide radical in a non-enzymatic system (11).

It has been shown that Gerovital-H3 action on the lipid metabolism results in modifications in the serum total cholesterol, changes of the lipoprotein fractions ratio and changes to the unsaturated fatty acids content (11).

The international confirmations

Mention must be made of the fact that the research concerning Gerovital-H3 therapy has been simulated in over 500 medical and scientific publications.

The experiments utilising the original Aslan product and method confirm the efficiency and efficacy of Gerovital-H3.

The data presented at the 10th Congress of the International Association of Gerontology in Jerusalem in 1975, and at the European Congress of Clinical Gerontology in 1977, made available new evidence of the efficiency of Gerovital-H3.

The work of the special session at the Jerusalem Congress regarding old age pharmacology were dominated by the research focussed upon the mechanism of Gerovital-H3 action.

A special interest was generated by the mechanism of Gerovital-H3's action, particularly from several American scientists who presented papers of double-blind placebo controlled trials. Among them was Professor William Zung from Duke University, North Carolina who in his study applied the treatment for 28 days on his patients who were suffering from depression (12).

One group of patients aged 60 were submitted before, during and after the treatment to a battery of psychological tests. Professor Zung, a well known and respected author of psychological tests, proved the Gerovital-H3 efficiency in the treatment of depression. Within the same session, the American authors, M. Kurland and M. Hayman from Palm Springs, California, presented the double-blind results performed with Gerovital-H3 on 63 patients suffering from depression and aged 45 to 80 (33 using Gerovital-H3 and 30 using placebo). Under observation there were several types of depression; manic-depression, reactive depression, organic cerebral depression, chronic reactive depression and alcoholic depression.

The results proved that Gerovital-H3 efficiency in all the tests applied, the differences between the two groups showed a great statistical significance ($p > 0.001$).

Particularly valuable results were communicated by McFarlane MD who proved that Gerovital-H3 inhibits MAO (13). It is a known fact that the MAO levels increase with advancing age (14). McFarlane certifies the lack of any adverse reactions with Gerovital-

H3 and he also confirmed that Gerovital-H3 is a reversible and competitive MAO inhibitor.

The success enjoyed by Gerovital-H3 at the Jerusalem International Congress in June 1975, was remarked upon by Professor Nathan Shock (USA) in the closing speech of the Congress. That recognition came shortly after another world-wide known gerontologist, Alex Comfort (England), in an article published in the magazine "Mechanism of Ageing and Development", where he made positive remarks upon Gerovital-H3 and Aslan's method.

On the occasion of the International meeting "Medizinischewoche" in Baden Baden, Germany in November 1983, whilst concluding the Gerontology and Geriatrics section, Professor Paul Luth said "The Aslan method and treatment represent the most efficient therapeutic procedure in Geriatrics." (15)

Aslan's method of prophylactic and curative treatment with Gerovital-H3

As a medical professor from 1947 to 1949, Ana Aslan was inspired by the works of Lorich. Aslan started administering procaine in cases of arthritis and in trophic troubles of the extremities with sometimes spectacular results (1).

This is what Ana Aslan declared from the very beginning; "After one injection in the femoral artery given to a patient with embolism at the level of the inferior extremity, I noticed the almost instantaneous disappearance of pain. Then, for the first time, I had the idea of applying the same method in certain diseases with acute pain, which produce immobilization and thus long-lasting work incapacity."

Like other great discoveries, the clinical observation facts did not fail Aslan, as they represented the beginning of a period of original and fundamental studies which contributed to the prophylaxis and treatment of aging and chronic disease. Thus, in that period, another clinical observation was pointed out by the patients who stated that after the injections (given into the artery of the extremities), pain was relieved in all the body. "I believe, a general effect was obtained," concluded Aslan.

Starting in 1949, Aslan began applying her treatment in a nursing home. Besides an improvement of the local phenomena, she noticed that the physical and psychical state of the old men was becoming better. That was the time when Aslan initiated experimental research which had particularly favourable effects on all the treated animals.

I want to emphasize that, besides introducing the procaine treatment against the aging process and degenerative illnesses Aslan had other original contributions lying at the base of the treatment and method bearing her name.

*Aslan introduced long-term procaine therapy.

*Aslan used procaine in intramuscular injections according to her own schedule, which represented a true therapeutic novelty, since previously procaine had only been used for local anaesthesia, or in short-term cures injected either subcutaneously, intravenously or, more rarely, intra-arterially.

The special moment arrived when procaine was prepared to the new formula now known as Gerovital-H3. This is more active and has practically no side effects if administered in therapeutic doses.

Gerovital-H3 was experimented with at the Institute of Gerontology and Geriatrics in Bucharest, between 1951 and 1958. In 1957, Aslan started comparative investigations to establish the effectiveness of the oral treatment. To achieve the same results like in the parenteral treatment, the oral dose has to be doubled.

I must also state that at the Bucharest Institute, to evaluate the effects of Gerovital-H3 treatment, since 1952, a clinical study has been initiated. This study, due to the thousands of patients observed over a 25 year time scale makes this clinical study unique in the world. Gerovital-H3 is a complex drug acting like the procaine molecule with its two hidrolisis products; PABA and DEAE. The addition of benzoic acid, potassium and disodium phosphate increase the effects of Gerovital-H3 biotrophic treatment.

Indications for Gerovital-H3

Gerovital-H3 is indicated for people older than 40 years in order to retard the aging process and as a preventative and curative treatment for chronic degenerative diseases. Gerovital-H3 has been shown to be efficacious in all the following:

- *moderate and light depressive states.
- *in troubles concerning attention, concentrating, cognitive processes and in balancing the neurovegetative distiniies.
- *chronic fatigue syndrome.
- *sleep disorders.
- *tegument dystrophias, trophic ulcers, atonic wounds.
- *osteoarthritis, degenerating rheumatism, osteoporosis and during fracture consolidation periods.
- *sexual management and improving sex drive
- *Gerovital-H3 is an active anti-aterogenous factor and recommended in cerebral and peripheral artherosclerosis and in the treatment of post-infarct and hemiplegia consequences.
- *Parkinson and Parkinson syndromes.
- *Gerovital-H3 ameliorates the hair resistance and quality, repigmentation, reduces the alopecia (hair loss), head skin seborrhea and helps eliminate the pruritus.
- *due to the inhibition on the generation of the superoxide radical, Gerovital-H3 is a powerful antioxidant, a free radical quencer.

Outcome of Gerovital-H3 treatment

Aslan's treatment produces a general transformation of the organism manifested as follows:

- *desire to be active and to live, better memory, enhanced concentration ability and attention, improved optimism.

- *improved affective tone and psychic and vegetative balance.
- *increased self-caring abilities and exercise capacity.
- *more ability to cope with the environment and increased resistance to infections.
- *balanced endocrine functions with oestrogens reappearance and androgen reactivation.
- *improved visual, auditive and olphactive acuity.
- *diminished extrapyramidal rigidity, improved gait and increased mobility.
- *better skin, nails and mucous trophicity.
- *hair growth stimulation with a tendency to repigmentate the hair and a more trophic aspect.
- *better blood vessel reactivity.
- *the alleviation should also be mentioned of the clinical symptoms of the chronic diseases; chronic rheumatism, atherosclerosis, bronchial asthma, psoriasis, vitiligo, varicose ulcers.
- *improves the quality of life retarding the rhythm of aging and preventing the chronic diseases.
- *improves the sex drive.

Administering method for Gerovital-H3

The long term treatment with Gerovital-H3 has been extensively established with Aslan et col. For over 40 years at the National Institute of Gerontogoy and Geriatrics in Romania, in compliance with Aslan's methods.

At the beginning, Gerovital-H3 was administered only as injections. The tolerance has always been tested before starting the treatment; one subcutaneous injection of 1ml on the first day, followed by an intramuscular injection of 2ml the next day.

If no local or general reactions occur, proper treatment can be started. In the experience of more than 300,000 patients that completed this treatment in Romania, an intolerance only occurred in 1 in 7000 cases.

In 1957, Aslan started clinical and experimental comparative investigations in order to establish the effectiveness of the oral administration.

The dose of active substances had to be doubled to achieve the same results as in the parenteral treatment. Considering this fact and the difficulty raised by the accurate management in certain patients, Aslan established a combined schedule made up of both oral and parenteral approaches as follows:

*PREVENTATIVE Treatment of chronic diseases and aging consists of 4 courses of 12 injections and 4 courses of 24 pills, ie, one course of 12 injections over 4 weeks (ie, 3 injections per week), a 4-week break then one course of 24 pills over 12 days (one pill twice daily between meals), a 2-week break and then the cycle is resumed.

*Starting from the age of 40 years, the prophylactic treatment with pills only is recommended in a series of 25 tablets during the first 12 days, with an interval of 2 months; 1st day, 1 tablet/ day, 2-hours after breakfast, increasing to the 12th day when 2 tablets per day are taken, (again 2-hours after meals, for example one at 10AM and

another at 4PM). There should be a series of 5 treatment courses in the year, which should be increased to 6 per year for persons over the age of 65.

*CURATIVE Treatment in chronic diseases requires 6 courses of 12 injections, and 5 courses of 24 pills, yearly, ie, one course of 12 injections over 4 weeks, a 2-week break, one course of 24 pills over 12 days (one pill twice daily between the meals); 2 week break. The cycle is then resumed.

Depending upon the outcomes the physician and patients can either shorten or extend the breaks. The first and second course of injections can be administered daily in order to study the individual reactivity.

Gerovital-H3 treatment can be individualised according to the disease/ diseases accompanying the aging and the patients biological age.

In arteritis, actively influenced by Gerovital-H3, the route of administration is intra-arterial. Aslan recommended the intra-arterial route in arthrosis and arthritis, especially when the knee joint is involved, and the intravenous route for cerebral spasms.

Contraindications

Gerovital-H3 should be avoided by anyone suffering or utilising the following;

- *allergy or sensitivity to Gerovital-H3 (or Novocain).
- *Gerovital-H3 cannot be used together with eserine or prostigmine.
- *Gerovital-H3 can not be used at the same time as sulphamides.
- *Gerovital-H3 should not be used with an antibacterial treatment.

Side effects

Gerovital-H3 side effects are relatively uncommon and may occur principally only after injections, but the frequency is very reduced (according to the statistics there is 1 case for every 7000 patients).

The minor side effects consist of a heating sensation and metallic taste, these effects disappear during the treatment.

The major side effects are related to the skin; macular eruption, rash and itching which determine the interruption of the treatment and the remake of the tolerance test (1ml injected id.) after the eruption has disappeared. The treatment of the side effects consist of the administration of the usual antiallergic drugs if the eruption persists after the arrest of Gerovital-H3.

In spite of its monoamineoxidase (MAO) inhibitor character, Gerovital-H3 does not interfere, as the conventional MAO inhibitors do, with the Tyramine from food (ed.-commonly called the cheese affect), which means there is no known incompatibility with Gerovital-H3 and food. The interaction with sulphamides is because of the competition on the bacterial metabolism. Overdose may occur only after 400mg in iv rapid injection and the treatment is the same as for any acute intoxication.

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