

glect and oblivion, and only much later was he recognized as one of the great Austrian composers.

What is known of Schubert's lifestyle, his bachelorhood, his intense and loving relationships with other men, and manifold accounts of his disorderly sexual conduct—all this points to a homosexual orientation. His biographers have interpreted unflattering references to the sensual side of his nature in contemporary sources as meaning that he frequented prostitutes, but hedonism of this kind was perfectly acceptable in the "Old Vienna" of his day, and the veiled allusions are probably to a far more unconventional form of sexuality. Schubert never achieved a fulfilled love relationship with a woman; his rejection of marriage was deeply rooted, and Schober recalled his friend's desperate and pathological reaction to the suggestion that he take a wife. Contemporaries ascribed this attitude to misogyny, which was the most that the heterosexual society of the nineteenth century could make of some individuals' failure to be magnetized by the opposite sex.

A modern psychoanalytic biographer of Schubert has concluded, from the study of a brief tale written by Schubert in 1822 entitled "My Dream," that the composer's creativity was fully unleashed by his mother's death on May 28, 1812, when he was in mid-adolescence. Within a month his enormous musical productivity began and continued almost without respite until his final illness and death. Self-conscious both as man and as artist, Schubert knew and treasured his distinctive sexual orientation, even if it had to be hidden from the obscurantist Catholic society of official Vienna. A poem of August von Platen dated January 31, 1823 proves that a well-defined homosexual subculture existed in the German-speaking world by that time, and in such a milieu Schubert could find comradeship and acceptance, while submitting to the outward conformity of the "quiet years" of Austrian history.

A psychoanalytic interpretation of Schubert's personality has found the clue to his life in the dialectical irony of homosexuality itself. In this view rebellion and submission are two sides of the same coin, as the subject oscillates between a passive, masochistic stance vis-à-vis the father and other male rivals, and competitive aggression against them. Schubert's creativity expresses the rebellious side of the complex, for although the homosexual refusal to be dominated is undermined by the need to propitiate the father and similar authority figures, the rebellion itself is perpetual. The homosexual aestheticism of the Romantic period defended brotherhood—with political overtones—against authority, creativity against submission to routine, beauty against the ravages of time and reality. In such an emotional and cultural setting Schubert lived out a brief but intensely creative life as one of the great composers of the early nineteenth century.

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SCIENCE

Assessing the contribution of male homosexuals and lesbians to science is complicated by the fact that it is no longer clear what science is. Until the middle of the twentieth century, it was generally accepted that scientific progress occurred through slow incremental accumulation of factual data, a process requiring periodic revision of theories to accord with the data. Through the work of such thinkers as Thomas Kuhn and Karl Popper, however, it has become clear that, examined as a whole, scientific change is discontinuous, even erratic and willful, and often guided by external and contingent factors. These factors include the overall world view (not excluding religious components), social and economic

determinants, and the whims and idiosyncracies of individual scientists. In its more extreme versions, the new scepticism discards the ideas of progress and rationality altogether, discerning an almost random succession of paradigms. Thus Paul Feyerabend, the gadfly of the field, has commended a Dada concept of science, in which "anything goes." It is not necessary to subscribe to this extreme view to acknowledge that as a result of ongoing reexamination the boundaries between science, on the one hand, and ideology on the other, are blurred. In a recent American educational controversy, for example, most scholars hold that the so-called "creation science"—which seeks to reaffirm the traditional picture of the origin of the cosmos given in the book of Genesis—is mistaken, but they seem unable to offer a conclusive argument as to why this is so.

At the end of the nineteenth century when the homosexual rights movement began in the optimistic climate of Wilhelmine Germany, it was confidently held that the emancipation of homosexuals would be achieved by the spread of "science." Increase of knowledge, erected on objective, incontrovertible foundations, would inevitably sweep away lingering "medieval" sources of bigotry and discrimination. The cataclysmic political developments of the twentieth century eroded these high expectations in every sphere. This more sober mood is fortunate, because the impact of the natural and social sciences in the first half of the twentieth century on homosexuality was decidedly mixed. Some fair-minded scientists helped to refute older stereotypes, it is true, but other researchers addressed themselves to schemes for the eradication of homosexuality through social engineering.

Antiquity. It is generally acknowledged that the emergence of critical rationalism in ancient Greece in the sixth century B.C. was the prerequisite for all subsequent scientific progress. This historic breakthrough depended on earlier

advances in ancient Mesopotamia and Egypt, which pioneered in many areas of technology and scientific measurement. The birth of the critical rationalism of the pre-Socratics did not occur in a social vacuum: the absence of a powerful priesthood and of a central despotic government created zones of freedom in which independent thinkers could flourish. The sixth century also saw the emergence to full historical view of the institution of pederasty, the love of an older man for a youth. The Greeks regarded pederasty as itself a contribution to civilization. Hence the belief that, like scientific discoveries themselves, it had an "inventor," Orpheus and Laius being the two leading candidates.

Unfortunately, the life records of the pre-Socratics are too scanty to permit much conjecture about the dynamics of sexuality in their personalities. However, the writings of Plato and Xenophon indicate that Socrates, who has become synonymous with the very spirit of Greek inquiry, was a joyous pederast, who reached some of his most important conclusions in colloquy with a bevy of handsome disciples. In later Greek philosophy there is some indication that doctrines were transmitted from one generation to the next by being imparted by an older master to a beloved pupil. Aristotle, and after him, the Greek medical writers, attempted to determine biological mechanisms that might determine same-sex preference.

Greek science continued during the Hellenistic age, but declined under the Romans. It is probably not accidental that it revived again among the Arabs, under whose rule pederasty flourished almost as strongly as it had among the Greeks.

The Renaissance Tradition. It was largely from the Arabs that Western Europe of the Renaissance received its knowledge of Greek science. In Florence (dubbed both the New Athens and the New Sodom) the humanist Marsilio Ficino (1433–1499) championed Neoplatonism, together with hermeticism and astrology. From the modern point of view these last

two elements might be thought of as anti-scientific. Yet recent research has established that the boundaries between science and the occult were often fluid, and hermetic ideas played a major role in the scientific revolution in the seventeenth century.

By common consent the most comprehensive Renaissance genius was **Leonardo da Vinci** (1452–1519), scientist, engineer, military expert, writer, painter, sculptor, and architect. The accusation of sodomy that was lodged against him in 1476 seems to have reinforced impressions derived from early life to make Leonardo both reclusive and self-reflective. Apart from the quality of his inventions—he designed a bicycle and a parachute, as well as perfecting the use of chiaroscuro in painting—the enigma of Leonardo's personality has continued to fascinate.

The English Renaissance found its own universal genius in the person of **Sir Francis Bacon** (1561–1626), the creator of the *Novum Organum* and inspiration of the Royal Society. Holding that those who have wives and children give hostages to fortune, he was known for his partiality to handsome youths. Other English scientists who may have been homophile are **Sir Isaac Newton** (1642–1727), **Edmund Halley** (1656–1742), and **Robert Boyle** (1627–1691). In France, **René Descartes** (1565–1650) was author of the *Discourse on Method*, and thereby the pioneer of modern rationalism. In his last years he was tutor to the bisexual Queen **Christina** of Sweden. Descartes composed some letters to her which have been interpreted as discrete advocacy of freedom of sexual orientation. In America the bachelor **Benjamin Banneker** (1731–1806) was probably the first notable black scientist.

Modern Times. The great explorer, geologist, and ethnographer **Alexander von Humboldt** (1769–1859) received his formation in the Berlin of Frederick the Great. Often accompanied by handsome young men on his travels, Humboldt left his fortune to a servant who was also his

favorite. Other notable explorers who were homosexual were the Canadian **David Thompson** (1770–1857) and the Russian **Nikolai Mikhailovich Przhevalsky** (1839–1888). The sexuality of **Sir Richard Burton** remains obscure, but he certainly used his observations to making notable contributions to the study of same-sex behavior in the tropics (his "**Sotadic Zone**").

In the twentieth century the inventors **Nikola Tesla** and **Wilbur and Orville Wright** may have been homophile. Study of the psychobiography of scientists is just beginning, and we may expect further breakthroughs. Two cases are of particular interest. The Austro-English philosopher **Ludwig Wittgenstein** (1889–1951), who had been trained as an engineer, was given to furtive homosexual encounters with men he met in parks. Enigmatic and ascetic in his personal life, he was largely successful in concealing his secret, which his executors tried also to keep, fearing that its revelation would damage his standing as a philosopher. The obstacles placed in the effort to open the door to this aspect of the creativity of one of the twentieth century's most influential figures constitute a revealing and all-too-typical instance of the difficulties of this kind of biographical inquiry. Much better documented is the case of one of the founders of computer science, the Englishman **Alan Turing** (1912–1954). Apprehended by the police, Turing was forced to be injected with hormones which resulted in chemical castration. He died of cyanide poisoning.

It is often asked, with wonder or disdain according to taste, why so many artists, poets, and painters, so many actors, dancers, and musicians, have been homophile. In the face of the massive evidence, however, it tends to be assumed that there is some nexus between creativity in the arts and same-sex orientation. Inasmuch as the "scientific personality" counts as the opposite of the artistic one, stereotypical thinking assumes that science is a pursuit somehow inherently

"normal." The relative paucity of famous homosexual scientists probably stems from the fact that one does not have much information on the affective lives of investigators of natural phenomena, because such aspects are thought irrelevant to the "objectivity" of science. Yet, as indicated at the outset, the older picture of science as a seamless web of dispassionate inquiry is yielding to a more nuanced picture, in which science draws closer to the arts. As this newer approach takes hold, one may expect to learn more about the emotional commitments of individual scientists and the way in which these commitments in turn interacted with their creativity and the larger world in which they live.

Richard Dey

SCIENCE FICTION

Although the definition of "science fiction" has eluded any real consensus either inside or outside the field, for present purposes science fiction will be treated as a literary (and lately, cinematic, television, and musical) genre which either speculates on life in the future (or "alternative universes" of the present or past) or in which the extrapolated or speculated effects of advances (or declines) in science and technology are important elements to the story. With this definition the article excludes the major genres of fantasy and horror.

General Considerations. Sometimes called "speculative fiction," "sf" (as it is commonly referred to) is a genre of the modern age of science, though some would trace its roots back to such "fantasy travel" writers as the second-century (A.D.) Greek **Lucian**, whose *True History* takes him to a homosexual kingdom on the moon. A wider circle of opinion credits Mary W. Shelley's *Frankenstein* (1818) with being the first sf work, showing a genuine concern for the effects of science on humanity. Jules Verne (1828–1905) and H. G. Wells (1866–1946) are other oft-cited founders of the genre.

As a self-conscious body of literature, sf arose in the Anglo-American world in the 1920s and 1930s, when it found a vehicle for short stories in pulp magazines and an audience among male adolescents. As such sf "predictions" as the atomic bomb became reality in the 1940s, the genre became increasingly respectable, developed an adult readership, and became able to economically sustain book-length works by talented writers. This expansion continued at a slow but steady pace into the 1960s, when an explosion of interest in space travel (accompanying the moon landing program) and science in general raised interest in sf to the point where it became a major part of popular culture, generating films of mainstream circulation (such as *2001: A Space Odyssey*), television series (such as "Star Trek"), and scholarly scrutiny. Today it is one of the most popular genres of fiction in the English-speaking world, has spread to many other languages (notably Russian), and is the subject of hundreds of academic courses. Sf also boasts a highly organized and very vocal fandom constituting what almost amounts to a subculture in itself.

By its nature, sf tends to posit alternatives to contemporary societies, their assumptions, and their mores, while remaining rooted in the cultures of its writers and readers. It should not be surprising, then, that sf has on the one hand dealt imaginatively with issues of sexuality, sexism, and sexual orientation, portraying contemporary assumptions about these topics as time-and-culture-limited rather than universal, and on the other hand has had its share both of invisibility for non-heterosexual characters and of homophobic stereotypes. Since the 1970s, the former tendency has become dominant, aided by a good number of acknowledged gay, lesbian, or bisexual writers; it is not too much to say that in the 1980s, homophobia is no longer considered "good form" in sf.

Historical Development. During the "pulp period," sexuality in general was