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**Title**

In Memoriam

**Permalink**

<https://escholarship.org/uc/item/0t0857rg>

**Journal**

Psychophysiology, 51(11)

**ISSN**

0048-5772

**Author**

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**Publication Date**

2014-11-01

**DOI**

10.1111/psyp.12338

Peer reviewed

# In Memoriam

## Bernard Tursky (1918–2012)

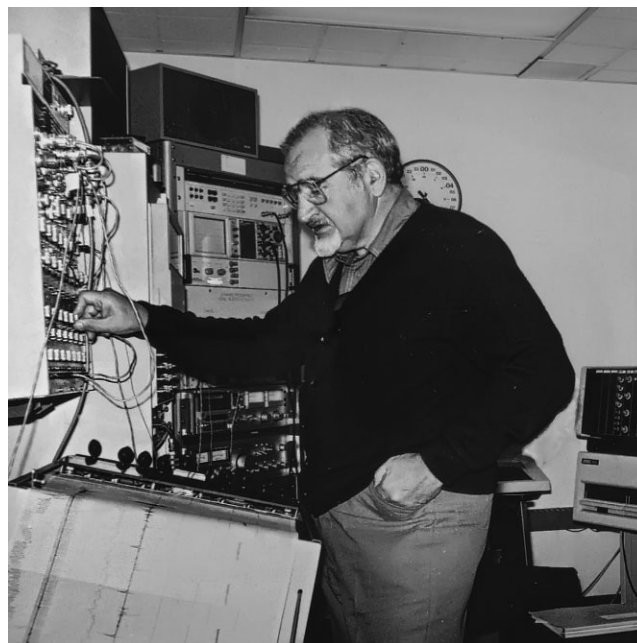
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Psychophysiology and our Society lost one of its original greats when Bernard Tursky passed away on September 13, 2012 at the age of 93. Bernard Tursky was an academic trail blazer and pioneer *extraordinaire*. Raised in New York City, Bernard immigrated to the U.S. with his grandparents and brothers at the age of three. Circumstances demanded that he cease his *formal* education after the eighth grade in order to support his family. Bernie or “*Professor*” as I affectionately referred to him represented as close an embodiment of the self-taught “Renaissance Man” I have ever met or will likely ever come across again. To enter Bernie’s office was to enter a veritable library of classic and contemporary texts, and reference manuals on topics such as electrical engineering, classic psychology, political science, medical sciences, physiology, psychiatry, systems theory, and mathematics. His academic career began as a technical engineer at MIT, and as his reputation grew as an ingenious developer of laboratory equipment and programming, he was recruited by the Massachusetts Mental Health Center. Remarkably, Bernie was to become the only faculty member in the State University of New York system to hold the title of Full Professor in three separate departments; Political Science, Psychology, and Psychiatry and Behavioral Science at Stony Brook University.

Bernie’s academic career was characterized by the use of elegant procedures, meticulous methods, and clever experimental designs to address fundamental scientific questions in areas ranging from human pain perception and clinical psychophysiology to political psychology. His work showed a fastidiousness not often seen today, and Bernie was, at the same time, a visionary. In 1965 David Shapiro convinced David McClelland to offer Bernie an appointment in the Department of Social Relations at Harvard where Bernie and David Shapiro built a state-of-the-art psychophysiology laboratory and together with Andrew Crider, and Gary Schwartz developed and taught what perhaps was the first seminar/lab courses devoted entirely to psychophysiological concepts, methods, and applications. Among the notable students who took the course or were involved in the course’s laboratory were Nancy Adler, Iris Bell, Richard Davidson, John Kabat-Zinn, and Alan Sirota. This training effort eventually spawned a NIH-sponsored summer training institute in Psychophysiology at Harvard Medical School that offered formal training to young scientists. It was at this 1972 summer institute that Bernie became acquainted with Milton Lodge a political scientist from SUNY Stony Brook who soon after convinced him to head a comprehensive behavioral research laboratory as a Professor of Political Science. Eventually, Bernie was to become Chair of the SUNY Stony Brook’s Department of Political Science, a position he held until his retirement in 1985.

Bernie, like several of our Society’s founding members, designed his own experimental apparatus and created the equip-



ment necessary to study human pain perception in a standardized fashion. This pioneering program of research conducted in collaboration with Peter Watson and Donald O’Connell focused on the development of a reliable laboratory pain stimulus delivery system in the form of a constant-current stimulator and the Tursky concentric electrode capable of quantifying and precisely specifying the parameters of painful stimuli used in experimental pain studies. With his meticulous and elegant techniques Bernie systematically studied the electrical parameters necessary for stable repeated delivery of painful stimuli as well as the local and more general physiological responses associated with these stimuli. The development of the constant-current stimulator along with the Tursky concentric electrode represented, at the time, major methodological advances in the area of human pain perception. Parenthetically, one of the original constant-current stimulator units and concentric electrodes Bernie built remain in active use in my laboratory today and is affectionately known by my students as the “*Dragon Lady*.”

With these tools in his armamentarium, Bernie went on to study psychophysiological aspects of pain including the role of attention and control, as well as culture, in pain perception. In what were to become seminal papers, Bernie and Richard Sternbach demonstrated substantial ethnic differences in pain thresholds/tolerance levels and psychophysiological pain responses. Another significant contribution of Bernie’s to the field of human pain research

was his conceptualization of pain as being comprised of intensity, unpleasantness, and sensory components as opposed to varying only along a solitary intensity dimension. This reformulation was to form an important basis of the Tursky Pain Perception Profile he advocated as early as his Presidential Address to SPR in 1973 and expanded upon in a chapter of a volume he edited with along Matisyohu Weisenberg in 1976. Of historical note was that, at around the same time, Ronald Melzack had proposed a similar multidimensional measurement model for pain and in 1975 published the now well-known Melzack Pain Questionnaire (MPQ) which had the advantage of being much simpler to administer in clinical contexts. Over time the MPQ became synonymous with multi-dimensional pain assessment whereas the Pain Perception Profile did not achieve widespread adoption.

Another legacy of Bernie's unique ability to bridge the gap between principles and methods of engineering and psychology was his highly productive collaborations with David Shapiro and Gary E. Schwartz. Together in the late 1960's and early 70's they developed a method of tracking systolic and diastolic blood pressure on a beat-to-beat basis without the use of an indwelling arterial catheter. This technological and methodological feat set the stage for a seminal set of studies, two of which were published in *Science*, in which Shapiro, Schwartz, and Tursky demonstrated the operant control of blood pressure via what became known as biofeedback processes. Though there were previous published accounts of operant control of autonomic function, these seminal blood pressure studies were among the first to clearly demonstrate the potential clinical utility of biofeedback in the treatment of chronic disease and helped set the stage for the emergence of areas that came to be known as behavioral medicine and clinical psychophysiology.

Bernie was also capable of taking leaps of faith in research. What comes to mind was a study that Bernie was involved in together with Lee Birk, David Shapiro, and Andrew Crider in which they sought to demonstrate that operant control of autonomic functions was possible in humans *even under conditions of partial curare paralysis*. The experiment was a case study (Birk was the subject) involving operant conditioning of electrodermal responses under non-drug and curare conditions. Their findings supported the notion that operant control of autonomic function was possible with little to no mediation via the somatic nervous system.

The hallmark of Bernie's prodigious and impactful research career was his great inventiveness and imagination and how he sought to apply psychophysiological principles and general systems theory to transdisciplinary areas of inquiry. Particularly apropos was John Walke's characterization of Bernie as: "*A scientific missionary in political science land trying to bring scientific light to a discipline conceptually confused and methodologically naive in its premises about human behavior.*"

Bernie Tursky profoundly influenced the careers of a number of colleagues and students including other luminaries of psychophysiology Gary E. Schwartz and David Shapiro; Donald

O'Connell, Milton Greenblatt and Peter Watson from his days at Massachusetts Mental Health Center and Harvard University; as well as Milton Lodge, Richard Friedman, and Leonard White at Stony Brook University. His laboratory produced a number of doctoral and post-doctoral students including Kenneth Price, Sam Goldberger, Andrew Elmore, Martin Kluger, James Papillo, Kathleen Foley, and myself who went on to contribute in the areas of pain perception, clinical biofeedback, cardiovascular psychophysiology, and clinical health psychology. Bernie was a caring mentor who imparted upon his students the great importance of rigorous experimental design and procedures.

Bernie was deeply committed to the growth and advancement of psychophysiology as a discipline/field. As the record shows, he vigorously provided new laboratory tools and methods for investigators to employ, he sought to provide young scientists with formal training in psychophysiology, and he provided service to our field as SPR's 13<sup>th</sup> President between 1972 and 1973.

My first experience with Bernie was as a sophomore undergraduate student at Stony Brook University when I approached him about borrowing his Beckman Dynagraph unit for an independent study project. Bernie briefly laughed (maybe more than briefly) and proceeded to lay out a number of conditions that included demonstrating excellence in his psychophysiology course, manually scoring the electrodermal recordings contained in a six-foot pile of polygraph paper and finally assisting him with data collection in a clinical trial of the relative efficacies of temporal artery pulse volume and finger temperature biofeedback training for migraine. At the end of my "apprenticeship" I was smitten by the psychophysiological research being performed in Bernie's lab and after completing my Bachelors I remained at Stony Brook to pursue my doctoral studies with him.

His tireless devotion to scientific pursuits and mentoring students notwithstanding, Bernie was even more devoted to his family. He and his wife Julia had a son Steve and a granddaughter Elayna who were their pride and joy. Anyone who knew Bernie and Julia, his wife of 62 years, recognized the extraordinary loving relationship they enjoyed. Bernie frequently described Julia as his "better half" and the two were inseparable. They were true life partners who loved to golf, spend summers in their New Hampshire lakefront house he constructed with his own hands, and just be with each other. Julia's passing in 2007 was a major blow to Bernie—one from which he had much difficulty bouncing back from. But eventually bounce back he did and he continued his golf game with his brother Norman and took much joy from his granddaughter Elayna.

Bernie was a truly remarkable scientist, capable of meticulous procedural rigor, scientifically creative, and imaginative. He had a unique ability to envision creative applications of emerging new technologies and apply them to fundamental questions in psychophysiology. This quality, which Gary E. Schwartz referred to as the "*Tursky Tradition*" has guided my academic career and those of his other students and colleagues.

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