Columbia's loss of prestige is useful—especially for the telling anecdotes he provides—but his account of patterns of upper-class education in Boston, New York, Philadelphia, and Baltimore between 1875 and 1975 is only descriptive, without attempting any kind of systematic explanation for the observed patterns within each city.

All in all, this volume represents a significant contribution to our knowledge about who goes to elite institutions, how they get there, and what effects attendance has on one's life chances. Kingston and Lewis have assembled a fine body of research on consequential but rarely observed processes within educational institutions. With this book, scholarly research and public perceptions are finally in tune.

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The Two-Year Colleges

The Diverted Dream. Community Colleges and the Promise of Educational Opportunity in America, 1900–1985. STEVEN BRINT and JEROME KARABEL. Oxford University Press, New York, 1989. xii, 312 pp. $24.95.

For decades, their partisans viewed junior or (in more recent terminology) community colleges as offering a solution to some of America's thorniest dilemmas about higher education. Such colleges, it was argued, had historically accorded opportunities to students otherwise barred from higher education by ethnicity, race, or religion and would provide a "safe" environment and the possibility of social and economic mobility for students who otherwise faced economic and geographic barriers to higher education. Community colleges could, furthermore, respond to local educational and economic needs better than faraway universities. The most successful community college students could transfer to four-year colleges. Other students would be prepared for entry-level positions in local industries and businesses.

The response to these claims was positive. The resemblance between the comprehensive community college and the comprehensive high school—the modal American secondary school by the 1960s—facilitated their acceptance. Local businesses applauded the job training offered by community colleges, and governments found them relatively inexpensive. In the early 1970s, several community colleges opened each week. Today, over 1200 community colleges enroll nearly 5 million students. Community colleges provide public postsecondary education that has appeared to conform to two American ideals: localism and egalitarianism.

In *The Diverted Dream*, Brint and Karabel argue that there is a gap between the egalitarian claims and the actuality. The title of the work refers to twin transformations. Community colleges, Brint and Karabel contend, effectively divert an upwardly aspirant student population from four-year colleges that promise status and economic security and have themselves become transformed from predominantly liberal arts institutions into predominantly vocational colleges.

Brint and Karabel present their argument through a historical analysis. In the creation of junior colleges beginning around 1900, they note, town boosterism, local economic conditions, religion, and the desire for educational expansion all played a role. University presidents wishing to divest their own institutions of the first two undergraduate years in favor of advanced education and research supported the first junior colleges. Having completed the two-year "junior" course, students could then enroll in the university, or perhaps directly in a professional school, most of which did not yet require four years of undergraduate study for admittance.

After World War I, education professors and leaders of the newly formed American Association of Junior Colleges recognized, according to Brint and Karabel, that junior colleges would remain in the shadow of four-year colleges as long as transfer remained their raison d'être. These educators argued that liberal arts programs offered false promises. Only so many professional jobs were available, and those usually went to students who enrolled in four-year colleges from the outset. Other students should set their sights on "semi-professional" jobs that were within their reach. By offering training for these jobs, two-year colleges would attain status as the capstone of the American vocational education system, then mainly located in the high schools. But students consistently preferred liberal arts transfer programs, and most community colleges remained transfer-oriented even after the educational expansion bracketed by the influxes of GIs after World War II and baby boomers in the 1960s.

The long-advocated transformation to vocationalism finally began in the late 1960s as national and state panels called for community college expansion. In the early 1970s, community colleges rapidly opened while flagship public colleges limited their undergraduate enrollments and raised their entrance requirements. Today nearly half of all community college students pursue vocational programs, some of which are designed to the specifications of prospective employers. Lost in this growth and transformation, Brint and Karabel conclude, is the possibility of significant upward mobility for most community college students.

The Diverted Dream argues that it was initiatives of educational leaders that have been responsible for determining the primary mission of the community college. Without advocates at the helm of universities, community colleges might not have come into existence. Without education professors and AAJC (American Association of Community and Junior Colleges since 1972) leaders, the shift to vocationalism might not have occurred.

The authors consider two other explanations for this shift. An instrumentalist explanation would assume that economic conditions and business interests drive most educational change. A student consumerism explanation would assume that educational innovations follow, rather than lead, student demand. Brint and Karabel conclude that for many years business representatives and students had little interest in community college vocational programs. (Curiously, they do not see longstanding student preference for liberal arts as evidence of student consumerism.) Neither did the federal government, which excluded community colleges from vocational education legislation until the 1960s. Educators, however, following a strategy of "anticipatory subordination" that was "inherent in their structural location," created programs that business and the governments that financed the colleges would eventually find acceptable. Thus, "the community colleges would use vocationalization to bring a stable flow of resources linked to a distinctive function, a unique identity, and, above all, a secure—indeed expanding—market niche" (p. 17).

Brint and Karabel include a case study of the Massachusetts community colleges. The dominance of private colleges inhibited the growth of public community colleges in Massachusetts, as elsewhere in the East. But, once created in the 1950s and 1960s, Massachusetts two-year colleges evolved from transfer-oriented to vocational institutions. Educators used many mechanisms to bring this change about: administrative appointments, elaborate guidance systems, enrollment ceilings in four-year colleges, structural barriers to transfer, public relations, and exchange relationships with employers. Finally, in the recession-dominated late 1970s and early 1980s, a conservative governor appointed business-oriented regents. These regents, as instrumentalists would have predicted, approved new programs only in vocational areas. And as student consumerists

would have predicted, students opted for many of these programs. But, these changes only ratified a trend effected by Massachusetts educators.

Community college critics have offered a similar historical schema for a generation. *The Diverted Dream* differs in its depth and in its emphasis on educators and educational administrators in this transformation.

The scenario it presents, however, may oversimplify a complex set of circumstances. Community colleges may *appear* to be diversionary when related to four-year colleges, but they should be related to other types of academic institutions as well. The comprehensive community college is modeled on the comprehensive high school, but the relationship between these institutions, which often share facilities, goes largely unexplored by Brint and Karabel. The authors briefly note that transfer is not exclusively associated with liberal arts programs. But they do not analyze the current confrontations between vocationalists and accrediting associations over the transferability of vocational work completed in the community colleges.

Also unexplored are the relationships between public and private two-year colleges and between the vocational programs of community colleges and proprietary institutions, including "for-profit" and correspondence schools. An associate's degree from a community college today usually requires that 25 percent of a student's instruction be in liberal arts or general education. Most proprietary institutions have no similar requirement. And students may use many federal grants and loans at either community colleges or proprietaries. Does the growth in community college enrollments come from "diverted" students, from an enlarged student pool from which other educational institutions also draw, or from some combination? Even when noted, these complexities are rarely integrated into the book's interpretative framework.

Are students who plan to transfer actually "diverted" again within the community colleges? The authors cite evidence that students who attend two-year colleges have less chance of obtaining a baccalaureate than students of equal ability who begin at a four-year college, but they are vague on the relative importance of ability and intentional diversion. "To some degree, the arrival in the community college of new, lower scoring students may have played a role in the gradual increase of vocational enrollments," they say. "But the policies of most junior college officials to channel enrollments away from the academic track may have been equally important" (p. 99).

Large numbers of students who say they wish to transfer to four-year colleges never do so. But many of them may drop out entirely, rather than shift to a vocational track. As for guidance mechanisms, "student development" as a field officially emphasizes the fulfillment of student potential, rather than diversion—and many community college students actually receive little guidance of any kind.

Do the community colleges fail in their egalitarian purposes more broadly? The occupations for which they educate may offer less status and remuneration, but may still offer upward mobility to specific students. Indeed, Brint and Karabel say that community colleges may provide "at least short-term upward mobility," though at a long-term cost. Though *The Diverted Dream* identifies other functions of two-year colleges, including developmental (remedial) and non-credit adult education, the authors do not analyze the motivation and the enrollment patterns of the adults who often constitute a majority of community college enrollments.

Brint and Karabel note a renewed interest in liberal arts–transfer programs. They record that black educators have objected to the vocationalization of community colleges since the 1960s. But the book does not delineate how concerns about declining numbers of minority students at four-year colleges led to a "rediscovery" of liberal arts transfer. It might be more correct to conclude that individual community colleges oscillate between several missions rather than shift linearly from one to another.

The Diverted Dream offers important hypotheses about the functions of community colleges. The book offers some grounds for optimism, even if future accounts vote the colleges guilty as charged. For if educators could bring about the current condition of the community college, their successors may have the ability to lead a counter-reformation.

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Cosmic Ray Days

Moments in the Life of a Scientist. BRUNO ROSSI. Cambridge University Press, New York, 1990. xvi, 181 pp., illus., + plates. $44.50.

Bruno Rossi had been one of the pioneers in and major contributors to cosmic physics, starting in the 1920s in Florence and continuing through to his retirement from the Massachusetts Institute of Technology. Now he has given us his scientific memoirs, and, as might have been expected, they are modest and gracious. This is not a comprehensive history, but rather a personal retelling of an odyssey such as was experienced by many of a generation of European scientists who, after uprooting, were able to resume their careers in their new countries, often with great distinction. Recognition for Rossi has come in many ways, most recently through the establishment of an annual Rossi Prize, awarded by the High Energy Astrophysics Division of the American Astronomical Society.

It was a 1929 paper by Bothe and Kolhörster that drew Rossi to cosmic ray research. He greatly improved the efficiency of their coincidence telescope composed of Geiger-Müller counters when he devised what is still known as the Rossi circuit, and he then made good use of this in the exploration of the puzzling properties of the cosmic rays. The complexity of the phenomena could not be fully understood until the discovery of the pions (charged and neutral) between 1947 and 1950, but Rossi played a leading role in several important advances before war intervened in 1939. He calculated the effects of the earth's magnetic field on incoming cosmic ray particles and investigated the differences between the soft and the penetrating components. He predicted the east-west asymmetry in the frequency of arrival of cosmic ray particles and was one of the first to observe this effect. The importance of this observation lay in its demonstration that most of the primary particles had to be positively charged, and thus had to be nuclei rather than electrons.

During these prewar years, Rossi was indirectly responsible for another major discovery through sending his younger colleague Occhialini to Cambridge to work with Blackett. At that time there was no cloud-chamber expertise in Italy, and Rossi wanted Occhialini to learn the technique from what was then the premier group. Occhialini brought with him Rossi's coincidence telescope system; when combined with Blackett's cloud chamber, the result was the discovery in 1933 of the cosmic ray production of electron-positron pairs, in confirmation of Dirac's still-new theory. (Only a short time before, Carl Anderson at Caltech had discovered the positrons but not the pair production.)

Rossi describes his journey from student days at the Universities of Padua and Bologna, to his first faculty position in Florence, then, with some regrets, to the chair in Padua, where he guided the design for the new Istituto di Fisica, only a short walk from the Scrovegni Chapel with its frescoes by Giotto. Ousted from his position in Padua as a result of Mussolini's anti-Semitic