

How Do I Think I Got Here?

James E. Birren



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When I think of the pathway of my life, I am amazed by the twist and turns and the role that chance played. I have had appointments at two universities, served at the National Institutes of Health, and during World War II I was a commissioned officer at the Naval Medical Research Center in Bethesda, Maryland, and I have lectured in 40 states and 27 countries. This path would not have been predicted when I was in high school and peddled handbills for \$2 a day, nor at age 20 when I leased a gasoline station with two friends my age and sold gas for 15 cents a gallon and paid ourselves 27½ cents an hour. How did I get from there to here?

When I was born in a small hospital on the north side of Chicago, there was an accident. After my mother delivered me, the doctor placed me on a table next to my mother and asked the nurse for an umbilical clip. She didn't have one and the doctor got angry and told her he would have done better with the charwoman. He left the room in anger to get a clip and the nurse went out in the other direction to get a clip, leaving my mother and me alone. During the interval my mother expelled the placenta and it fell to the floor dragging me with it. When the doctor and nurse returned they were startled to see me as a purple mess on the floor. Years later my mother told me she would never forget the look on the doctor's face when he came back in the room and saw me on the floor.

When I was in college I needed a birth certificate and went to the registry at the City Hall in Chicago, but they did not have one for me. I have assumed that the doctor thought I was not going to survive and didn't register my birth. The registry had me fill out a form and told me to take it to my birth doctor to be signed. His receptionist took it into him for signing and he did not see me. Later when I got a copy of my birth certificate I saw my handwriting—I am unusual in that my birth certificate is in my own handwriting. Now I feel that the title of my autobiography should be "I had to do it myself."

My mother and father had minimal schooling, my mother five years and my father eight years. My father worked six days a week, leaving home in the morning before my brother and I had breakfast and went off to school. My father worked in the laundry business, which was then busy, before home washing machines were developed. He nudged me and my brother to work and take money seriously.

When I was six years old my father developed a plan to teach my brother and me how to make and save money. Alternating each week, one of us would buy a carton of cigarettes for \$1.25 at the local drugstore and sell the packs to my father for 15 cents each. That meant we made 25 cents a carton during our week to buy and sell them. My father died of lung cancer at age 72 but his economic teaching has had a lasting effect on me.

My father's parents came to Chicago from Luxembourg about 1890 and my mother's parents arrived from Germany about the same time. The two families had very different orientations in the philosophy of life but both were committed to hard work. My father's family was Roman Catholic. In the house my paternal carpenter grandfather built, each room had a crucifix on the wall. In my mother's parents' home there were no religious objects but there were many contemporary books and magazines that caught my brother's and my attention. Her father said when he came to America only English would be spoken in the house. In contrast, those in the other grandparents' home often spoke the Luxembourg, a dialect I never learned. That grandmother did very well in feeding us grandchildren, but I don't remember any conversation with her. I doubt if she learned English. The other grandmother took my mother and my brother and me to one of the earliest sound movies that was released in Chicago. Here was a big difference in the families; one explored the new and the other was very traditional.

In a sense my father was more oriented to my mother's family. He was exploratory and very anti-superstitious. However, to marry my mother in the Catholic Church he had to have her commit to becoming Catholic and to raise any children in that faith. My father encouraged my interest in going to school. I still have a *Handbook of Chemistry and Physics* he bought when he was an adult. With only eight years of schooling that was an unusual purchase. In high school I expected to become an engineer and therefore took all the required college prep courses but also all the technical shop courses plus four years of mechanical drawing. When I finished high school the question arose, should I go to the local junior college. "Why not?" my father said. So I did and took two more years that were oriented toward becoming a mechanical engineer. When I completed these two years in 1938, the economic depression was still having its effect on Chicago, and engineers were not getting jobs. I decided to go to the Chicago Teachers College to get my bachelor's degree and the certificate needed to teach. That worked out well and while I was there as a student a professor who taught the course in the psychology of reading asked me why I didn't go on to graduate school in psychology.

I had saved about \$400 from my work at the gas station and thought that going to Northwestern University as a graduate student in psychology was a good next step, it fitted in with idea of teaching and testing. But was I surprised. After I entered graduate school in 1941, war was on the horizon. My professor, Robert Seashore, received a war-related research project co-directed by the chairman of the physiology department at the medical school. It was thought that the German General Rommel provided his troops with amphetamines to keep them moving in pursuit of the British troops across northern Africa. The war project required my professor, and two other graduate students and me to go to the local army base, Fort Sheridan, and provide a placebo, amphetamine, or caffeine to infantry troops who would stay on duty and awake for 24 hours. We would measure them on several psychomotor tests before and after the period of continuous wakefulness. The tests involved reaction time, hand tremor, and complex visual discriminations. After Fort Sheridan we were sent to Fort Knox, Kentucky,

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where we kept tank drivers awake for 24 hours and driving for long periods with stimulants or placebos and seeing what the effects were.

The next assignment was even more startling. We were sent to the southern California Mohave Desert. There, vast numbers of troops were organized in tents and marched in the heat to condition them for assignment to Africa and pursuit of the German army. There was no air conditioning except in a temporary hospital in a metal shed-like building that was used for accidents and for treating heat exhaustion. My professor and the three of us graduate students slept in a tent and had water bags hanging on the tent poles for drinking.

The results of the project did show that amphetamines kept the troops awake and alert. However, time went on. General Rommel took his troops out of Africa and moved them to Europe where the war was then focused. The project was halted, then the question of my military service arose. The physiologist head of the project, Dr. Andrew Ivy, became the scientific director of the Naval Medical Research Institute in Bethesda, Maryland. He told me I should go to medical school or go into the Navy. I chose the Navy and I was assigned as an ensign to the Naval Medical Research Institute. As a junior officer, I was assigned to many tasks, all war related, from the effects of high temperature on performance of Navy personnel on board ship, to seasickness.

Seasickness was becoming a major problem because large numbers of Army men were being transported in landing crafts and getting seasick. Going across long distances at sea resulted in men getting sick and requiring hospitalization. One thing became clear, seasickness was part of a broader sensitivity to motion; motion sickness was a more general phenomenon. I developed a questionnaire that asked about response to all forms of motion, e.g., swings, roller coasters rides, Ferris wheels, and cars. This became part of my doctoral dissertation when I returned to Northwestern University to finish my Ph.D. in 1946-47. About 30 years later I received a request for the questionnaire from personnel responsible for the beginning of space flights. The men in space without gravity to orient then were getting motion sick.

While I was in the Navy I met Dr. Nathan Shock who visited my director at the Naval Medical Research Institute. Nathan Shock was a physiologist who was assigned to develop the first gerontology research unit within the U.S. Public Health Service. It was to be located in Baltimore and he was looking for research personnel and he thought I would fit into the pioneering gerontology unit. He told me that after my year of completing my dissertation I could join his unit, which I did in 1947. Gerontology was then just emerging as a field of study and I attended the first meeting of the Gerontological Society held in New York in 1948.

For three years I did research in Baltimore on young and older subjects trying to describe the differences and their significance. My research ranged from visual dark adaptation, to intelligence, to speed of behavior. This led me to transfer to the National Institute of Mental Health (NIMH) which was just beginning to plan for an in-house research program at the Bethesda site. There I started the Section on Aging that took a multidisciplinary view of aging and the personnel did both human and rat studies. One thing I discovered were some of the out-of-date paradigms that dominated interpretations of research.

After World War II, attention to chronic diseases was rising. Unlike the infectious diseases, the host plays a major role in chronic diseases, such as cardiovascular disease, cancer, and diabetes. This means focusing on internal rather than on external factors,

but that also had limitations in perspective. At the National Institute of Mental Health, a multidisciplinary team studied a group of community resident older men. One of the findings was that psychosocial loss was related to physiological well-being. This aroused tension in the group and the publication of the monograph based on the research was delayed for a year because there was an underlying question of whether psychological or social factors could affect the physiological well-being of an individual. This issue was resolved and the monograph was published.

Several other instances of out-of-date or limited concepts of the human organism and its well-being arose. Robert N. Butler and I proposed that the NIMH create a multidisciplinary laboratory for the study of aging in 1963. It was turned down by the directors of the Institute presumably because of the dominance of the then-current psychoanalytic view that the important elements of the organization of the human being were laid down in early childhood with adult life presumably following the early causal dictates.

In 1964 I moved into the National Institute of Child Health and Human Development (NICHD) to organize both the intramural and the extramural research programs on aging. There are two startling interactions that I recall. One was that the pediatrician who headed the child research program said that in pediatrics the upper age limit for patients was age 18. With this in mind he suggested that my responsibility was for research on persons over the age of 18! He showed me some infant pictures of identical twin boys who were different in size, height, and weight. Next he showed me a photo of the mother's placenta with graphic evidence that the area of the placenta serving the smallest boy was the smallest. Obviously our individual characteristics begin *in utero*. How much influences are on the fetus and their importance in later life health and behavioral outcomes is now an open question. Obviously even identical twins are not identical people.

Another dated paradigm came to my attention when the director of the NICHD asked me to comment on a longitudinal research project on heart disease. Because of my earlier experience in the NIMH with psychosocial factors influencing later life physiology, I suggested that some social-behavioral variables be included. These suggested variables were rejected. Presumably their model of heart disease was that it was an organ-specific phenomenon and remote environmental conditions did not influence it.

These experiences led me to think more broadly about the role of the nervous system in health and well-being of individuals. Clearly the nervous system is the primary regulatory organ of the body. It regulates metabolism, body temperature, blood pressure, temperature, and other important physiological functions. But also, it modifies its functions on the basis of experience. That is, it is the organ system of the body that primarily learns from experience.

These thoughts led me to reread some early papers that I received from the NIH library on a major national health survey that was supported by the Works Project Administration, 1935-37. It studied thousands of persons in both urban and rural areas of the country and found differences in the health of urban and rural black populations. Across the top of my copies was written "not for publication." My interpretation was that medicine and politics of the day were not ready to accept that social variables influence the health of populations and that publication of the findings would be strongly contested. Today we are much more open to ideas and evidence that social and environmental conditions influence mortality and morbidity in the population.

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I have become tentative about many interpretations because of exposure to developments in science. A notable example is the early notion that the number of neurons was fixed in early development and there was no increase in adult life. Current views are more optimistic that neurons can multiply in the mature nervous system depending upon their use. How much the principle of “use it or lose it” applies to the integrity of the aging nervous system is still a question for further research to answer.

The retirement of commercial airline pilots came up for discussion in 1958 and I was asked to participate in a meeting conducted by the head of the Federal Aviation Agency. At that time there was no upper age limit for pilots and there was some worry that an older pilot might have a heart attack or stroke in flight which could lead to a public disaster. As I recall there were 17 cockpit deaths in the previous year. The group decided that age 60 was reasonable retirement age to adopt for pilots. I added the idea at the meeting that in subsequent years the retirement age should be moved up or down depending upon what future research evidence provided. My suggestion implied flexibility in regulations and modification in the light of emerging evidence. That didn't happen.

The Airline Pilots Association comprised of senior pilots (captains), was strongly against age 60 retirement and attempted to sue the government and bring to court the committee that adopted the age 60 rule. The suit was denied but the pilot association spent considerable money in their legal approach and had to broaden their membership to include the second level pilots who were younger. Because they were younger, they rather liked the idea of age 60 retirement for their seniors, and because of their membership the association changed its direction from being against the age 60 rule to being in favor of it. Because pension costs rise with time of service the airlines began to favor more strongly the age 60 rule. Thus the regulation that was adopted to protect the public became rigid without regard to increase evidence about the validity or reasonableness of the age 60 retirement rule.

Advancements in measurements all added up to being able to assess an individual pilot's health and skills without the dependence upon chronological age as the sole indicator of the likelihood of flight mishaps. The age 60 retirement rule has remained fixed in place, not because of its validity but because of economic and social influences. Actually there is some suspicion that younger pilots may be slightly more prone to inflight mishaps because of their tendency to be more impulsive, or to act and not think about the details of the situation in which they were in. This example also points out for me the lag effects in rules and regulations in relation to emerging evidence.

In 1964 I was invited by the University of Southern California (USC) to start a center for research and education related to aging. Retirement communities were just starting up and opportunities for funding research on aging were opening. I accepted the position but I must admit that I had an out-of-date paradigm in relation to retirement and housing. I had a stereotyped view that retirement communities were “age ghettos,” and did not serve their residents well. My colleagues at USC carried out research that showed that residents in retirement communities were far more satisfied with their lives than were community residents of the same age. I discovered that my views of later life were out of date and that I needed to learn more.

On a visit to Japan I met a biologist, Akira Koisumi, who further expanded my thinking about the relative importance of environmental variables in the length and quality of life. He pointed out that the genetic background of humans is always expressed in a specific environment and that the environment modulates the expression

of our genetic inheritance. Some time ago this would have been dismissed as unrealistic thinking, that obviously our genetic backgrounds as a species and as individuals have a relatively fixed control of the outcomes of our lives. Then I began to think about the dramatic changes that had occurred in the average life expectancy of humans. For example, in America from 1900 to 2000, more years were added to the average length of life than were added from Roman days to 1900. Life expectancy in that century increased in America from about 47 years to 77 years. Obviously this could not be attributed to genetic changes but must have been the outcome of environmental changes such as clean water, sewage disposal, reduction of nutritional deficiencies (transient and acute), and the rise of education that changed social practices and individual behavior.

My visits to Japan have opened my eyes to the high regard we have in America for new things. This relates not necessarily to ideas but for respect for old objects and nature. In America an old table showing the marks of much use can be discarded or regarded as a symbol of the past in relation to the present. Also, I had with a conversation with a man in Wales who was reacting to news of a hurricane that destroyed many homes in Florida. He said to me, "you don't seem to build your houses to last forever." I looked around at the homes in Wales and they were built of field stones with slate roofs. It would take extremely strong winds to blow away these three- and four-hundred year-old houses.

During my tenure at USC I had a sabbatical leave in 1979-80 that I spent at the Center for Advanced Study in the Behavioral Sciences at Stanford University. There was a weekly discussion group composed of a mixture of psychologists, psychiatrists, and sociologists who had much experience with research on behavior. One day a senior psychiatric researcher made the comment that during the discussions the psychologists always mentioned cognitive issues and the psychiatrists always mentioned emotions. This comment gave me insight into the focused nature of the different disciplines and to the gap in putting the individual together as an organism with varying levels of determinants of behavior and decisions.

If I place the changes of older people into this dynamic picture I find that I am presented with one of the most complex problems facing science in the 21st century. Explaining aging is a very complex task, but one that is important for our well-being as we seem to be approaching an "agequake" in which the increasing longevity of populations and lowering of birthrates is influencing institutions, cultures, and individuals as our models of life in the information age have become ambiguous.

What I am coming to recognize is that age doesn't explain anything. Age is a convenient index to gather and to group data. But age can index both positive and negative variables in relation to the particular phenomenon we are trying to explain. The famous Gompertz graph of the relation of mortality and age shows a relatively high mortality at birth with a decline toward age 10 and a steady acceleration through the remainder of life. The curve shows us that mortality increases in adult life but it doesn't suggest why. Other relationships between age and human functions can also be shown, but age in itself doesn't tell us causes. For me, I have to think about causal factors to replace age; it is a powerful and useful index but one that increasingly has to be replaced with causal variables.

During my period of research at the University of Southern California I found myself increasingly interested in topics that were outside conventional psychology. In my graduate seminar I introduced students to such topics as wisdom, creativity, and love

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How Do I Think I Got Here?

in relation to changes over the life span. That led me to my next change in perspective on aging, the thought that individual's interpretations of their lives influenced their outcome and their well-being.

I had to face what seemed a contradiction in my scientific orientation. On the one hand I was committed to evidence-based conclusions and on the other hand I was entering a "soft side" of science, the inside views people had of their lives. Psychology began in the nineteenth century and was based upon the credibility of a bottom up approach based on the successes of physics and chemistry in replacing out-of-date beliefs about natural phenomena. Psychology was started on a bottom up approach of experiments on elemental processes of perception and of learning and of memory. The term "psychophysics" emerged that referred to the relation of perceived stimulus strength in relation to the magnitude of the stimulus as in the increase in the loudness of a tone in relation to its physical strength. Not studied in the emerging phase of psychology as a science were top down issues of the influence of beliefs upon behavior and health.

During my tenure at USC we created the Andrew Norman Institute for Advanced Study in Gerontology and Geriatrics. It had weekly seminars that included guest speakers. On one occasion a distinguished physiologist presented a slide that showed the details and complexity of the control of the human heart. It impressed everyone and led to questions about the placement of the heart in relation to total bodily functions. The physiologist laughed and said his expectations were for an integrated science with a need for only one miracle. I commented upon the popular view of the heart as being symbolically the seat of love. I can not imagine positive public responses to a new Valentine's Day card that would have an image of a brain with the note "my frontal lobes have great love for you." This results for me in the conviction that we constantly have to change our belief-based decisions and views of life with evidence-based ones.

Later in my research career I became interested in the interpretations of life as revealed in autobiographies. I taught courses in autobiography in which the participants wrote their life stories and gave them to me to use anonymously in research. In this first phase of autobiographical study the focus was on meaning in life, how individuals attached meaning in their lives and their values. I am now seeking a pathway between decision making and interpretations of life. Individuals make decisions about their lives that influence their well-being and health. My basic hypothesis is that, "who I think I am influences the choices I make." The ancient Greeks interpreted behavior as resulting from the influences of gods and goddesses. People could be occupied by good influences or bad ones or by demons. Volition and decision choices were not regarded as potentials for the individual but as the result of forces of outside spirits.

When I think about the acceleration in the amount of information provided by research in recent years I have two responses. One is that we will understand more and be better able to provide for healthier, longer, and acceptable lives. The other view is that we have a growing gap between available information and its integration within the academic community and its use for public good. A past president of the American Physiological Society recently said that there are now 13,000,000 references on-line in physiology. The integration of information in the scientific community is a major task that has been neglected as we have searched for more specific pieces of the jigsaw puzzle of the organization of organisms and their development and aging.

I have learned from autobiography that humans are adaptable and it is quite likely that more attention will be given to integration of information from the viewpoints of science, society, and individuals. Autobiography represents a “soft area” for research, one that would not have been very respected in past years when the behavioral and social sciences were trying to emulate the advances in physics and chemistry. More recently, however, there is growing opinion that our interpretations of our lives influence the decisions we make. The self we tell ourselves we are, the narrative self, appears to influence what decisions we make in life. I had the opportunity to interview a leading psychoanalyst in Los Angeles when he turned 75. I asked him about his psychoanalytic theory and how it related to individuals. He said, “That is my theory, you have to realize that every person has a theory about his or her own life.” This seems to me a very integrative statement for my approach to autobiography; autobiography reveals the individual’s theory about himself or herself, how they explain their life. It leads to the idea that one’s self, the self we tell ourselves, is in a sense a personal theory, a theory that provides direction for decisions and actions in everyday life. Here lies a possible connection between the autobiographical stories of life and the decisions that individuals have made and the directions their lives have taken.

I have lectured in 40 states and 27 countries and have become impressed with the different views of life, with the impact of culture upon interpretations and of the impact of families and of religion. Increasing tension between different religious groups is the opposite of what I experienced in Japan. I became aware of the fact that melding of religious beliefs in Japan is not uncommon. This is one of the areas for autobiography to explore; the role that religion plays in the organization of the narrative self and of our individual theories of our lives. My commitment that has emerged is to encourage explorations of the inside of life and of the replacement of ancient beliefs with evidence.

How did I get to where I am? The answer lies in the wide range of things that I have explored in my career. It startles me. Some may question my lack of focus, although I certainly appreciate what chance and interactions with thoughtful colleagues have done for me. I have performed intellectual measurements on individuals of different ages, I have measured the conduction velocity of nerves of rats of different ages, I have studied the speed of reactions of persons of different ages, and I have looked into the study of the insides of lives through autobiography. I have published papers with physiologists, physicians, dentists, psychiatrists, psychologists, social workers, and philosophers. What has all this taught me? It has taught me that there is so very much to learn and also that I have so much to learn. I learned that there is no obvious end to replacing belief-based views with those based on evidence.

This has been a brief account of the twists and turns of my life, primarily of my work life. Not mentioned was the learning provided me by my wife Betty and our three children who nudged me to be more “human.”

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