BOOKS: POLITICAL SCIENCE

Killing Other Peoples

Sudhir Kakar

Of all the forms of collective violence that plague mankind, the ethnic riot—the intense, sudden physical assault by civilians of one group on civilians of another—is one of the bloodiest and certainly the most brutal. In the just-completed century, the number of dead claimed by the primitive weaponry used on the killing fields of ethnic rioting was second only to the number of lives snuffed out by the sophisticated armaments of modern warfare. And the outlook does not seem much better, at least for the first decade of the new century. Beyond the immediate deaths, ethnic riots leave a trail of human misery and dislocation in their wake; they are frequently followed by secessionist warfare, terrorist violence, and a general undermining of democratic institutions. The form and dynamics of such ethnic violence are the focus of Donald Horowitz's latest book.

The Deadly Ethnic Riot
by Donald L. Horowitz
University of California Press, Berkeley, 2001. 606 pp. $35, £22. ISBN 0-520-22447-7.

Horowitz, a professor of law and political science at Duke University, has long been interested in the problems of divided societies and ethnic conflict. This magisterial yet stimulating study is marked by the comprehensiveness of its empirical data, the author's keen analytic sensibility, and his gift for the telling phrase. Horowitz demonstrates how little we know about ethnic violence, and he shows that much of what we think we know is based on commonsense notions that are more often than not likely to be false. Consider a few of the many assumptions about ethnic riots that generally remain unchallenged in even serious discussions of the subject: Such riots are unstructured, frenzied episodes fueled by the hatred of the culturally distant, "different" groups. They are organized by manipulative leaders seeking political gain. They are motivated by envy of prosperous ethnic groups, such as a trading minority, which are then selected as targets. Their underlying causes are economic matters, such as a competition between groups for resources. Increasing prosperity undermines the occurrence of ethnic rioting.

To refute these assumptions, Horowitz marshals a wealth of evidence from studies of some 150 ethnic riots in about 50 countries around the world. He sees them as hoary myths that may lead well-meaning policy makers into costly yet ultimately futile investments in such programs as increasing intergroup contact, creating superordinate goals, or providing intercultural training. The disposition of contesting groups to engage in such activities, Horowitz trenchantly observes, is the result of a conflict already gone soft rather than the cause of diminished violence.

A major achievement of this book is its integration of the psychological and the strategic: the "primordial" (in the sense of ethnicity as a strong affiliation) and the "instrumental" approaches to ethnic violence, which have for far too long remained locked in adversarial positions. For Horowitz, "the riot involves passion and calculation"; it is a mix of impulse and instrumental thought. The riot may be a furious episode, but its passion and fury do not swamp limited, partitioned spheres of rationality in the rioters. Conversely, "riots may begin by being exemplary, but they end up being euphoric."

With a consummate mastery of the literature, both theoretical and empirical, Horowitz convincingly demonstrates that one needs to turn to both psychology and strategic behavior to explain the major elements of ethnic rioting: the participants and selection of targets; the leadership and organization; the supporting conditions and precipitating events; and also the locations, methods, and effects of violent episodes. According to Horowitz's analysis, ethnic riots erupt from the fusion of four indispensable elements: (i) a hostile relationship between two ethnic groups; (ii) a response to events that engages the emotion of one group, a response dominated by outrage or wrath; (iii) a keenly felt sense of justification for violence, such as viewing it as self-defense, part of a long drawn-out war, or punishment of the other group for wrongdoing; (iv) an assessment by the participants that the violence carries reduced risks.

As someone who lives in a riot-prone country where ethnic violence is infinitely more than a subject for scientific inquiry and scholarly disquisition, what I find especially admirable about Horowitz's achievement is his provision of guidelines to minimize the havoc wrought by these destructive episodes. In much of the West, the declining legitimacy of ethnic animosity and an increasing aversion to mass violence in general (war, I believe, may still be an exception) have reduced the sense of justification needed by potential rioters. Moreover, the absence of this social support has considerably increased the personal risks assumed by would-be rioters. For many non-Western societies, these changes remain desirable long-term developments.

In the short term, the most effective strategy seems to be a preventive one wherein the risks of rioting behavior are considerably increased. This strategy requires an effective deployment of police force, especially during the "lull," that brief period of 12 to 24 hours between the first isolated incidents and the major outbreak of violence. Punishment after an episode is not as effective as prevention. It is undermined by difficulties in the identification of individual rioters and the high political costs if the rioters are associated (as they often are) with powerful political parties or the regime. The resulting failure to punish, then, further reduces the risks perceived by rioters and will only foster the recurrence of violence.

The Deadly Ethnic Riot is that rare combination of theoretical analysis and practical advice. It not only signals a breakthrough in our understanding of the morphology and dynamics of ethnic riots but offers eminently useful strategies for containing these deadly events.

The author is at C 22, Gitanjali Enclave, New Delhi 110017, India. E-mail: kathasudhir@hotmail.com

EXHIBITS: ASTRONOMY

Painting the Skies

Virginia Trimble

Please do not go to this exhibit. For unless 90% or more of the readers of *Science* refrain, the rest of us won't be able to get in. And I, at least, want to go back. This visit, I (an astronomer) went with a cousin who is an artist. The trip was the longest time we had spent together in a decade without quarreling. Contemplating a thousand years of anything cannot help but lend perspective. At midday on a Thursday, we had the exhibit nearly to ourselves for the hour needed to see and read

Star Struck
1000 Years of the Art and Science of Astronomy
Ronald Brashear and Daniel Lewis, Curators
Huntington Library, San Marino, CA. To 13 May 2001.

The author is in the Department of Physics and Astronomy, University of California, Irvine, CA 92697, USA, and Department of Astronomy, University of Maryland, College Park, MD 20742, USA. E-mail: vtrimble@uci.edu

almost everything it contains. (The exception was a 51-minute black and white silent film of Mt. Wilson Observatory in the 1930s, said to include the only 14 seconds of movie footage of Edwin P. Hubble in existence.) Thirty people can comfortably view the displays. Fifty would get in each other's way trying to read the labels and peer into the dimly lit cases.

Star Struck
One Thousand Years of the Art and Science of Astronomy
by Ronald Brashear and Daniel Lewis

Huntington Library, San Marino, CA, and the University of Washington Press, Seattle, 2001. 167 pp. $39.95. ISBN 0-295-98096-6. Paper, $24.95, ISBN 0-295-98097-4.

What is there? Well, Manilius (Marcus, author of what is said to be the first printed astronomy book) and a moon rock. Images by Hubble (the astronomer) and Hubble (the Space Telescope). Volvelles (multiple-layered paper cutouts that mimic motions of the planets and stars) and Venus. Copernicus and a computer simulation. And about 125 other books, manuscripts, globes and armillary spheres (but no astrolabes), and replicas of instruments dating from 1279 to roughly last Tuesday, with a preponderance coming from the 16th and 17th centuries. Most of the books are from the Huntington Library's own collection; these are supplemented by illuminated manuscripts from the J. Paul Getty Museum.

The displays are arranged in three loosely connected rooms, which correspond to the principal divisions of the catalog: "Representing the Heavens," "Technologies of Observing," and "Encountering the Universe" (tidbits on what we have learned). This tripartite structure results in seemingly very similar and contemporary items being placed far apart. My cousin and I both thought that a single, chronological stream would have been more informative, but then we are not museum curators.

What did we love about the exhibit? Above all the numinous. These very pages were touched by Galileo, Kepler, or Newton. (Never mind that their residual perspirant proteins have been long since worn away by the fingers of later scholars.) These drawings were colored by people who truly believed that there are nine orders of angels (distinguished by their hat styles, my cousin pointed out) and that Earth lies at the universe's center not because of its excellence, but because its dross sinfulness has deprived it of the light and motion of the dance of the planets and stars.

What did we intensely dislike? The extreme difficulty of seeing the exhibits clearly and reading the explanatory placards. "*Mehr licht!*" as Goethe is supposed to have said. Of course many of the items on display cannot bear the blaze of supermarket lighting. But the accompanying information can. It should not be beyond modern technology to place all the labels outside the dimly lit cases (about half are inside) and to provide some sort of spot or reflective lighting on them. We tried flashlights and holding white paper beneath labels (both helped).

Books in a glass case can, of course, be open to only one page at a time. Some of the frustration that this produces has been overcome with enlarged reproductions of additional pages placed around and about and, in one case, with a video that displays sequentially all the pages of Galileo's *Sidereus Nuncius* (where he shows mountains on the moon and other telescopic discoveries) at a pace that permits reading the text, or at least the few words we remembered from college Latin.

The reproductions also permit serendipitous juxtapositions. A page of Rudolphine Tables, used to predict planetary positions, from Renieri's 1647 *Tabulae motuum caelestium universales* sits just above a page from Laplace's 1802 *Traite de Mecanique Celeste*, of similar purpose. The former is incomprehensible to any but a specialist; the latter crowded with sines, cosines, and derivatives into which any second-year math or science major could plug numbers. What incredible progress in mathematical notation in just 150 years, I, the astronomer, exclaimed. A sign to that effect would have been useful for the artist.

Indeed, in general, we both wished for more explanatory material: additional descriptions of the scientific content of the books and other objects, and further details on how, when, and why they had been produced—for instance, on the relation between the glorious colors of early atlases and slightly earlier Books of Hours.

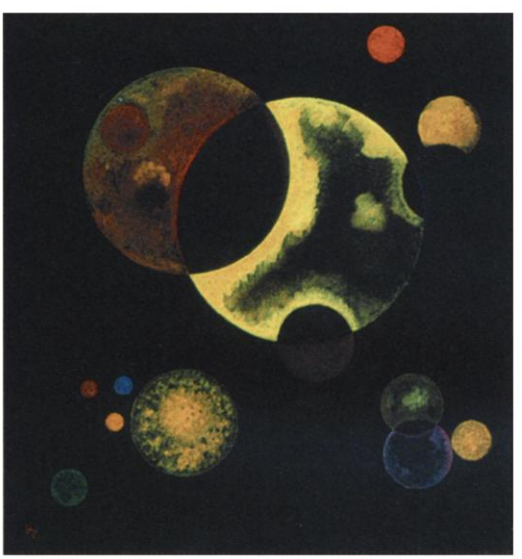
Where we could judge, the textual material included with the displays is largely to be trusted. There is nothing remotely approaching two phrases from the catalog: "when Copernicus placed the Earth at the center of the universe" and "the first European rendition of the constellation Ursa Major—the Great Bear—the faint companion of the brighter Ursa Minor. Also known as 'Alcor,' Ursa Major was not cataloged by Ptolemy." The latter is a confusion of two whole constellations and a close pair of stars in the tail of the Great Bear (or handle of the Big Dipper). The former seems a careless error, as the authors everywhere else refer to Copernicus's heliocentric theory.

Probably there is no complete solution to the problem of combining the opportunity for many people to be in the presence of valuable originals of anything without damaging them and the opportunity for information transfer. But if the solutions adopted by the Huntington Library are not perfect, they are at least good enough that I urge most of you not to attend *Star Struck* so I can go back. Stay home and read the catalog instead.

BROWSINGS

The Universe. A Convergence of Art, Music, and Science. ***Jay Belloli, Ed.*** Armory Center for the Arts, Pasadena, CA, and Reaktion, London, 2001. Paper, 205 pp., $30. ISBN 1-893900-05-3.

Eight Pasadena cultural institutions are collaborating on a series of exhibitions, performances, films, talks, and symposia that explore how artists and scientists have interpreted the cosmos. The series includes *Star Struck* (reviewed above) and an exhibition at the Norton Simon Museum that presents symbolic and spiritual representations of cosmos—such as Kandinsky's 1927 painting *Heavy Circles* (left)—by European, American, and Asian artists. This catalog combines essays by curators and historians of science with a broad sampling of images ranging from 9th-century illuminated manuscripts to contemporary art and NASA photographs. Further details about the project, which continues through May, are available at www.pasadena-universe.org.



CREDIT: THE BLUE FOUR GALKA SCHEYER COLLECTION/NORTON SIMON MUSEUM, PASADENA