

William Kaye Estes as Mentor, Colleague, and Friend

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In 1975, at a dinner held at the Meetings of the Psychonomic Society in honor of the 25th anniversary of the publication of Bill Estes's "Towards a statistical theory of learning," I described Bill as a pure accumulator of research interests. He has been able, somehow, to move his research focus over the years from mechanisms of reinforcement and punishment in animals, to human verbal learning and memory, to visual information processing, and to problems of choice and categorization without really abandoning any of those interests along the way. Other speakers at the 1975 dinner stressed his equally remarkable ability to anticipate new developments in a given field.

How are we to understand how one person could be so flexible and innovative while also maintaining a striking continuity in the style and standards that characterize his research? Part of the answer, I think, was provided by Bill himself at that 1975 dinner. David LaBerge had entertained those present with a story about Bill's famous long pauses in one-on-one conversations, saying that he had once got up the courage to ask Bill to explain those long response latencies. He said he outlined what seemed to be the reasonable hypotheses—methodical central processing, rapid processing coupled with excessive editing, rapid processing leading to a conclusion that a given comment or question did not merit a timely reply, and so forth—and asked Bill which was correct. David reported that Bill's response latency to that question had yet to be recorded.

When it was Bill's turn to speak that evening, he commented on the fact that a number of people had referred to his long pauses and that people had also wondered how he had been so able to anticipate important new directions in the field. He said he was prepared to answer both questions, which he did in a singularly clever and gracious fashion. Looking out over the collection of his students, colleagues, and friends in attendance, he said that there was one answer to both questions, "During those pauses, I have been listening to you."

In a very real sense, I *do* think Bill Estes has been listening to us. We, his students, colleagues, and postdocs, have brought our interests to Bill. Those interests have sometimes been triggered by Bill's own work, but sometimes not. He has been willing to listen to us in either case, and he has helped to shape the quality, rigor, and direction of our work. We, in turn, have had the chance to influence Bill Estes. Did Bill, for example, trigger the interest of Doug Medin and Ed Smith in categorization, or was it the other way around? I think the latter

was the primary direction of influence. He has done us all the honor of thinking that we may have a good idea—that our new problem may be important and interesting, or that we may have seen a new way to approach an old problem.

Bill has been able to work effectively with all of us, males and females, younger and older, those of us who won't shut up and those of us who are painfully shy, the modelers and the empiricists. He has put his stamp on all of us, but that stamp has nothing to do with telling us what to study. He has never pressured his students to adopt his interests or theories. Saying that one is an Estes student does not have much value as a predictor of one's research domain. His stamp has to do with a commitment to the experimental method, a commitment to rigorous theorizing, and a commitment to scholarship.

Bill's flexibility and ability to listen have kept him young in spirit and in tune with current events. People of his age tend, I have observed, to get together with their cronies at meetings like Psychonomics. No doubt we, too, not that many years from now, will be eating dinner together and grumbling that graduate students are not like they used to be, and that in one way or another the field has gone to hell. Not Bill. He and Kay are surrounded by younger people at such meetings. The "Estes Dinner," which has become a tradition at Psychonomics, has nearly gotten out of hand; getting reservations for a group of that size has become difficult.

In the interests of providing a completely veridical picture, it should be emphasized that Bill is not always the easiest person in the world with whom to work. A serious problem for many of us is that Bill is an impossible model. There is such a thing as having *too* much respect for a person—in the sense that it can impede the natural give and take in the collaborative process. On any of a number of dimensions, it seems hopeless to set one's sights on matching Bill's accomplishments—as a scientist, as a writer, and as a human being. I remember as a graduate student feeling depressed at the ease with which Bill seemed able to improve my laboriously-generated scientific prose. I despaired of ever becoming a good writer. One particularly devastating instance took place when Bill was working over a draft of my dissertation. On one page, where I had labored to clarify a complex point, Bill drew one of his faint pencil lines from the middle of a sentence in the first paragraph—through the entire second paragraph—to the middle of a sentence in the third paragraph, and he replaced everything in between with the single word "provide."

Bill's contributions as an editor, of course, would stand by themselves as an impressive career achievement for most people. In addition to editing books such as the *Handbook of Learning and Cognitive Processes* series, he has edited the *Journal of Comparative and Physiological Psychology*, *The Psychological Review*, and—at the present time—*Psychological Science*. At the 1975 dinner, David Grant read a series of devastatingly funny excerpts from some of Bill's reviews of manuscripts submitted to the *Journal of Experimental Psychology* while Grant was Editor. They were devastating and funny because such damning

comments were stated in such a charitable and gentle fashion (e.g., "In work submitted to this journal, it is customary for there to be an independent variable . . ."). John Swets and myself were recipients of a more recent example of Bill's gentle phrasing: "In the paragraphs following the first one we certainly run into a stretch of rather dry reading." Note that, as stated, Bill does not blame us for that deadly stretch of prose; rather, it is as though he is saying that we have this common problem—that we are all in the same boat. Given that John Swets had drafted that particular section, I, of course, thought Bill's comment was more humorous than John did.

A final unusual aspect of working with Bill that merits mention is that he is impossible to interrupt. Some of his response latencies may set records, but once he is launched on a point or comment he wants to make he has unusual inertia. Even Pat Suppes, in their joint seminars at Stanford, was typically unable to break in once Bill got going. In a famous incident in the Friday-afternoon research talks at Ventura Hall, Karl Pribram did manage to break in, but, as it turned out, at his own peril. A student working with Karl had presented some results that seemed to defy interpretation. Bill started to put forth a possible interpretation by saying, "suppose there are a series of little drawers in the brain . . .," at which point Karl interjected, "I have never seen any drawers in there." Without missing a beat, Bill said, "They're very small" and continued with his argument.

It is my goal in these remarks to speak not only for myself but for all of us who have been privileged to be Bill's students and, later, his colleagues and friends. I would be remiss if I did not add some final comments about Bill as a person and about his relationship with Kay. Bill has always been there for us, whether that meant never missing a Friday-afternoon seminar, being in his office at Indiana/Stanford/Rockefeller/Harvard when we needed to see him, or when we dropped by from out of town to visit, or being out there in the audience when our paper was scheduled for an early Saturday morning at Psychonomics. He has worried about us, written letters for us, and opened his home for us. Except to Kay, possibly, he may never have uttered an uncharitable word about any of us. In small ways and, sometimes, in very big ways, he has been there when different ones of us needed him.

We have been doubly enriched by being Bill's students, colleagues, and friends because that has meant that we have fallen under Kay's wing as well. It is impossible to reflect on Bill Estes as a person and as a scientist without thinking of Bill and Kay as an inseparable and mutually complementary team. Their warmth, their humor, and their mutual respect have been a joy for all of us. They each in different ways act as though the other is a profound treasure. They are both right.