This is not to say that one could not make precise the expression "choice at the level of particular observations statements," but until it is made precise, a theory like Held's about the testing of moral theories is bound to need further clarification. Not only may her test requirements be less useful than she thinks, but also the results of a failed test may not be so easily interpreted.

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BRAIN HEMISPHERICITY, MYSTICISM, AND PERSONAL WHOLENESS

by Norma Tucker

That mystics and victims of delusion share such sudden and passive states as an experience of abnormal significance, pseudohallucinations, a sense of mission, the suspension of time, and extremes of mood as discussed by Hermann Lenz (1983) is supported and partially explained by recent research in medicine and psychology. Such research also lends credence to his criteria for distinguishing between belief and delusion by the presence of hope and doubt, increased human freedom, and personal interaction among the mystics, with a corresponding absence of those qualities among the victims of delusions.

Neuroscientists and psychologists have begun to map brain activities, and a growing body of evidence demonstrates that each person has the capacity to use two major modes of consciousness: a logical, sequential, analytical mode, which is processed primarily, but not exclusively, in the left hemisphere of the brain; and an intuitive, synthetic, and holistic mode which develops insights primarily, but not exclusively, from the right hemisphere (Bogen 1969, Deikman 1971, Gazzaniga 1967, Grady and Luecke 1978, Lee et al. 1976, Ornstein 1977).

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Because activities in the brain require oxygen carried by the blood, increased blood flow in any portion of the brain reveals increased activity there. Radioactive isotope photography of the brain supports the divided hemisphere theory developed earlier in work with epileptics and brain-injured persons (Lassen, Ingvar, and Skinhøj 1978). In addition, radioactive isotope photography reveals that blood flow doubles in the frontal lobe (the planning and foresight section of the brain) when the subject is relaxed and receives no outside stimuli. That finding coincides with the theory of researchers at the Menninger Foundation, one of the foremost mental health institutions in the nation, that the "subconscious" is a problem-solver—that if the conscious mind puts all information about a problem into the subconscious and then relaxes, the subconscious will provide a holistic answer, usually in imagery (Green and Norris 1974). In other words, the analytic hemisphere receives information and may organize it sequentially into a logical pattern or may transfer it to the frontal lobe where, during passive states, the information is processed. The right hemisphere then suddenly receives an intuitive, holistic pattern. The description given by Lenz is comparable to that of an intuitive insight.

All persons at times have such insights, but most tend to discard them, probably because logical knowledge has, since the scientific revolution, been favored in Western culture. Reports by such original thinkers as Albert Einstein and August Kekule, as well as the mathematical genius Jules Poincaré, reveal that they too received such intuitive insights but then subjected them to logic and verification, thus combining the freedom, hope, and doubt discussed by Lenz. Mystics also learn to "test every spirit" because imagery from meditative-type prayer, the passive mode mentioned by Lenz, can be either right or wrong, although it always carries with it a profound sense of certainty. That sense of certainty of mission, hardened into what Lenz calls "paralyzed belief," is probably the major factor contributing to the rejection by Western culture of all intuitive knowledge, even valid insights.

Nor are the extremes of mood and suspension of time unnoted by researchers. Menninger researchers reported that alpha-beta brainwave training, that is, training for the passive mode, brought integrative experiences, experiences leading to feelings of psychological well being (Green, Green, and Walters, 1974). There are also indications that, although the subconscious normally provides intuitive knowledge only as fast as the subject can accept and deal with it, in a few cases insights might reveal thoughts and/or feelings unacceptable to the conscious mind of maladjusted persons, that is, things which had been repressed. In those cases depression could result. Hence the mood

swings observed by Lenz. Alterations in time perception have been noted and measured as part of changes in self-actualization, which can be measured by the Personal Orientation Inventory. Scores on that standardized test after brain-wave training indicate support for the human growth cited by Lenz in the two mystics and by Evelyn Underhill as "the unitive way" in her classic study *Mysticism* ([1909] 1957).

Thus Lenz is on solid ground in his observations of the two groups; however, he does not go far enough. To compare only the two groups may imply that both groups are odd or unusual. They are odd or unusual only to the extent to which their intuitions change their perceptions of the world and their impact upon that world. The extent of change of perceptions and the impact upon the world of mystics differs only in discipline from those geniuses mentioned earlier or from many poets and creative artists.

It could be wished, therefore, that Lenz would encourage all persons to recognize their own intuitive insights and to subject those insights to his criteria, to the criteria of the church, or to those criteria of such outstanding thinkers as I mentioned earlier in this commentary. If this were done more widely, more people would experience the human freedom, the hope and doubt, and the improved personal and social interactions made possible by the more complete use of a human brain, which produces synthetic as well as sequential ways of knowing.

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