ton, D.C., 1964), p. 20; *Census of Population: 1970* PC(2)–3A (Government Printing Office, Washington, D.C., 1973), p. 26.

12. ———, *Current Population Reports* P-20, No. 277 (Government Printing Office, Washington, D.C., 1975), p. 30.
13. J. Blake, *Demography* **11**, 25 (1974).
14. P. Cutright, F. F. Furstenberg, Jr., J. Sklar, B. Berkov, *Fam. Plann. Perspect.* **6**, 132 (1974).
15. Estimated illegitimate births per 1000 unmarried women aged 15 to 19 are as follows:

State	1973	1965
New York	18.6	15.3
Hawaii	20.9	13.9
Washington	13.6	11.2
Oregon	14.2	12.8

Data were obtained by correspondence with state agencies. See also (*3*).

16. Department of Finance, State of California, population estimates prepared July 1974.
17. For methods used to estimate cumulative first birth rates and rates for three earlier cohorts, see (*10*, p. 89).
18. The number of live births and the number and proportion illegitimate for California residents in 1973 and 1974 were as follows:

Race	Live births		Percent illegitimate
	Total	Illegitimate	
	1974 (provisional)		
All races	311,650	46,247	14.8
White	270,153	31,552	11.7
Black	27,172	13,653	50.2
	1973		
All races	297,834	41,851	14.1
White	258,390	28,168	10.9
Black	26,236	12,756	48.6

For 1966–1972 data see (*2*).

19. National Center for Health Statistics, *Natality Statistics Analysis*, Series 21, No. 19 (Government Printing Office, Washington, D.C., 1970), p. 12.
20. Estimate of rise to 1980 obtained by applying age-specific birth rates for the United States in 1973 to estimated population of the United States in 1980 using Series E projections which assume a completed family size of 2.1 children; see (*1*, pp. 6, 7) and Bureau of the Census, *Current Population Reports* P-25, No. 493 (Government Printing Office, Washington, D.C., 1972), p. 18.
21. Bureau of the Census, *Current Population Reports* P-25, No. 519 (Government Printing Office, Washington, D.C., 1974), pp. 12, 19.
22. ———, *Census of Population: 1960*, vol. 1, part 1 (Government Printing Office, Washington, D.C., 1964), p. 424.
23. ———, *Census of Population: 1960*, vol. 1, part 6 (Government Printing Office, Washington, D.C., 1963).
24. Department of Finance, State of California, population estimates prepared December 1971.
25. Bureau of the Census, *Census of Population: 1950*, vol. 2, part 1 (Government Printing Office, Washington, D.C., 1953), p. 182; *ibid.*, vol. 2, part 5 (1952), p. 212; *Census of Population: 1970*, PC(1)-D1 (1973), p. 640; *Current Population Reports* P-20, No. 255 (1973), p. 11; *ibid.*, P-20, No. 271 (1974), p. 13. United States data for 1973 and 1974 for age groups 15 to 19 and 15 to 44 were estimated from *Current Population Reports* data that referred to age groups 14 to 19 and 14 to 44. California data for 1973 and 1974 are estimates obtained by projecting the 1960 and 1970 census proportions.
26. ———, *Census of Population: 1970* PC(1)-D6 (Government Printing Office, Washington, D.C., 1972), p. 1298.
27. ———, *Census of Population: 1970* PC(1)-B6, California (Government Printing Office, Washington, D.C., 1971) pp. 88, 97; *Census of Population: 1960* PC(2)-1C (1963); p. 30.
28. Birth Records, Department of Health, State of California.
29. Legal Abortion Reports, Department of Health, State of California; see Table 3 for denominator sources. See (*2*) for methods used to estimate abortion rates for women residents of California. Estimates for 1973–1974 (the period affecting 1974 births) do not include abortions performed in doctors' private offices. Such abortions were legalized in California by the 1973 Supreme Court decision. Rates for 1971–1972 may differ slightly from those previously published.
30. Data were obtained by correspondence with state agencies. See also (*3*).
31. United States data from National Center for Health Statistics, *Trends in Illegitimacy*, Series 21, No. 15 (Government Printing Office, Washington, D.C., 1968), p. 25; *Monthly Vital Statistics Report*, various issues; various tables obtained through correspondence with the National Center for Health Statistics (NCHS); for sources of California data see Table 3. NCHS data on legitimate and illegitimate birth rate trends for the United States are based on estimation methods that differ in several respects from those we have used for California. Separated women are considered as unmarried in denominators for the California rates but are considered as married in those for the United States. Reasons for considering separated women as unmarried are discussed in B. Berkov and P. Shipley, *Illegitimate Births in California, 1966–1967* (Department of Public Health, State of California, Berkeley, 1971). Another difference between the California and U.S. data is in the methods used to estimate illegitimate births. The California birth certificate has no direct question about the legitimacy of the child or the marital status of the mother, but for statistical purposes the state has developed an inferential method. To estimate the number of illegitimate births in the country as a whole, the NCHS deals only with data from states that have a legitimacy item on the birth certificate; it extends the experience of these states to other states in the same region where the birth certificate asks no direct question about legitimacy. Since California, New York, and a number of other large states do not have such a question, their experience is not measured directly in the U.S. data. The omission of California and New York from the NCHS estimates is probably most serious for 1971 and later years, when births in these states, particularly illegitimate births, were strongly influenced by legal abortion. Because only the NCHS data show the trend in legitimate and illegitimate birth rates over a long time span, we have used the NCHS data for comparative purposes in Fig. 2.
32. The information in this article comes largely from a cooperative project of the California State Department of Health and the University of California, Berkeley. The project is headed by Kingsley Davis and partly supported by a contract with the National Institute of Child Health and Human Development, Center for Population Research (NIH-NOI-HD-32728). This article was made possible through the cooperation of the California Department of Health, in particular George C. Cunningham, Chief, Maternal and Child Health Unit, and Roger E. Smith, Acting Chief, Vital Statistics Section. The figures are by Hazel Anderholm of the Department of Health; research assistance was provided by Sarah Lee Tsai, Arlene Guerriero, and Harriet Heydemann, of International Population and Urban Research. We thank the National Center for Health Statistics and the state health departments for providing data.

NEWS AND COMMENT

New Jersey Higher Education: Accountability Versus Autonomy

Rutgers started off as a colonial college in 1766, acquired a public facet to its essentially private character in the later 19th century when its science school became New Jersey's land-grant college, and then, after World War II, mutated into a full-fledged, multicampus state university.

As a private institution, Rutgers never attained the Ivy League gloss of its neighbor and old rival, Princeton, nor, as a state university, has it yet entered the heavyweight class with Berkeley and the Big Ten. But Rutgers earned a more-than-respectable academic reputation and, since New Jersey belatedly established a state system of higher education in 1966, Rutgers, the State University, as it is now formally titled, has appeared to have excellent long-term prospects for development.

Like most other states, however, New Jersey recently has had to put its budget through a wringer. Higher education has been caught in the squeeze, and the problem is compounded in New Jersey by a conflict between the legislature and a governor frustrated in his attempt to reform the state tax structure (*Science*, 22 August).

Rutgers, the senior institution in the state's public higher education system, has a history and habit of autonomy but, as part of the system, operates under the jurisdiction of the state higher education authority set up when the system was created in 1966. The growth of the New Jersey system has been rapid, and this has intensified competition within the system for resources and, particularly in the case of Rutgers, sharpened the contest over the limits of the state agency's decision-making powers. Tensions in state higher education systems are not unusual, but because New Jersey started so late, moved so fast, and, consequently, encountered financial trouble at such an inopportune time, the conflicts are more clearly defined, and, perhaps because of the personalities involved, seem to be more out in the open.

New Jersey's higher education authority consists of a Department of Higher Education (DHE), a chancellor, who runs DHE, and a Board of Higher Education, which advises the chancellor and is charged with the general supervision of higher education in the state. The 17-member board has nine citizen members appointed by the governor, six members who are representatives of educational institutions, including the chairman of the Rutgers board of governors, and two nonvoting, ex officio mem-

bers, the state commissioner of education and the chancellor.

The chancellor is Ralph A. Dungan, who accompanied John F. Kennedy to the White House as an aide and then served as ambassador to Chile during the Johnson Administration. The chancellor is elected by the board with the approval of the governor. The term is 5 years and Dungan, the first to occupy the post, is in the third year of his second term. Dungan is a skillful administrator and a forceful personality and has been at the center of controversy in the frequently turbulent formative years of the New Jersey system.

Many states have higher education agencies which are expected to "coordinate" higher education activities. Fairly typical of the powers and responsibilities given such state authorities are those which describe the role of the New Jersey board in the Higher Education Act of 1966:

> It shall be the duty of the Board of Higher Education to advance long-range planning for the system of higher education as a whole in the state; establish general policy for the governance of the separate institutions; co-ordinate the activities of the individual institutions which, taken together, make up the system of higher education in New Jersey; and maintain general financial oversight of the state system of higher education.

In practice, the New Jersey authority has played a relatively strong role. This assertiveness seems to have been encouraged by the citizens committee of the middle 1960's, which heavily influenced the design of the system. The committee, headed by then Princeton president Robert F. Goheen, felt that there was an emergency in higher education in the state. At the time, public institutions of higher education in New Jersey accommodated only about 30,000 students, and perhaps 60,000 state residents attended colleges in other states. The committee's prescription was a vigorous state authority which would oversee expansion of the state system, not only in providing undergraduate education but also in graduate and professional areas. (Full-time enrollment in public institutions was well over 120,000.)

Apparently the committee felt that the expansion of the system should not be supervised by the State Board of Education, which was likely to be preoccupied with the role of the state colleges in training teachers. The state colleges at the time were essentially "single-purpose" teachers' colleges and part of the blueprint for growth was to make them into more broadly based, multipurpose, 4-year colleges.

This has been largely accomplished with the eight state colleges—two of them founded since the system was created—through a major building campaign and an increase in faculty. At the same time, the colleges have been put under fairly tight rein with respect to programs. DHE, for example, has effectively cut back on teacher training, using detailed analyses of state needs as a rationale. Graduate education at the state colleges has been limited to the master's level and, for the past 2 or 3 years, a lid has been placed on new master's programs, primarily because of economic pressures.

College presidents and faculty members have railed periodically at what they regarded as dictation by unsympathetic outsiders, but the most insistent objections have come from Rutgers administrators and faculty who argue that Dungan and DHE have gone too far and are intruding on academic decision-making.

New Look at the System

The objectors have made an impression. During the last gubernatorial campaign, some critics—notably faculty members from Rutgers—approached the eventually successful Democratic candidate, Brendan T. Byrne, and complained that the governance of higher education needed an overhaul. Byrne indicated that he was sympathetic with the idea of appointing a new Goheen committee. After he was elected and reminded of his campaign promise, Byrne reportedly talked the matter over with Princeton president William G. Bowen and others and settled on the alternative of a one-man, fact-finding look at the system. Selected for the job was Homer D. Babbidge, Jr., former president of the University of Connecticut and now master of Timothy Dwight College at Yale. Babbidge has been asked to focus exclusively on the structure of higher education—the financial crisis is excluded from his commission—and to give his report to the governor on 1 September.

It appears unlikely that the Babbidge report will have a revolutionary impact on higher education in New Jersey, but it will direct attention not only to particular strains within the developing New Jersey system, but to the general problem of the conflict between autonomy and accountability in public higher education.

The most dramatic instance of state decision-making occurred when the governor on 1 June cut out all state funds for the support of the Rutgers agricultural experiment station as a part of radical surgery to balance the state budget. The $7 million cut in state funds for the experiment station would have taken matching funds with them and, in effect, wiped out a $16 million operation and resulted in the firing of perhaps 1200 people.

The cuts, ultimately, were mostly restored, and the experiment station continues to function. But many people at Rutgers believe that the station had to suffer through a cliff-hanger because Dungan and DHE had earlier questioned the scale and focus of agricultural research at Rutgers and recommended fairly severe budget cuts.

In a study released in April, DHE noted the steadily declining role of agriculture in the state economy—agriculture, by any standard measure, produces well under 1 percent of the gross state product. The report also observed that there had been a shift away from research supporting food production and toward research on food processing, which is carried out mostly by large corporations that have large R & D programs.

The study also notes that, out of 325 persons listed as faculty and administrators, about half had salaries of more than $25,000 a year, and 20 were in the $35,000 to $45,000 range. The agricultural enterprise's staff, as a whole, had a high tenure rate, about 75 percent, with about 82 percent of research faculty tenured. Extension agents, as well as instructional and research faculty, are eligible for tenure. DHE reports that the high salaries and tenure make it difficult to shift resources in the agricultural sector of the university.

In New Jersey, as in other states with large urban populations, the cooperative extension service is putting more effort into programs on human nutrition and "improved family living" in the cities rather than on traditional 4-H activities and programs to improve farm income. Dungan has referred to these new programs as "social work" and has said that, although they may be useful, he questions whether they should be funded as part of the agricultural experiment station's program.

The response from university proponents is, first, to point out that the agricultural experiment station has a record of useful and sometimes brilliant work. Selman A. Waksman, who won the Nobel prize in 1952 for his part in the discovery of streptomycin, made his start in research at the experiment station and spent his career at Rutgers. Partisans argue that New Jersey agriculture is still a significant factor in the state economy and that farmers need the continued support of the experiment station to meet their special problems and requirements. The resort industry, which is also important in New Jersey, relies on the station. The main argument is that much of the work at the station is directed toward pollution control and environmental studies generally which are essential in an urban industrial state, and the experiment station has a pool of talent in specialties unavailable elsewhere.

Environmental concerns motivated the founding of the year-old Cook College in

New Brunswick. A successor to the traditional agricultural college at Rutgers, Cook is meant "to integrate the humanities and social sciences with the physical and biological sciences to support its theme of 'man and his environment.'" Cook seems to have caught a wave of interest and currently inspires the stiffest competition for admission of any of Rutgers' undergraduate colleges. Cook would have been effectively dismantled if the governor's cuts had gone through, since many of the agricultural experiment station faculty teach classes at Cook.

Ironically, the station probably would have escaped such rough handling if the agricultural interests in New Jersey had not been so powerful in the past that they won for agriculture at Rutgers virtual independence from control of the central university administration. The experiment station had its own separate line item in the budget, and when the governor looked for programs to cut, the station's funds were easy to amputate at one stroke.

Criticism by DHE has not been confined to agricultural research, teaching, and extension work. Rutgers research generally has been under scrutiny and budget pressure in recent years.

Dungan has been frank in stating his view that "the research function of the university has not been managed. Nobody has bothered to look at it project by project." Dungan says that he does not mean that the state should finance only research which applies directly to New Jersey needs. And he concedes that "research is one of the most difficult things to manage." But he feels it is reasonable to ask how much research should be "blue sky," how much related to New Jersey problems, and so forth. "All these questions," says Dungan, "can be put under the heading of 'how to measure research.'"

Dungan recognizes that Rutgers has taken steps to deal more systematically with its research operations. The university, for example, appointed a research director about a year ago, a move which most of those concerned thought was long overdue. Dungan's stern appraisal, however, was, "no observable results."

Rutgers officials, including president Edward J. Bloustein, have not been timid about rebutting Dungan and DHE. Their main theme is that, as one of them said, "the state doesn't have a mature understanding of the value of research in the system."

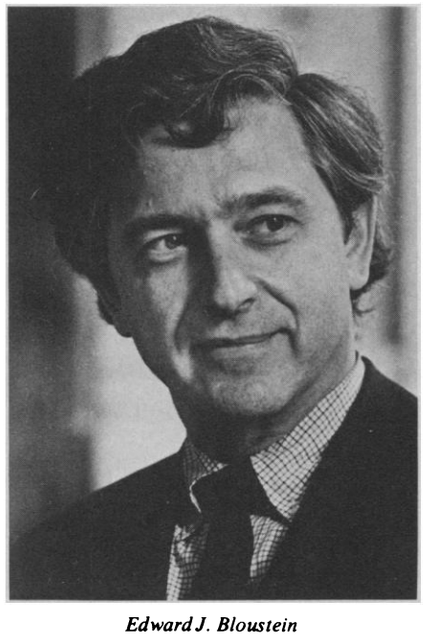
Bloustein points out that research and graduate education were relatively underdeveloped at Rutgers until recently. When other institutions were robbing undergraduate programs, Rutgers was emphasizing teaching. Now after a period in

Ralph A. Dungan

which research and graduate education programs have been strengthened substantially, the state has not only restricted the growth of total funds for research, but also imposed fairly detailed conditions under which available funds should be used.

DHE asked the university for an analysis of the research being done and also requested that an overall plan for research be formulated. The Rutgers effort at evaluation did not please Dungan; he was quoted in one published account as characterizing the documentation as "crap."

From the university's viewpoint, DHE demands and actions often seem counterproductive. Cited as one example is Rutgers' experience with National Science Foundation grants under the University Science Development program. Rutgers was awarded more than $3 million by NSF to help establish two new "centers of excellence." Such grants were made with the understanding that the institution would find ways to sustain the program after the federal funding ended. The state legislature supported the grant application with a resolution indicating that the state would pick up the costs of the program once the federal funds ran out, but university officials say that the extra funding for the centers was stripped from the state grants because of DHE recommendations. Rutgers took the position that it had a commitment to NSF and transferred resources to support the units.



Edward J. Bloustein

Not surprisingly, DHE and the university see the issues differently. DHE wanted a long-range plan for research and felt the university had not come up with a satisfactory plan which included the centers. The university was convinced that the centers were providing a "critical mass" of excellence which was attracting good people. Such opportunities come up with little notice and, to exploit them, the university has to move quickly. Such action may not fit neatly into a 10-year plan.

The conflict between DHE and the state institutions often seems to be translated into a personal contest between Dungan and Bloustein or, less frequently now, the state college presidents. One observer in the state colleges, asked to appraise attitudes toward the chancellor, said that resentment of Dungan is not surprising. "Ralph is not an educator, not a Ph.D. [Dungan has a master's in public affairs from the Woodrow Wilson School at Princeton.] Academics like people to look the part. Dungan didn't look the part. He came out of a Jesuit school [St. Joseph's College in Philadelphia], and his Ivy League hauteur is acquired."

Dungan has miffed the New Jersey public education establishment. He has been critical of public education, especially teacher education. As the same source put it, "Dungan lambasted the state schools as poor. Only one member of the Board [of Higher Education] had experience at a state college. His attitude was, 'Don't give us any of those public education people.'

"Ralph's reputation in all of the state schools is not as an advocate for public education. He is thought of as a member of the governor's staff. He's bearish rather than bullish [on public education]. The [DHE] study of supply and demand for public schools was based mostly on school board figures. It was technically well done, but it was published at a time when it suited the chancellor's purposes. When DHE does good research, it may use the results in a special way.

What's Wrong with This Picture?

Several years ago, the dissident Soviet biologist Zhores A. Medvedev wrote that *Science*, along with many other foreign publications, is routinely censored in the Soviet Union before being photocopied and distributed internally. Whole articles—usually from the News and Comment section—were said to be clipped out, ads shuffled about, and contents tables purged (*Science*, 15 October 1971).

It turns out that Medvedev was not exaggerating.

Since 1973 the Soviet Union has been a party to the Universal Copyright Convention, and, under it, has annually asked the AAAS for permission to reproduce some 900 copies of *Science* in return for a 10 percent royalty. The agreement with the AAAS also calls for sending the association a subscription of the Soviet facsimile version. Until now, none had been sent. On 11 August, the first copies seen here arrived in the mail—confirming Medvedev's tale, as well as lending substance to his observation that the deletions seemed "senseless and inexplicable."

In the six issues received, two letters, two editorials, one lead article, and two news articles had been deleted.

Not all the magazines suffered deletions; those that did showed a sometimes unpredictable pattern of scissors work. Not surprisingly, articles on U.S. and Soviet strategic nuclear strength went to the cutting room floor. So did such touchy items as a letter about a Jewish scientist in the Soviet Union and an editorial on politics in Unesco. Also deleted, though, was a seemingly innocuous news story on the financial problems of Harvard and MIT.

If anything, the Soviet version of *Science* shows that censors, like everyone else, have their little trials and tribulations. Slicing pages out of a magazine, for example, leaves an odd lacuna in numbering. Soviet editors strive, not always subtly, to fill the gap by numbering pages of ads that in the original have no numbers. They also try to delete whole pages, apparently in preference to leaving telltale columns of white space. But this means reshuffling ads and renumbering pages of articles (sometimes without masking out the original numbers) when the volume of ads is insufficient.

The censor's trade, it seems, is more trying than one might guess.—R.G.

Soviet reproduction of Science *for 14 March 1975 (top) shows deletion of a letter, editorial, and two articles from News and Comment. Original table of contents appears below.*

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