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SPEAKING HEART TO HEART: AN INTERVIEW WITH JAMES J. LYNCH **Part I**

KEYWORDS: Horsley Gantt, The Pavlovian Society, Stewart Wolf, the "Effect of Person", the Psychophysiological Clinic, *The Broken Heart*, loneliness, disease and premature death, the Dinamap "Green Machine", Ireland, babies and blushing, talking and blood pressure surges, alexithymia

Jim Lynch and I have been close personal friends as well as professional colleagues for over a quarter of a century. I have reported on some of his research and literary achievements in various Newsletters over the past two decades and have also had the privilege and pleasure of participating in some of these efforts. I was therefore delighted and intrigued when he recently told me that he was curtailing his clinical practice to devote more time to his next book, *Speaking of Love*. What I gleaned from our brief phone conversation is that he intends to focus on how what saying "I love you" face to face to someone and really feeling this emotion affects our cardiovascular system and health. This news came at a most propitious time. I had long intended to devote a Newsletter to an interview with Jim that would explain how and why he became interested in the effect of emotions and personal relationships on the cardiovascular system. In addition, our electronic format now facilitates the ability to provide lengthier interviews that were precluded by the space constraints of the print version.

Jim immediately agreed to my proposal and after we hung up, I began thinking about what he said. Love is a word that is very often used in a casual or frivolous way, especially in letters, cards, or e-mails. Perhaps Jim intends to explain what is different about telling someone "I love you" directly when, in his words, "it is spoken in one's flesh and blood in an embodied rather than the disembodied delivery" when these same words are communicated in writing or over the phone.

While this was the first issue I wanted to address, it seemed wiser to start by providing some background on what led him to write his previous three books. I could have probably

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summarized many of these details to conserve space but was sure our readers would be much more interested in learning about this directly from Jim. I also felt that each of these prior books reflected a progressive evolution in his thinking about the importance of things like loneliness, caring for people and pets and feeling love for someone or something, as well as how such things

affected physical and mental well-being. The following questions and answers are designed to illustrate what I perceive to be an orderly sequence in his books that has culminated in *Speaking of Love*.

PJR: Jim, your first book, *The Broken Heart: The Medical Consequences of Loneliness*, started with this 1973 quotation from a 35-year old steelworker at the top of the first page. "*Man, you must be kidding about love? I think our young college kids must have latched on to something. Why get married when you can simply screw some young chick and nobody gets hurt. In the end you owe her nothing and she owes you nothing.*" The first paragraph begins with "There is a widespread belief in our modern culture that love is a word with no meaning." It goes on to state that a whole generation agrees with the steelworker and also believes that "You can be intimate with someone and then leave, and nothing bad will happen." *The Broken Heart* refuted this by brilliantly demonstrating how important human relationships are to physical and mental health. It would thus appear that *Speaking of Love* deals with a topic that has probably preoccupied you for over thirty years. I know some of the answers to these questions but suspect that our readers would be interested in learning why you became interested in investigating the health effects of human relationships. In particular, could you tell us a little about Horsley Gantt and the influence he and others like Stewart Wolf had on your early development? More specifically, what led you to write *The Broken Heart*?

JJL: I suppose it all started in 1962 when I had the good fortune to meet Dr. Horsley Gantt as the result of having received a Veterans Administration Fellowship. I had been assigned to work in his Pavlovian Laboratory at the Perry Point, VA facility located along the banks of the Susquehanna River, where it flows into the Chesapeake Bay. By way of background, Horsley had spent almost 7 years in Russia from 1922-1929 studying with the renowned Ivan Pavlov and translating his publications into English. He had been sent to Leningrad as a young medical officer to help in the famine relief that followed in the wake of the Bolshevik Revolution. He subsequently wrote a book on the effects of famine and social upheaval on the spread of disease in Russia that is widely regarded as one of the first epidemiologic classics in this field. When he returned to Johns Hopkins in 1929 he established his Pavlovian Laboratory and spent the next several decades extending Pavlov's research studies on conditional reflexes and the power of human contact. During his long and distinguished career Horsley had been the recipient of numerous honors and awards, including the prestigious "Lasker Award in Medicine" and the "Distinguished Service Award from the American Heart Association". Nevertheless, he found it difficult to obtain funding for his studies until the Russians launched Sputnik in 1957 and Yuri Gagarin later became the first person to circle the earth in space. That started the space race to beat the Russians to the moon.

Dr. Gantt was only one of a handful of U.S. physicians who could not only speak and read Russian fluently but was also familiar with Russian medicine and science. Because of this, the National Institutes of Health and Veterans Administration were anxious to support his studies and his dream of establishing a second Pavlovian laboratory at the Perry Point VA hospital in the Maryland countryside became a reality. I doubt that any words could convey either the impact of meeting Horsley Gantt or observing the research he was conducting on what he referred to as "The Effect of Person". Little did I know that he would be my teacher and mentor for the next 18 years until he died in 1980 at the age of 88. My experiences with Horsley in the early 1960s proved to be the defining intellectual and philosophical experience of my life.

It was in Horsley's laboratory that I first witnessed the remarkable cardiovascular responses in dogs to the most elementary interactions with people, usually as a byproduct of certain surgical procedures for some of his other animal experiments. Heart

rate reductions of 50% in response to human petting were routine reactions. Coronary blood flow increases to the mere presence of a human being far greater than those seen with the most vigorous exercise on a treadmill were responses that would form a deep and lasting impression. They still help shape my research interests with patients suffering from cardiovascular and other diseases 40 years later.

The Land Of The Serendip

The photograph on the right shows Horsley Gantt teaching me how to create a parotid fistula in dogs for some studies that dealt with salivary conditioning. I am not certain how old Horsley might have been when this picture was taken but it is safe to say he was probably in his mid seventies. As you well know, in my last book, *A Cry Unheard*, I described this era in my life as "The Land of Serendip" because it had been pure serendipity that led me to meet such a marvelous human being and to select and be accepted at the Perry Point facility.

At the time, I had no particular interest in either human relationships or cardiovascular disease and was unaware of any possible connection. My major concern and goal was to be able to make a living so I could get married. Perry Point just happened to be the closest facility to Boston with an opening. This was very important, since it made it financially feasible to spend some weekends with my New England fiancée.



Horsley had established the Pavlovian Society in 1955 at The Johns Hopkins Medical School to foster an integrative approach to medical research and clinical practice. It was dedicated to the scientific study of behavior and the promotion of interdisciplinary scientific communication. At the time, most medical and scientific organizations were already tending to become more and more specialized in one specific area but the Pavlovian Society was quite different. While it recognized the value of clinical studies as well as research at a molecular or other basic science level, its focus was on making its members stress the significance of their scientific observations as it related to the whole functioning organism. The membership initially consisted primarily of Horsley's friends, former students, and colleagues and meetings were generally held in Baltimore. By the time I met him, Horsley's invigorating influence had attracted numerous other physicians, psychologists and scientists and the venue had expanded to Princeton, Harvard, Columbia and the University of Virginia. The intellectual stimulation these individuals provided was another of those life-forming experiences that is difficult to describe. Meetings at the Princeton Inn and Boar's Head Inn in Charlottesville where I was able to dine with and listen to giants in the field of behavioral psychology, like B.F. Skinner from Harvard and William Schoenfeld of Columbia, or hear the great American novelist John Dos Passos lecture on the diversity of Nature, remain memories that are beyond description.



The Gantt Medal was established following Horsley's death in 1980 to be awarded to individuals who have made distinguished contributions to the field or contributed significantly to the functioning of the Pavlovian Society. (I was privileged to receive this award 15 years later)) The society rapidly became international in scope. In addition to luminaries like Harold Wolff, B.F. Skinner, Stewart Wolf and William Schoenfeld, past presidents have included our good friends Konstantin Sudakov from Russia and Shoji Kakigi from Japan. They, Stewart and I were very pleased that you were elected president in 1999.



Horsley introduced me to numerous scientists and writers, chief among them Stewart Wolf, M.D. Not only did Stewart leave a deep and lasting impression on me because of his wonderful way of encouraging young investigators but his books, especially *Life Stress and Essential Hypertension*, had an especially powerful impact. I could never understand why his writings did not have a greater influence on clinical cardiologists. However, that has now changed due to your efforts, Ray Rosenman's and other good friends who are also on the Board of Trustees of The American Institute of Stress. Stewart's decades of landmark investigations in the town of Roseto also served to reinforce the importance of human relationships on health. I thought it was especially appropriate for him to receive the Hans Selye Award when he provided the first 25-year follow-up on Roseto at your 1988 Montreux International Congress on Stress in Switzerland, particularly since the presentation elegantly and dramatically confirmed his original hypothesis. Parenthetically, I will always be grateful to you for arranging financial support for me to attend these marvelous Montreux meetings.

Without Stewart Wolf, the Pavlovian Society would never have survived after Horsley's death in 1980. The title of the organization's journal, "*Conditional Reflex*" had been changed to "*The Pavlovian Journal of Biological Science*" by the new editor but no longer reflected the integrative approach that Horsley had emphasized. It was not until Stewart took over the reins in 1990 and changed the title of the journal to *Integrative Physiological and Behavioral Science* that things got back on track. As you know, Paul, Stewart Wolf and many of the others I met through the Pavlovian Society were real giants and marvelous human beings. They made science and research a pure joy. Unfortunately, when Stewart ceased functioning as Editor and spiritual head of the Society the entire focus of the Society was diverted from its original goals to evolve into a far more narrowly focused reductionistic psychological society. You were the last President who aspired to hold up Horsley's original ideals of a broad intellectual and integrative society. After your tenure as President, the new directions and *zeitgeist* of the Society left Stewart, me, you and others with no option but to resign in protest.

Our Psychophysiologic Clinic And Laboratory

In 1967, after Horsley stepped down as Director of the Pavlovian Laboratory at The Johns Hopkins Medical School, I decided to accept a faculty position at the University of Pennsylvania Medical School where I began for the first time to conduct human research on hypnosis and its potential links to the recently emergent field of biofeedback. A series of studies I subsequently published on alpha wave biofeedback demonstrated that there was no validity to the prior claims that human beings could control their brain wave activity via operant conditioning. I also wrote several articles at that time asserting that biofeedback was little more than an epiphenomenon - a discovery that would subsequently come to shape my very different approach to the non-pharmacologic control of human blood pressure. After a year at Penn, Dr. Gantt enticed me to come back to Baltimore. I also owed my position as Professor and Director of the Psychophysiologic Clinic and laboratory at the University of Maryland School of Medicine to Horsley as well. It was there that I began to extend his observations on the "Effect of Person" to coronary care and shock trauma patients. Just as I had witnessed in his laboratory, the powerful impact of transient human interactions was quickly apparent. To get back to your inquiry, these observations naturally led to the question. **"What impact does the chronic absence of human relationships have on our health?"** In my first book *The Broken Heart* I was able to utilize the 1960 health census (the first census to ever include marital status) to show that those who lived alone had markedly higher death rates. At all ages, for all races and for both sexes, the death rates were two to ten times higher! I apologize for the rambling nature of this response but your question resurrected several strong memories and opinions and I appreciated the opportunity to get some of these off my chest and share them with your readers.

PJR: There is little doubt that *The Broken Heart* touched a very sensitive nerve. It was on the cover of *US World and News Report*, was featured as a centerfold in *People Magazine*, discussed in virtually every major magazine and newspaper and was subsequently translated into a dozen or more foreign languages. In it, you detailed your experiences with the powerful effects of human contact, particularly in coronary care and shock trauma units. You also illustrated **the devastating effects that lack of meaningful and close personal contact could have on health** and backed it up with statistical proof. How did physicians and the health care system react to all of this?

JJL: The publication of *The Broken Heart* proved to be a major turning point in my life. Prior to that, I was quite content to live my life strictly as a basic scientist, little interested in the practical or clinical implications of my own research observations. (Living under the tutelage of Horsley Gantt had introduced me to what was in essence a wonderful type of intellectual and relatively secluded academic life). I had originally intended to write this book primarily for cardiologists and it was Martin Kessler at Basic Books who helped shaped the larger implications surrounding issues of human loneliness and physical disease. It was only years later that I realized how fortunate I was to have such an extraordinary editor and my good luck to have met such an outstanding human being during a period when I was extremely naive about the publishing industry. Several other much larger publishing houses that also offered much larger advances would have published it but I suspect that the final version would have been quite different. In any event while writing *The Broken Heart* I was also preparing for what I perceived would be serious objections from many proponents of the mechanistic medical establishment. I was therefore shocked when not one, but two editorials appeared in *The Journal of The American Medical Association* strongly urging physicians to read my book. Even more surprising was the response from the public media. Highly favorable comments quickly appeared in virtually every major newspaper, magazine and television program, not only in the U.S. but all over the world. The message appeared to be universally accepted that loneliness was a major plague in our midst and I can't recall a single hostile response other than the first *ad hominem* attack in the *New York Times* Book Review section that referred to me as a "dangerous Billy Graham". I was devastated until four days later, Lehman Haupt's glowing review in the weekly edition made it "Book of the Times". I owe to Lehman's *New York Times* review the ultimate success of the book and strongly suspect that Martin Kessler had a great deal to do with getting it re-reviewed but could never prove this. As you noted, it clearly had struck a very deep nerve about problems that were difficult for me to fully appreciate because of my own relatively young age.

For the first time in my life I was also invited to lecture quite widely on the topic of loneliness and disease, not only in America but also in Europe, Asia and Australia. During these presentations I began to hear the same three questions over and over again. One was about mechanisms. People would routinely ask me, **"How does a person go from being lonely to developing hypertension or coronary heart disease, or various malignancies? What are the mechanisms?"**. The second was about treatment. **Presuming a person was lonely what could he or she do to prevent premature death?** And the third question was more philosophical; **why did loneliness appear to be growing in our midst, especially since we had developed ever increasingly sophisticated means of communicating with one another?**

Such mechanistic questions had intrigued me long before *The Broken Heart* was published, stirred in part by two quite disparate interests. The first came from Ken Gimbel, a cardiologist (later to become a very dear friend) who was in charge of the coronary care unit at the University of Maryland Hospital at that time. He had permitted a coterie of nurses, then seeking Masters degrees under my tutelage, to conduct a variety of research projects on the effects of human touch and human interactions on the

heart rate and heart rhythm of patients in the coronary care unit. Sue Thomas, who was the first nurse to conduct her own masters' thesis under my direction, had introduced me to the research needs and interests of nurses. She later became a dynamic and integral part of my interest in developing a program to treat issues related to loneliness in heart disease patients. Although Ken's influence was more tangential, it was equally crucial. I used to joke that in a previous life he must have been the Devil's Advocate in the Papal College of Cardinals. Whenever we would observe certain remarkable changes in heart rate or rhythm in coronary care patients to human touch, he would quickly challenge the observations. "How do you know" he would quip, "that the change was in response to touch? How do you know the patients did not move their muscles or change their breathing patterns? Frequently stymied by this line of questioning, I would respond by asking him how he would answer such "penetrating" questions, whereupon he would suggest the next research project. The elimination of all extraneous factors in response to human touch was finally settled by studying patients in our Shock Trauma unit who were paralyzed by d-tubo-curarine, artificially respired, often comatose, and rarely had significant heart disease. His good-natured kidding extended beyond the publication of *The Broken Heart* when he finally challenged me to "do something about the problem" with heart patients and human loneliness rather than merely speculate about these connections from a safe empirical and purely scientific distance.

PJR: How did this lead to your subsequent interest in seemingly unrelated items such as alexithymia, the effect of talking and communication on blood pressure, factors that influenced this or how caring for pets could influence your blood pressure and health as well as theirs? I recall that this last topic also attracted tremendous media interest that included two interviews on *60 Minutes*.

JJL: After *The Broken Heart* was published the central issue became one of mechanisms: how did one go from loneliness to coronary heart disease, hypertension as well as a large number of other physical diseases? (This was an era in the late seventies when the only way one could measure blood pressure was with a stethoscope or arterial line.) Our initial perspective was completely conventional, dominated by our assumptions that loneliness was just one additional "risk factor" in a variance equation of multiple risk factors for cardiovascular disease. Like diet and exercise we thought of loneliness as one additional risk factor, albeit a surprisingly strong one for coronary heart disease. (We were also quite mindful of the inherent limitations of the risk factors that had resulted from the Framingham Heart Study, and cognizant of several biases that were embedded in their publications).

My initial perspective, however, was that human loneliness could be best thought of as just an additional stressor contributing to heart disease, and could be understood within the framework of the "fight or flight" response outlined by Walter Cannon and the subsequent expansion of his research by Hans Selye's General Adaptation Syndrome. By the mid-seventies, it had become much more widely accepted that stress was linked to the development of heart disease and to hypertension. Stewart Wolf's 1955 book, *Life Stress and Essential Hypertension* had demonstrated convincingly that stress interviews could lead to major increases in blood pressure, blood viscosity, and major changes in renal blood flow. Before 1960 there were no effective anti-hypertensive medications and when Stewart wrote his book, radical sympathectomy was required to treat patients who would have otherwise surely have died from severe hypertension.

Franz Alexander, whom Freud referred to as his most brilliant student in the U.S., co-founded the journal *Psychosomatic Medicine* in 1939. The first paper that appeared in it was "Emotional Factors in Essential Hypertension", in which Alexander proposed that suppressed anger was a major factor in many cases. By 1960, his status as a

preeminent psychoanalyst was widely acknowledged by his peers, as was the link between stress and hypertension, so it is not surprising that many psychiatrists began to use Freudian analysis to treat hypertensive patients. Again and again it was shown that early developmental traumas could be linked to the subsequent development of adult hypertension. **Yet, despite the patient's presumed increased insight regarding possible developmental and other emotional contributors to this disease, blood pressure continued to rise as therapy "progressed". Studies showed that the higher the basal blood pressure, the more rapidly patients stopped their psychotherapy and our subsequent research suggested a possible explanation for this wise decision.**

By the mid-seventies it was generally acknowledged that psychotherapy not only did not help patients with hypertensive heart disease, but that it might make it worse. In one sense, providing insight seemed to hasten the development of hypertension. On the other hand, various non-verbal approaches did not seem to be very effective either. This was an era when "biofeedback" was in great vogue. From my own research and perspective on alpha-wave biofeedback, as well as my personal epistemological interests, I had previously vehemently asserted that biofeedback in the operant conditioning sense (that is, the voluntary control of the autonomic nervous system) made no empirical or epistemological sense whatsoever in several papers on this topic. Thus, when we first began to think about treating patients suffering from loneliness and heart disease, the only approach that made any sense at that time was Herb Benson's Relaxation Response. Benson's approach to regulating blood pressure relied heavily on focused meditation and deep, regular breathing in a quiet atmosphere. Although this and similar approaches appeared to offer promise, their overall effectiveness produced only minimal reductions in blood pressure. In addition, since the technique was solitary in nature, it did not seem to offer a way to get at the problems afflicting patients who were already chronically lonely.

PJR: Can you tell us a little about your Psychophysiological Clinic, the "green machine", your sabbatical in Ireland and your experience with Irish babies?

JJL: When I first opened the Psychophysiological Clinic at the University of Maryland Medical School with Herb Gross (a marvelous psychoanalyst and professor of psychiatry who subsequently became a life-long friend) we were aware of two problems. If we tried to get patients to talk about their problems and address their loneliness, as had been tried since the mid-thirties, it would only serve to drive up blood pressure. Catharsis also did not seem to be helpful. New technology would later allow me to witness striking examples in patients undergoing cardiac rehabilitation where catharsis seemed quite likely to be potentially harmful. In addition we had no way to measure blood pressure on a continual basis as Stewart Wolf had accomplished, when he catheterized his patients and confirmed that stressful topics would cause blood pressure to rise. Almost as if fate itself was guiding our way, the very first patient sent to our clinic was a prominent University Professor. He was 55 years of age, single, and was suffering from chronic hypertension that had been poorly controlled with medications. Four years earlier, he had suffered a myocardial infarction and was now experiencing episodes of transient ischemia. Just prior to coming to our clinic, he also reported having increasing attacks of dizziness while lecturing to students.

All in all he appeared to be an ambulatory statistic from *The Broken Heart*, except for the fact that he denied he was lonely. Our approach was dictated by extreme caution, oriented towards Hippocrates' golden principle of *primum non nocere* ("First, do no harm"). Thus, I tried to avoid discussing issues that appeared to be emotionally provocative. If he raised such issues I would instruct him to be quiet, breathe deeply,

while a nurse took his pressure. After denying his loneliness he then began to discuss the problems he was facing in trying to date a recently divorced woman who also taught at the University. As we gave him advice and assisted in other ways to help him in his attempts to strengthen his liaison with the object of his affection, his blood pressure started to slowly fall back down to normotensive levels. **I had helped the professor to lower his blood pressure by helping him to date!** Moreover, the pressure reductions were ten times greater than those that had been reported by Herb Benson. **Yet, I had no clue as to what precisely had contributed to this surprising success.**

There are certain moments when technological advances are so dramatic that they open up worlds that have never been seen before. The Hubble telescope, for example, opened up dimensions of the universe that could never have been seen before that magnificent instrument was launched into space. The same is true of the computerized, automated blood pressure machine. Without that marvelous device it would have been far more difficult to decode what I was later able to conceive as "The Language of the Heart". Shortly after publication of *The Broken Heart* I had the good fortune to meet Dr. Michael Ramsey. It was 1978 and I had been invited to deliver a keynote address to several thousand nurses at the Annual convention of Critical Care Nurses in St. Louis. During a noontime break I met Dr. Ramsey in the exhibition hall where he was demonstrating his recent technological breakthrough; the Dinamap computerized instrument that could reliably and automatically measure blood pressure and heart rate on a minute-to-minute basis. While this "green machine" would soon find its way into virtually every surgical suite in the world, at that time it was just being acquired by a division of Johnson and Johnson. After chatting for an hour or so about other potential uses to help treat hypertensive individuals without drugs, Dr. Ramsey was kind enough to donate several of his Dinamap devices to our Psychophysiological Clinic.

He had casually mentioned during our conversations that he was having trouble marketing this to doctors because blood pressures changed so rapidly that the average clinician assumed the machine was not reliable. Prior to the development of the Dinamap, blood pressure was recorded with a stethoscope and the average physician had come to assume it only changed slowly over time rather than rapidly within a minute. I assured him that my experience monitoring blood pressure in dogs with indwelling catheters had made it readily apparent that blood pressure could indeed change very quickly and often quite dramatically. Yet, when I started testing this new way of measuring it in patients when they began speaking, I was similarly stunned to see the prompt and powerful surges in blood pressure. These increases were so great that we also assumed the machine was faulty and took it to the cardiac catheter laboratory to compare and cross correlate its results with those obtained from indwelling catheters. The Dinamap proved to be remarkably accurate.

We quickly tested both hypertensive as well as normotensive patients and found that everyone's BP promptly rose as soon as they started to speak. The degree of elevation was between ten and fifty percent within thirty seconds and we also observed that the higher the resting BP the more it increased when they talked. The correlation was over .92. **No antihypertensive drug was able to block these blood pressure increases and some made it worse.** Equally intriguing was the fact that this communicative response primarily affected blood pressure since there was no significant change in heart rate. (A similar phenomenon occurred in deaf mutes when they tried to communicate by signing but not when they moved their hands in a meaningless fashion.)

I had planned to take a six-month sabbatical leave in Ireland in 1978 after *The Broken Heart* appeared but was faced with a peculiar and perplexing paradox. Since I had asserted that loneliness was a major contributor to cardiovascular disease and later

found that talking elicited major increases in blood pressure, **it appeared that I was now simultaneously claiming that loneliness was a major health hazard but that talking to someone might also be hazardous.** It would take several years for me to eventually realize that **those whose pressures rose the greatest were the very same individuals who had the most difficulty in communicating openly and honestly and were therefore more likely to become isolated and lonely.**

When we first observed the sharp rise in pressure while speaking, we immediately began to suspect that it cast doubt on epidemiological studies linking BP to heart disease. It was obvious that blood pressures taken with a stethoscope would be influenced by who had been talking just before the measurement. We also began to wonder about the mechanisms contributing to these sudden increases. We assumed that the major cause had to be a sudden increase in peripheral resistance, which we were able to prove in subsequent research studies. What made our findings even more intriguing was that **unlike the "fight or flight" response, heart rate did not rise significantly while talking whereas blood pressure increased dramatically.**

Our subsequent studies showed that other physiological mechanisms contributed to these pressure increases, including increased intrapleural pressure, sudden reduction in respiration patterns, and greater left ventricular ejectile force. However, the most important was the abrupt rise in peripheral resistance, which was of particular interest since **I had seen several patients with severe premature coronary heart disease despite the fact that they had exercised regularly all of their adult life.** It seemed clear to me that exercise was designed to increase stroke volume and that it was always accompanied by peripheral vasodilatation. It also became apparent that certain individuals with excellent stroke volume as a result of regular exercise could still show extraordinary rises in blood pressure (via sudden increases in peripheral resistance) when they had difficulty communicating. Such repeated pressure surges were so dramatic that it was highly likely that they would damage the inner surface of coronary arteries resulting in sites that favored the formation of atherosclerotic plaque. It thus seemed highly unlikely to me that one could exercise for their cardiovascular health and obtain any benefit if he or she were also arguing with their mates. I began to speculate that there were two different set and setting modes that determined cardiovascular health; one involving exercise physiology, the other involving what we later came to call "communicative physiology".

My Sabbatical In Ireland

Although I was eager to explore this I was also intent on taking my sabbatical in Ireland to oversee the restoration of my mother-in-law's home in the tiny town of Culdaff, on the Inishowen Peninsula. That remote peninsula was also the birthplace of both of my own parents and I had a keen desire to rediscover my roots. I also thought about examining some patrons of a local Irish pub, since I was quite certain that alcohol consumption would help reduce these pressure surges while talking. I reasoned that since alcohol is a vasodilator it should act to help reduce vasoconstriction while talking and thus enhance communication by reducing the workload on the cardiovascular system. I never did do this study since there was no way to hook up the Dinamap in a barroom in the boondocks of this backwoods area. In addition, my Irish compatriots would not permit this technological invasion into their last oasis of cultural sanity.

While recognizing that it would not be possible to monitor the effects of alcohol consumption on communicative blood pressure surges, a series of circuitous accidents led me to investigate the blood pressures of newborn infants in an Irish Hospital in Dublin. Prior to the development of automated methods to measure blood pressure it was not possible to hear the muffled Korotkoff sounds in a newborn baby. Within a few weeks I

began to regularly observe with the Dinamap that when a newborn begins to cry, blood pressure quickly increases, frequently doubling within 15-30 seconds. As in Baltimore, I concluded that this was due to the physiological stress of crying and this was merely another example of how stress could elevate blood pressure.

This perspective changed dramatically one miserable, cold, wind-swept rainy day (it had been raining continuously for four weeks when I arrived in Ireland in April of that year) when it suddenly occurred to me that those babies were really doubling their blood pressures. I reflected on my own propensity to blush quite easily, and the thought began to enter my awareness that these blood pressure surges, especially in adult hypertensive patients, could be the counterpart of a baby's cry. I thought especially about the professor whose blood pressure had fallen over 50 mm/hg without our ability to explain what was responsible for this. I began to reason that perhaps, like a mother, we had heard the professor's cries by unwittingly reacting to his pressure surges as a hidden form of crying. In a sense, **I started to suspect we had "mothered" his pressure down to normal by simply caring for him.** Similarly, it suddenly became obvious that **my own blushing was in fact a "vascular message" that displayed my discomfort to others. It was not just a phenomenon of vasodilatation but rather had real meaning because it could be seen by others who might respond to it in some appropriate fashion.** I also began to realize the enormous influence of René Descartes, who had convinced almost everyone to uncritically assume that the human body was essentially nothing more than a collection of mechanisms designed for self-preservation and had no connection with the mind, which was beyond man's ken. A heart that spoke was in fact far more interesting than a heart that was a mere pump! While it was clear that a great deal more needed to be understood mechanistically about the links between talking and blood pressure increases, such surges represented a hidden analogue of my own blushing and a concealed form of caring that could also not be felt or seen by anyone. Even before leaving Ireland at the end of my sabbatical it was clear that there was a "Language of the Heart" and that the human body was inextricably involved in all dialogue. It also became equally clear that many instances of premature disease could be the result of a breakdown in dialogue and communication due to a failure to reveal or decode the language of one's own heart or the hearts of others.

PJR: I would like to go back to my previous question dealing with how alexithymia, various factors that influenced the degree of blood pressure rise while talking or caring for pets could influence your blood pressure and health as well as theirs. (I recall that this last topic also attracted tremendous media interest that included two interviews on *60 Minutes*.) How did these and your other research studies help you decode *The Language of the Heart*, which was the title of your next book?

Meeting Paul Rosch

JJL: Returning from Ireland with this new perspective on the implications of the communicative blood pressure surges I had observed, our research team made an all out effort on several fronts simultaneously. We had demonstrated that the higher the resting blood pressure the more it increased when talking. We later identified other seemingly diverse influences that could consistently magnify or diminish such surges in normotensive as well as hypertensive individuals. How these varied effects were achieved or could be taken advantage of to benefit patients was not clear and mandated several lines of investigation. First we needed to delineate what physiological mechanisms were contributing to these sudden surges. Second we needed to grasp what dimensions of the broad spectrum of human communication influenced the magnitude of these changes. And finally we needed to utilize this new information to develop an entirely new approach to helping patients suffering from a variety of stress/communicative diseases.

It was shortly after returning to the States that I first met you, a chance encounter that was destined to have a profound and both clinically and personally very meaningful influence on all of my future work. I was lecturing at a conference for physical fitness personnel in Boca Raton in early 1979, demonstrating the way blood pressure rapidly increases when a person speaks. You were also one of the featured speakers and I still clearly remember the very first thing you said to me after that talk, "That was among the most outrageous but interesting talks I have ever attended." Almost as if I had been waiting to meet someone like you all of my life - an internist educated in the classical sense, a clinician with a stunning knowledge of the links between stress and disease, and a man I would forever affectionately call my "Yeshiva Bucher", in its meaning as a true scholar. We talked long into that night. For the first time I met a student of Hans Selye and in turn introduced him to one of Ivan Pavlov's last living students, and by proxy his academic grandchild.

You seemed to grasp the clinical implications of these communicative/pressure surges even more clearly than I did. You also grasped the need to present this information to patients in a graphic way that would help them get acquainted with their own hidden feelings and concealed stresses while communicating. We talked about the concept of "alexithymia" - a word used by investigators at the Massachusetts General Hospital to describe the fact that many patients suffering from psychophysiological diseases had no words for their feelings. Others had referred to this large class of patients as "emotional illiterates", patients who had no insight into their own feelings. Our computer technology now allowed us to understand that many patients simply could not sense their major blood pressure surges, and thus had no way to "feel their own feelings". The need for graphic technologies to demonstrate this was clear and you made a very substantial contribution to our research out of your own pocket. It was the first support that we had ever received for our work and it came at a very crucial time in my academic career. Your enthusiasm for our discoveries, and your subsequent involvement in many of our future studies was the *elan vital* that forged our research efforts for the next two decades.

The period from 1979 to 1988 was one of intensive research. At any one time there were at least a dozen studies being conducted on various dimensions of the links between blood pressure and talking. A series of physiological studies were carried out to define the primary mechanisms contributing to the magnitude of the elevations while talking. In addition to those previously mentioned we also observed the importance of renal function. With your help we also began to study patients who had undergone heart transplants. Since their hearts were denervated, this allowed us to further demonstrate the neurohumoral contributions to communicative blood pressure increases. We later demonstrated that heart transplant patients could utilize the information provided by our studies to utilize a new treatment approach that could significantly lower their blood pressure, reduce reliance on medications, and even lower heart rate over time!

The links between pressure increases and peripheral vasoconstriction were especially intriguing because it helped to explain why many people who exercised regularly might nevertheless be vulnerable to developing premature coronary heart disease. As noted previously, it quickly became apparent that individuals whose physical condition was excellent but who had trouble communicating exhibited far greater increases in blood pressure than others when they began to talk, especially about emotionally evocative topics. I am getting ahead of myself but in my third book, *A Cry Unheard*, I discussed why Jim Fixx, the original guru of running, died prematurely of a myocardial infarction. As I noted, he may truly have personified "The loneliness of the long distance runner", a phrase that became popular because of a 1962 movie with that title. In other studies **we also showed that virtually all patients with documented coronary heart disease**

(even on multiple antihypertensive drugs) exhibit far greater increases while talking than during maximal treadmill exercise. This information was also used to develop a new clinical way to help patients to improve their overall cardiovascular health during cardiovascular rehabilitation.

PJR: I have a very vivid recollection of the first time we met and Marguerite recently reminded me about how I brought you to our Florida home where you played the piano until the wee hours of the morning and sang obscure Irish ballads. You brought back a flood of other memories of my subsequent appointment as Clinical Professor of Medicine In Psychiatry at the University of Maryland and **the apparent paradox that beta blockers made blood pressure surges while talking worse** and how we finally figured out the explanation for this. Jim Fixx, the paragon of cardiovascular fitness whose *Complete Book of Running* started the 1970's jogging craze, died suddenly at the age of 52 while jogging alone on a remote Vermont road. His autopsy showed that one of his coronary arteries was 99% clogged, another was 80% obstructed, and a third was 70% blocked and that he had three other apparently silent heart attacks in the months or weeks prior to his death. He had just gone through his second divorce and was indeed an example of a lonely person as well as a lonely long distance runner according to several accounts. However, as I feared, we have run out of space and will have to continue this fascinating trip down memory lane in our next Newsletter – so stay tuned

Books by James J. Lynch

The Broken Heart: The Medical Consequences of Loneliness (New York: Basic Books, 1977)

ISBN: 0-465-00772-4 (cloth)

ISBN: 0-465-00771-6 (paper)

The Language of the Heart: The Body's Response to Human Dialogue (New York: Basic Books, 1985)

ISBN: 0-465-03795-X

A Cry Unheard: New Insights into the Medical Consequences of Loneliness (Maryland: Bancroft Press, 2000)

ISBN: 1-890862-11-8

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