

In Memoriam

Aaron Smith, Ph.D. 1916–1998

Aaron Smith died on June 13, 1998. He was a past president and founding member of the International Neuropsychological Society, Charter Member and Diplomat of the American Board of Clinical Neuropsychology, Editor of the *International Journal of Neuroscience* and Professor Emeritus of the University of Michigan. He also developed the Symbol Digit Modalities Test and the Michigan Neuropsychological Battery. In both cases he employed a rationale which permitted differentiation of impairments in higher cognitive functions that the tests were designed to measure from deficits in lower sensory input and motor output modalities which were required to carry out the tests.

Aaron Smith was born in New York City in 1916, a child of the depression. Before coming to neuropsychology, he earned a living as a playwright, semi-pro basketball player, and a radio operator for TWA. It was while flying for TWA and attending classes at City College with the goal of becoming a psychotherapist that he met Kurt Goldstein. Working under Goldstein, Aaron developed an appreciation for the dynamic approach to brain function reflected in the work of Hughlings Jackson, the founder of modern neurology. Aaron immersed himself in the literature. He dug out long neglected gems, including a long list of factors that determine outcome of brain injury and a number of important principles underlying organization, disorganization and reorganization of brain function. Aaron applied these concepts in his doctoral dissertation, a long-term follow-up study of brain operated schizophrenics. These patients showed significant cognitive declines which varied according to the time since surgery, age of the patient and locus of the lesion within the frontal lobes. Because the lobotomy procedure was then enjoying great popularity, and was considered by many to be the great new cure for schizophrenia, an M.D. involved in the study suggested that Aaron not publish the findings. Aaron did publish, and of course it later became obvious that lobotomy had been another unfortunate chapter in the history of science.

After earning his Ph.D. at Yeshiva University in New York, Aaron completed a postdoctoral internship with Ritchie Russell at Oxford University. Working with Russell, Aaron published findings confirming the utility of post-traumatic amnesia (PTA) as an index of severity of head injury. However, he also noted that duration of PTA was not related to severity of some of the symptoms comprising the post-traumatic syndrome. At that time he concluded that symptoms such as headaches must therefore be “psychogenic”.



However, after 25 years of studying the head injury literature and personally examining hundreds of head injured patients, Aaron discarded his earlier view, and came to the conclusion that these symptoms were a consequence of brain injury.

In the early 1960s, the growing interest in neuropsychology prompted Dr. Ray Denerll to ask Aaron to organize a neuropsychology interest group at an upcoming APA convention. Having recently received a large number of domestic and foreign reprint requests for his paper “Ambiguities in studies and concepts of brain damage and organicity,” Aaron instead suggested, and Dr. Denerll agreed, to begin writing colleagues in the United States and around the world inviting them to join in the formation of an International Neuropsychological Society. Aaron later edited and published the INS bulletin for over a dozen years with the help of his assistant, Margaret Benkert.

Aaron is perhaps best known for his long-term studies of adults and children with hemispherectomy. His research demonstrated that age at operation and condition of the residual hemisphere were two of the most important factors determining the outcome of this drastic neurosurgical procedure. Two of Aaron’s more remarkable case studies were carried

out on two adult patients operated on by Dr. Charles Burk-lund at the University of Nebraska. Dr. Joe Bogen, who was introducing commissurotomy as a less drastic alternative to hemispherectomy for treating intractable seizures, visited Aaron in Omaha in 1966 in order to examine one of the patients. Prior to the visit, Bogen had disagreed with Sperry, who was attempting to disprove Geschwind's proclamation that the right hemisphere was "word deaf and word blind." Bogen was unhappy with Sperry's formulation, partly because it was based on only two split brain patients with early brain damage. Bogen, steeped in the standard teachings of neurology, had therefore asked to have his name removed from Sperry and Gazzaniga's 1965 *Brain* paper concerning language. Aaron enjoyed recounting how Bogen, after personally observing the remarkable degree of language function in the left hemispherectomy patient EC, complained, "You SOB, do you realize what you've done to 20 years of neurosurgical training?" Aaron was not always appreciated for pointing out that the patient, the one authority that could never be wrong, did not necessarily agree with his colleague's favorite theories and models of brain function. For this he was sometimes accused of "muddying the waters." And like Jackson, who pointed out to Broca that to localize a lesion that destroys speech and to localize speech were two very different things, Aaron's exhortations went unheeded by some. However, Bogen invited Aaron to come to Los Angeles to examine his series of split brain patients. Collaborating with Aaron's student Alfonso Campbell, they reported on four patients with pre-existing right hemisphere damage who all showed selective and persisting post-commissurotomy declines on nonverbal tests. These findings pointed to the focally damaged brain's capacity to reorganize non-verbal functions using mechanisms in the left hemisphere via the corpus callosum.

Aaron established a Neuropsychological Laboratory at the University of Michigan in 1967, where he continued his clinical work, research and teaching. He typically began each new class by telling his story about the medical school dean's annual commencement speech. For many years the dean had given the same well received lecture, in which he told the new doctors that they were unique in the world, the only ones who had the knowledge and training to heal the sick and cure disease. He would always inspire a thunderous applause at the conclusion by exhorting the graduating class to go forth and eliminate the suffering of mankind. However, on this occasion, he threw aside his notes and began "I can't give my old speech anymore. I've got to tell it like it is and the news isn't good. We now know that half of everything we taught you is wrong. That's bad, isn't it? But what's worse is, we don't know which half." With this story, Aaron conveyed to the class an appreciation of the inherent limitations of all textbooks and the need for a

healthy skepticism when reading and evaluating the current literature.

Shortly after I began my studies at the University of Michigan with Aaron in 1977, I attended a talk given by a very well known neuropsychologist. At the conclusion of the lecture, questions were invited. A speech and language pathologist asked why, compared to the number of children, there seemed to be so few adults with traumatic aphasia. The lecturer did not have a good answer. I returned to the laboratory and asked Aaron why traumatic aphasia was rare in adults. He immediately replied, "The adults don't survive." When I asked him to explain, he pointed out that because language functions are relatively resistant to the diffuse damage of head injury, the damage had to be very severe in order to produce aphasia. While the younger brain could survive and show some degree of recovery after severe trauma, the less resilient brain of the older patient typically would not survive an injury severe enough to produce aphasia. Aaron simply applied the factors determining outcome of brain damage and basic principles underlying organization, disorganization and reorganization of human brain function to explain a finding that at first glance seemed to lack a logical foundation.

Aaron always emphasized the critical importance of clinical data that could only be obtained by direct examination of the patient. He pointed out that in many cases, clinical observation could provide more important information about the patient than the objective test scores. Therefore, he always insisted that his students administer the tests themselves. He also encouraged students to read the great Russian writers like Chekhov and Pushkin, whom he considered to be among the best observers of human psychological processes. Aaron's successful integration of clinical and objective dimensions of the neuropsychological examination in a sense completed a full circle return to his beginning days as a psychotherapist when he first encountered and was frustrated by the limits of clinical psychology and psychotherapy. His love of knowledge, intense curiosity, boundless energy, brutal honesty and openness were lively elements of a larger than life and often mercurial persona. As a self-appointed voice of conscience for our profession, he was a rare commodity. His grasp of the literature was approached by only a few. He instigated for change, inspired his students, and never hesitated to confront and fight injustices. He was a vocal, eloquent and effective force furthering the field of neuropsychology. As is the case with all people of vision, he angered some, but gained the love and acceptance of his patients, associates and friends to whom he gave so much. He lived a good life.

Ennis Berker
Western Michigan University