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LETTERS

The Insanity Defense and Mental Illness

Daniel E. Koshland, Jr.'s editorial "Elephants, monstrosities, and the law" (14 Feb., p. 777) is ill-informed criticism of psychiatry, mental illness, and the insanity defense. Koshland echoes the public misconception that a successful insanity defense leads to early release on the basis of psychiatric testimony of cure. In fact, the length of hospitalization after a successful insanity defense may be longer than the time served in prison by those convicted of similar crimes. The number of subsequent criminal acts is greater for the convicted criminal released from prison than for the insanity acquittee released from a mental hospital (1). Koshland adds the voice of *Science* to the oft-stated claim that public safety is placed at risk by the insanity defense, when data and scholarly opinion are to the contrary. The insanity defense is not often raised, in part because defendants fear the consequence of success (indeterminate involuntary hospitalization). The insanity defense is raised in about 1% of all felony cases, and the jury rules "not guilty by reason of insanity" in about 25% of these cases (2, 3). Recent studies have also shown that agreement between clinicians is high (about 79%) and that only a small minority of cases are argued in a full trial (3, 4). As in all instances of plaintiff versus defendant and state versus defendant, the judge and jury are entitled to evaluate conflicting views of expert witnesses.

Koshland's characterization of the role of expert testimony is prejudicial. Self-styled experts blandly testifying is neither the norm for nor is limited to the insanity defense. Issues that go to trial in all areas of medicine and science will necessarily and desirably have expert opinion presented by both sides for the jury's consideration. When all experts agree, trial is usually avoided.

Koshland is off the mark when he discusses "lumping" in mental illness diagnosis. Mental illnesses are officially and routinely categorized in more than 200 classes. Crucial distinctions among schizophrenia, manic-depressive illness, obsessive-compulsive disease, phobias, and Alzheimer's disease, for example, are routinely and reliably implemented with validating differences in treatment, course, age of onset, risk factors, neuroanatomy, and pathophysiology.

Koshland's assertion that a biochemical measure will resolve the main aspects of a

complex problem of society, law, and psychiatry is not justified by the arguments he presents, nor is it subscribed to by leading scientists concerned with mental illness. It is unwise to suggest to the public that complex criminal behavior will be adequately resolved at the level of a biochemical test.

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In his editorial "Elephants, monstrosities, and the law," Koshland addresses two related but quite different issues. Certainly there are limitations in the current ability to predict violence and problems in courtroom behavior of "experts." It is an enormous leap, however, to link legal questions of insanity with the medical diagnosis of specific mental disorders.

Forensic questions of insanity and legal culpability are entirely separate from questions of psychiatric or other medical diagnoses. Moreover, it is an illusion that greater specificity of classes of mental disorders will enable accurate prediction of future violent acts by *individuals*, much less distinguish violence against self from violence against others.

The assumption that mental disorders are routinely "lumped" is also faulty. While we are certainly not at the point of etiologic specificity we ultimately hope for, we have made a significant effort in the development of the third and fourth editions of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III and DSM-IV) to improve the reliability of psychiatric diagnosis and to establish an empirically based strat-

egy to reduce heterogeneity in these diagnostic systems. The scientific strategy for the development of DSM-IV has been well detailed elsewhere (1).

We are strongly in agreement with Koshland's urging an increase in the amount of research on mental illness. It is essential, however, to distinguish questions of law from questions of science.

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Daniel E. Koshland, Jr., the witty and charming sage of *Science*, is stuck in the muck of medical reductionism in his editorial of 14 February; he makes the facile assumption that the brain is just another organ and if its output product doesn't seem right there must be a hardware problem ("the internal biochemistry . . . can break down").

The analogies Koshland raises to kooky behavior—cystic fibrosis, AIDS, and tuberculosis—are hardware problems of mostly "non-programmable organs." Dysfunctional behavior is not comparable. The substrate of behavior, the brain, is "programmable." Bad or destructive computer programs (especially computer viruses) do not require bad circuitry; killer storms are not the result of defective atmospheric events; horrible human behavior does not require a defect in the machinery to explain it.

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Although the view that the brain is a biochemical organ is not in question, unlike other organs, the principal function of the brain is not to process chemicals; instead, it processes *information* by using chemicals and neuronal circuits. Thus, the brain seems to be much more like a computer than an organ such as the kidney. When we humans speak about the "nature of evil," our ideas would seem to arise, at least in part, from the processing of incoming information by using brain programs that were previously installed. The idea that all mental illness can be viewed simply in biochemical terms seems to rule out the

possibility that an understanding of at least a subset of these diseases may also require state-of-the-art research in the sciences that study brain programming and information processing, like psychology and sociology.

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Response: My editorial was not a criticism of all psychiatrists, only of those who go beyond the data and indicate a certainty where scientific data indicate uncertainty. Bacteriologists would be incorrect to lump together all "infectious diseases" as equally curable or diagnosable, just as psychiatrists would be incorrect to lump together all mental illness as "insanity." Bacteriologists know that certain diseases can be cured by drugs and others cannot. Psychiatrists who want to testify reliably should compile data on predictable patterns of behavior and show that the predictions are verified for some defined diseases but cannot explain others. Then judges, juries, and the general public would have confidence in their opinions. Calling an ill person an "obsessive-compulsive" is of little value in a courtroom unless the diagnosis leads to accurate predictions of future behavior.

I did not state that "a biochemical measure will resolve the main aspects of a complex problem of society, law, and psychiatry." I said that some problems of mental illness are caused by malfunctioning biochemistry and that these probably cannot be helped by counseling alone.

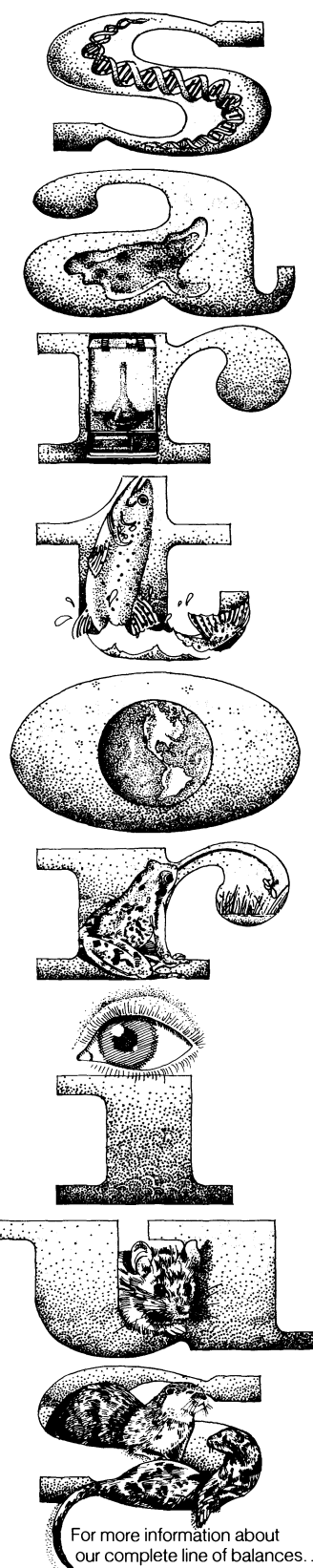
How often the insanity defense is raised is not the issue. We still need to get at the root causes of mental illness so we can say "that abnormal behavior is caused by a deficiency of neurotransmitter Z and this pill will supply it" or "that type of mental illness is not explainable yet so we can't testify either way in a trial."

Marques's argument that the brain is "programmable" makes little sense to me. The brain is designed to think, the lungs to breathe, the liver to synthesize constituents, and so forth. All depend on biochemical pathways that must function correctly for health. Bad biochemistry affects both the hardware and the "programmable" pathways, which are present in both brain and liver. Insults from the environment—bad thoughts to the brain, bad liquor to the liver—can affect these organs and so can inherited genetic defects.

I appealed for more research because both psychiatrists and biochemists have much to offer in this extremely important area, and I argue with my distinguished readers only to help identify the boundaries of knowledge for each discipline.

—**Daniel E. Koshland, Jr.**

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