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**EMBLEMS OF MIND: The Inner Life of Music and Mathematics.** By Edward Rothstein. *Times/Random*. 263 pp. \$25

The composer Igor Stravinsky once remarked that in mathematics a musician should find a study "as useful to him as the learning of another language is to a poet." What Rothstein, chief music critic of the *New York Times*, attempts to explain is why. Few dispute the strong connections between music and mathematics. Even at its most improvisational, music follows structural rules of meter and tempo. Similarly, even the most abstract mathematical equations are built from known axioms in an elegant pattern not unlike the movements of a sonata. But Rothstein wants to delve deeper into the two disciplines, to discover whether their inner workings yield insights into the act of creation itself.

The journey he undertakes—through the higher reaches of philosophy, musical composition, and mathematical theory—is so satisfying that the elusiveness of its destination finally becomes irrelevant. Along the way, the lay reader learns to appreciate how mathematicians derive such principles as Fermat numbers, the Fibonacci Series, and Gödel's incompleteness theorem. One of Rothstein's more intriguing observations is that the process driving mathematics is "no more dominated by compulsion or mechanism than musical composition is by the 'need' to follow one type of chord with another." Rather, mathematicians extrapolate proofs through surprisingly playful experimentation with the relations between numbers. The numbers represent an unmapped universe; if the mathematicians' work is successful, they uncover an internal relationship between the elements.

Rothstein suggests that listeners arrive at a sense of a composer's work in a similar way: "Mappings are made within music—from one phrase to another, from one section to another... [and] to our varied experience as listeners." Depending on that experience, the connections may become more refined. It may be possible, for example, for a given listener to recognize the style of the music—baroque or classical or romantic—or

to identify a piece as a fugue or a waltz, but even the uninitiated will recognize that there is order behind the notes.

Rothstein deftly reveals the beauty and elegance of certain mathematical principles, but his argument tends to reduce music to a consideration of form and function—at least until the visionary final pages of the book, where he describes the poet William Wordsworth's encounter with a spectacular view emerging from morning mist. "The mist, the moon, the sky, and the ocean are each distinct objects," writes Rothstein, "each seemingly subject to its own law, possessing its own character. But they are also tied together, exercising powers and influences on one another." As the poet seeks to apprehend the influences and make sense of the whole scene, so composers struggle to make music out of silence and mathematicians to show connections where none appear to exist.

Yet something about the two arts of music and math—so similar in their "inner and outer life," in their reliance on "metaphors and analogies, proportions and mappings"—hovers always just out of reach. They remain mysteries, "too close to Truth to be merely human, too close to invention to be divine."

**WRITING AND BEING.** By Nadine Gordimer. *Harvard*. 176 pp. \$18.95

**WRITING WAS EVERYTHING: Life as a Critic, 1934–1994.** By Alfred Kazin. *Harvard*. 152 pp. \$17.95

What makes writers tick? In these two books, each a blend of memoir, criticism, and history, a famous novelist and a famous literary critic reflect on their shared craft. What surprises is how very direct the American critic's reflections are, and how very theoretical the South African novelist's.

When a life is made particularly vivid in fiction, a reader can't help but wonder how much of it is true. Gordimer, winner of the Nobel Prize for literature, plays this "prurient guessing game" as writer, reader, and critic, all "fumbling to find out where fiction [comes]

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from," and explores the shadowy theoretical territory that lies between fact and fiction. Arguing that fiction informed by real-life experience is often more true than self-declared history or biography, she cites the novels and poetry of South African revolutionaries as "testimony" to their search for a physical and artistic homeland. She allies herself with writers who have followed Proust's directive, "Do not be afraid to go too far, for the truth lies beyond." These include Naguib Mafouz in Egypt, Chinua Achebe in Nigeria, and Amos Oz in Israel, whose fiction was banned in their respective countries, as hers was in South Africa, for revealing unpleasant political and social realities. This slender book is most involving when Gordimer speaks of trying to "write her way out" of her adopted country's physical and cultural boundaries. One wishes that the personal and critical honesty had to contend with less theory, which nearly obscures her considerable wisdom. Gordimer manipulates her Barthes, Said, and Lukacs well, but they seem beside the point when she tells us plainly in her own words how "fiction is an enactment of life."

Alfred Kazin, now 80 years old and a professor emeritus of English at Hunter College, provides a clear-eyed analysis of 20th-century literary history as it parallels his own career. He regrets the "tides of ideology" that have swamped the reader "mercilessly" since the 1960s, and, unlike Gordimer, he has little patience for the "guidance" that too dogmatic—or abstract—a theory can impose on the impressionable reader. "Only in an age so fragmented," he growls, "can presumably literate persons speak of Dante, Beethoven, or Tolstoy as 'dead white European males.'"

Kazin interweaves personal with literary anecdotes to show that living, writing, and reading are necessarily intimate. Indeed, all his personal stories are literary, and one gets the impression that, from the moment he was "shaken and seized" by *Oliver Twist* at the age of 12, books rather than events have marked the significant moments in his life.

Kazin might flinch at Gordimer's theorizing, but when he bears witness to the intermingling of writers' lives with their art, his testimony is not unlike hers. In particular, he recalls how the writings of Hannah Arendt and Polish poet Czeslaw Milosz made clear to him, an American Jew, "the European agony we did not experience." At such moments, he and Gordimer share the same sensibility: writing does not merely record human "experience"; it shows that life *is* narrative, and it lets the two converge.

### *Contemporary Affairs*

**THE NIGHTINGALE'S SONG.** By Robert Timberg. Simon & Schuster. 540 pp. \$27.50

In January 1961, John F. Kennedy told the world that the United States was willing to "pay any price, bear any burden, meet any hardship" to advance the cause of world freedom. He struck a chord in the hearts of Americans of his generation who believed in America's special mission abroad and thought military service a duty and an honor. How dramatically things had changed by April 1975, when the Ford administration ordered the emergency evacuation of the United States embassy in Saigon. America had suffered through an unpopular and devastating war that spawned enormous social upheaval and, as Timberg puts it, opened a "generational fault line" between those who served (as Timberg himself did) and those who did not.

His book is about this fault line and how it endured to contribute to the election of Ronald Reagan and to his administration's involvement in the Iran-contra affair. Timberg, deputy chief of the *Baltimore Sun's* Washington bureau, pursues his theme through fascinating portraits of five prominent Vietnam veterans who were also, like him, graduates of the U.S. Naval Academy—John S. McCain III, Robert C. "Bud" McFarlane, Oliver L. North, Jr., John M. Poindexter, and James H. Webb III. These five men, so different in character and personality, shared an "unassailable belief in America" which led them to distinguish them-