

A MAVERICK RECLAIMED

Some psychologists say it's time that Egon Brunswik got his due

BY BRUCE BOWER

On a sabbatical trip to Vienna in 1933, Edward C. Tolman, chair of the University of California, Berkeley psychology department and a leading investigator of animal behavior, encountered what he later described as “the chance of a lifetime.” At the Vienna Psychological Institute, Tolman met Egon Brunswik, a 30-year-old scholar who could, as the senior scientist wrote to a colleague, help him orchestrate “an experimental and theoretical movement of great importance and of some renown.”

Bold words from a man who had already brashly challenged central tenets of behaviorism, then a dominant force in U.S. psychology.

Brunswik took an even more radical approach than his Berkeley admirer did. The younger scientist held that organisms act on evolved, biological tendencies, rather than, according to the prevailing psychological view, simply responding to immediate reinforcements. Much painstaking research on thought and perception seeks to control all but one or a few influences on animals or people in its experiments. Brunswik contended that such work can't be generalized to situations outside the laboratory. He argued that psychological experiments should, instead, reflect the broad range of information available in real-life settings,

This line of thinking intrigued Tolman. Brunswik accepted an invitation from him to visit Berkeley in 1935, and he joined its psychology faculty in 1937. The cordial European proceeded to publish studies in major journals, write about the philosophical underpinnings of experimental psychology, and inspire intense scientific debate about the nature of perception and thought.

Despite these achievements, Brunswik became a scientific maverick, not a mainstream mover and shaker. In 18 years at Berkeley, he supervised only four graduate students—a reflection of the general lack of interest in his ideas. Prominent U.S. psychologists of the era dismissed Brunswik as brilliant yet misguided. What's more, the spread of Nazism followed by World War II destroyed the careers if not the lives of his Viennese colleagues and left him unable to consult with them or return to his homeland.

On July 7, 1955, his health deteriorating from dangerously high blood pressure and his morale flagging, Brunswik killed himself.

However, what began as Brunswik's lonely effort has gained momentum decades later. Pressure to show the “real-world” value of psychological research has rekindled interest in designing experiments that reflect pertinent elements of volunteers' daily environments, says psychologist Kenneth R. Hammond, an emeritus professor at the University of Colorado in Boulder and psychology's most vocal advocate for Brunswik's approach.

This new interest has boosted the ranks of the Brunswik Society. Formed in 1985, the group holds annual scientific meetings and now has 250 researchers on its mailing list. A 2001 book, *The Essential Brunswik* (K.R. Hammond and T.R. Stewart, eds., Oxford Univ. Press), reprints many of Brunswik's papers and includes

chapters from more than 30 psychologists who cite him as a major influence on their research.

They hope to push Brunswik to the forefront of a field that has often overlooked his contributions. “Many researchers have a motivated indifference to Brunswik's ideas,” Hammond contends. “After all, if he's right, he cuts the ground out from under a lot of experimental psychology.”

ROAD TO EXILE An undercurrent of separation—first from family, later from country and scientific colleagues—ran through Brunswik's life. The son of an affluent Austrian ministry official based in Hungary, he was sent to board at a prestigious secondary school in Vienna and “was on his own at a relatively early age,” according to Mitchell G. Ash of the University of Vienna.

He then attended Vienna's technical college and studied philosophy, psychology, mathematics, and physics. Brunswik's graduate psychology work began in 1923. He soon entered into a lively debate among Viennese intellectuals about whether knowledge of the world is certain or more of an educated guess.

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Brunswik joined Karl Bühler, an eminent European psychologist and director of the Vienna Psychological Institute, in advocating the view that knowledge is a probability-based gamble. Consequently, Brunswik examined how people use sensory cues to reach what he termed “perceptual achievements.”

For instance, in 1934 he observed that the perceived size of coins changes as their value and number vary. So, volunteers provide higher estimates of the individual size and overall number of coins in a small pile at a distance when told the coins are of high value, such as quarters,

rather than low value, such as nickels.

In fact, coins of higher value do tend to be larger, although this correlation isn't perfect. In Brunswik's view, people use such cues to forge “perceptual compromises” that serve their purposes, often quite well.

At Berkeley, Brunswik fleshed out this theory. A key concept was “representative design” of experiments. The term refers to planning a psychological test so that it reflects relevant conditions of the subject's everyday life. To attain a representative design, a researcher recreates what he deems crucial elements of a task in the laboratory.

A more recent example considers whether highway engineers can accurately detect road features that promote safe driving. To study this question, Hammond asked 21 highway engineers to look at videotapes taken from a car driving on 40 different highways. Accident statistics from each highway enabled him to determine the accuracy of each engineer's safety judgments, which was generally high, and identify the most informative features.

Brunswik also introduced a related concept, “ecological validity,” to describe how well visual cues convey accurate information

about complex issues, such as a new acquaintance's personality. An individual forms perceptions and judgments of others through a lens of imperfect cues, some more valid than others, Brunswik argued.

Cues can be substituted for one another or combined to reach a conclusion. For example, musical performers communicate sadness, fear, and other emotions with a variety of partly interchangeable cues that listeners interpret in flexible ways. A sad violin tune may hinge on a hushed sound and slow tempo or instead emphasize slowly vibrating notes and well-placed pauses.

Else Frenkel-Brunswik, a psychoanalytically trained psychologist who had been a fellow student of Brunswik's in Vienna and married him in 1938, inspired his thinking about the nature of perception and decision making. With her encouragement, Brunswik wrote about a continuum of thought processes. These range from intuitive perceptions, which arise automatically in the course of one's activities and provide useful approximations, to analytic thinking, a conscious scrutiny of cues relevant to a specific problem that has an exact solution.

Frenkel-Brunswik made her own mark as a researcher. In 1950, she coauthored *The Authoritarian Personality* (E. Frankel-Brunswik, D.J. Levinson, R.N. Sanford, Harper and Row), which attracted much interest and controversy. This book described personality characteristics thought to predispose people toward anti-Semitic and fascist views.

Both Brunswik and his wife—who took her own life in 1958—found themselves ripped from their European roots by the spread of Hitler's fascism. In the United States, Brunswik also found himself scientifically homeless, stranded between two camps of psychological research.

Experimentalists wanted to control laboratory conditions tightly so they could isolate universal, context free laws of behavior. Brunswik's lens model struck them as an attempt to abandon the search for general behavioral principles.

In contrast, correlation psychologists generally looked for links between individual scores on IQ tests and other variables, such as school and job success. Brunswik wanted to examine how environmental cues, not test scores, correlate with perceptions.

Professional exile never caused Brunswik to surrender his ideas or apparently even to consider conforming to the views of others, notes Gerd Gigerenzer of the Max Planck Institute for Human Development in Berlin.

"It's easy to be true to one's ideas if everyone applauds," Gigerenzer says. "I admire Brunswik's intellectual integrity because, in his case, only very few applauded. Standing upright must have been difficult, lonely, and depressing."

THE ROAD BACK In the 1940s when Hammond, now 85, was a Berkeley graduate student, he befriended Brunswik. They corresponded regularly until shortly before Brunswik's death. Hammond

remembers Brunswik as a reserved man with an unparalleled commitment to scholarship. His death came as a total shock. "I could not believe he'd take himself out of the battle," Hammond says.

At that time, Hammond was just entering the fray of decision-making research. In a 1955 article, he applied the lens model to

predictions made by mental-health clinicians about their clients. Clinicians, Hammond argued, often make determinations about a person's mental state or behavioral tendencies as well as is possible using the cues available to them.

At that time, other researchers were criticizing clinicians, saying that calculations based on demographic data are superior to clinicians' judgments.

In the 1960s, Hammond and a small number of others investigated what makes predictive cues informative in various tasks, such as forecasting weather or discerning a roommate's likeability. They found that feedback during trials about which cues work best boosted the accuracy with which volunteers performed the tasks.

The past decade has witnessed an upturn in Brunswik-inspired research. Gigerenzer and his coworkers, for example, have explored the "cognitive biases" described in many studies over the past 30 years. Cognitive biases, according to many psychologists, are simple guidelines for thinking that

often lead a person astray. Such biases disappear when experimental tasks contain the types of information typically available to people, Gigerenzer found.

For instance, consider the mathematical probability of breast cancer occurring in a 40-year-old woman who's had a positive mammography test. People find it relatively easy to grasp this probability when they see data about breast cancer rates and mammography tests expressed in frequencies. If the same information appears as percentages, errors skyrocket (*SN*: 7/13/96, p. 24).

Other applications of Brunswik's ideas range from studies of how individuals discern others' personality traits during social encounters to explorations of the types of medical data that improve diagnoses of heart disease and other illnesses.

Still, Brunswik remains a scientific outsider in both the study of visual perception and decision making. Moreover, his notion that mental activity depends on both the organism and its social and physical environment clashes with cognitive neuroscientists' theory that each person's mind is confined to brain activity, remarks Ryan D. Tweney of Bowling Green (Ohio) State University.

Jerome Bruner, an influential psychological theorist at New York University, knew Brunswik and admired his focus on the contexts in which thinking takes place. But don't expect Brunswik's outcast status to change anytime soon, Bruner says. He rhetorically asks, "Not that Brunswik wasn't a fine mind, but did the Americans listen to him?" Perhaps Brunswik will someday reach a wider scientific audience, but he still walks the cutting edge of uncertainty. ■



MAN OF UNCERTAINTY — Egon Brunswik, who died nearly 50 years ago, championed the useful ambiguities that make perception possible.