Scandinavia, Canada, and the United States. The principal source is long-distance atmospheric transport of mercury, most from anthropogenic uses (*2*, *3*). In aquatic systems, mercury can be converted to methylmercury, a neurotoxic compound that bioaccumulates. Game fish may contain 225,000 times the mercury levels found in water (*3*, *4*), and state health departments advise anglers to limit consumption of fish from most Upper Midwestern lakes.

Since 1970, market demand for mercury has dropped steeply, and DOD sales are likely to reduce mercury prices. This could depress the market for recycled mercury but stimulate mercury mining. Mercury mines today are subsidized by foreign governments. Typically run to maximize revenues for workers, such mines usually raise production when prices drop.

Eventually, DOD's mercury could end up in such applications as gold mining. In 1989 alone, gold mining in Brazil released 168 metric tons of mercury into the environment, most of it imported from nations that restrict mercury within their own borders (*5*). Because volatile mercury is likely to enter the atmosphere, DOD's stockpile will come back to haunt us. DOD's plans are not consistent with national policy to curtail environmental mercury releases.

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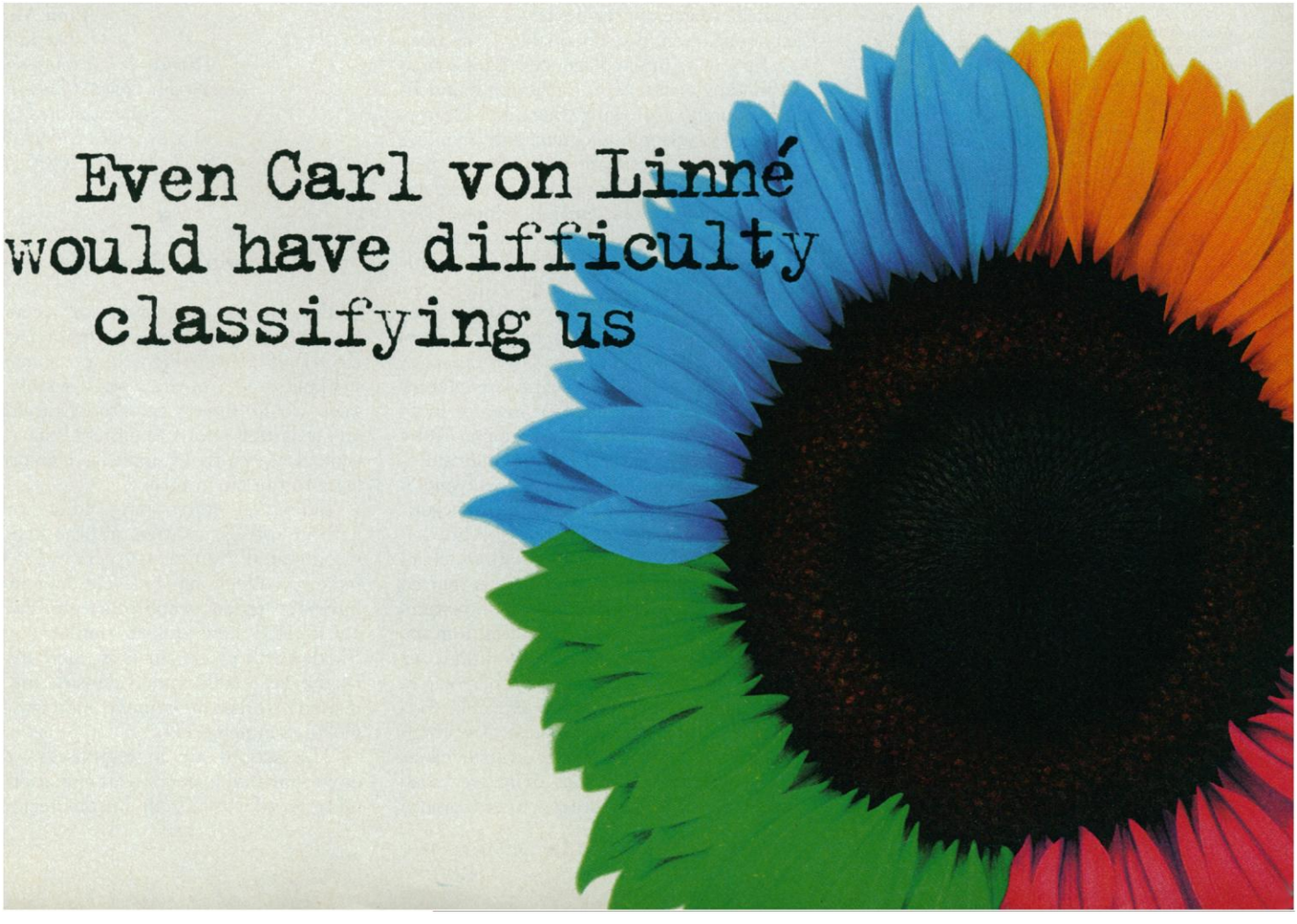
Bioethical Issues

Eliot Marshall's News & Comment article "Policy on DNA research troubles tissue bankers" (26 Jan., p. 440) and Lori B. Andrews's Letter "Genetics and informed consent" (8 Mar., p. 1346) address very important, but difficult and emotion-laden issues that lie at the intersection of patient privacy and confidentiality and the substantial public benefit that for generations has been derived from research on human tissue specimens. Such research—applying novel molecular biological approaches to tissue samples removed for medical reasons and archived in our nation's academic medical centers—provides often unique access to fundamental questions of human disease pathogenesis and generates insights that can have a powerful impact on diagnosis, treatment, prognosis, and even strategies for prevention of some of the major afflictions of mankind.

The meeting described by Marshall was organized in response to concerns within a broad cross-section of the leadership of American pathology that the processes under way to examine these issues and recommend policy guidance did not have adequate representation or input from the pathology community or, for that matter, from the many other scientists engaged in such research. Accordingly, the several draft proposals that have emerged from those processes were perceived to reflect an abundance of bioethical sensitivity and perspective but a deficit of informed medical and scientific insight. In contrast to the opinion of Andrews, the proposals also were thought in some instances to impose unreasonable, impractical, and costly requirements that



were incompatible with standards of sound patient management and could well impede, or even stifle, a line of contemporary scientific inquiry of extraordinary promise.

The meeting did not lead to resolution of any of these difficult matters, but it was successful in affording some of the major stakeholders the opportunity to exchange views and share concerns. I am confident that, with further cooperative effort involving all of the parties, guidelines and regulations can be crafted that will better balance the legitimate private interests of patient confidentiality and informed consent with the compelling public interest in continuing to foster research on human tissue samples.

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Hippocampal Cell Death

In the Research News article "Is hippocampal cell death a myth?" by Ingrid Wickelgren (1 Mar., p. 1229), the relationship between neuronal number and memory decline in normal human aging is questioned on the basis of evidence from a new method of cell counting (stereology) and its application to research on rats. With that counting method, neuronal number did not distinguish between old rats with poor versus very good memory. Traditional hippocampal neuronal counts (density measures) in humans, on the other hand, have repeatedly shown a correlation with level of verbal memory.

The source of the traditional evidence is temporal lobe epilepsy patients who have undergone unilateral resection of the anterior temporal lobe and hippocampus (often ages 8 to 40 years) for the relief of drug-resistant epilepsy; hippocampal neurons are assumed to be lost because of detrimental consequences of the epilepsy. The effects on memory are asymmetrical; verbal memory level is associated with neuronal counts in the left hippocampus, the side of language lateralization in the human brain. Magnetic resonance imaging (MRI) studies have confirmed the association between laterality of hippocampal neuronal loss and memory. There is no convergent evidence yet for the stereology method, and the conclusion that there is no association between neuronal counts and memory in aging is premature.

The discrepancy between the human findings and the new counting method reported in Wickelgren's article could stem from several factors: counting methodology (*1*), kind of experimental subject (*2*), sensitivity of memory test (*3*), age (*4*), or all these factors and others (*5*). We must await the application of the new method to human subjects who undergo sensitive memory tests before generalizing the findings on rats to the relationship between memory and neuronal cells in the human hippocampus.

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Wickelgren's article was balanced and well written, and raised some highly important questions. Certainly, the work of Mark West