

aldehyde and the blocking of its SH groups, the colloidal carrier became unstable and turned into a dark brown substance which could readily be precipitated by alcohol, while the free ketone aldehyde remained in solution even in more hydrophobic solvents.

Discussion

How could the physical state of the cell be dominated by a glyoxal derivative if a very active glyoxalase is present in the same cell? This is possible only if one of them is kept in an inactive state, or else if the two are separated. Both tricks are often used by nature for regulation.

We have not studied the distribution of the keto-aldehyde yet in detail, but we have found it, thus far, in all tissues tested, except one: cancer. A lack of the aldoketone may thus be involved in the senseless proliferation of this tissue. As suggested, also, by F. E. Knock (10) and by unpublished results of M. Watson, cancer cells seem to be more sensitive to aldoketones than normal cells, indicating that, if aldoketones are involved in oncogenesis, it is rather the lack of the inhibitor than of its receptor which is responsible for the misbehavior. In any case, a detailed study of the distribution of keto-aldehydes is indicated, under various conditions (for example, dif-

ferent age). Urine contains keto-aldehydes, and it can be hoped that its study may give information about the equilibria in the body and their possible relation to cancer.

Suspensions of disintegrated liver cells are precipitated by concentrations of glyoxal derivatives which inhibit cell division, showing that aldoketones can interact with various macromolecular systems, altering their physical state.

The weak cancerostatic action of aldehydes was noted long ago (14) and has been studied by several authors. Aldehydes, also, react with sulfhydryl compounds (15), and it can be expected that their reactivity is greatly increased by a neighboring ketone group, as shown by Együd (6). Reports on cancerostatic action of glyoxal derivatives, especially semicarbazones, appear in the literature with increasing frequency, and one member of this group, Kethoxal, is even on the market.

Conclusion

Many problems are left open in this article. Its publication may be excused by the suffering cancer causes, which urges the researcher to publish as soon as he thinks he may have found a new trail, which also may be taken by others. What emerges clearly is that SH groups, with their specific reactivities, offer a hopeful target in the search

for cancerostatic substances, among which the natural repressor of cell division may hold out the most promise. The glyoxal derivatives also have antiviral properties (7, 16) and may be in the center of a hitherto unknown system of equilibria which deserves a thorough study. The low molecular weight of the glyoxal derivative reported justifies the hope of an early clarification of its structure, as well as its synthesis (17).

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NEWS AND COMMENT

Pitt Picks Chancellor: Agrees that Modesty Is the Best Policy

Pittsburgh. The University of Pittsburgh seems to have crawled out of the pit of financial trauma and academic worry. The most recent indication of Pitt's movement toward recovery was the announcement on 13 January that the university had found a new chancellor—Wesley W. Posvar, a 41-year-old career Air Force officer with an impressive collection of academic credentials. His selection ended a 1½-year search to replace the controversial Edward H. Litchfield.

The decade of dynamic thrust which

the university had enjoyed under Litchfield hit a roadblock in the summer of 1965 when it became apparent that the university had accumulated debts of more than \$20 million and had run out of operating funds. (Pitt's difficulties were examined in a three-part series published in *Science* on 4, 11, and 18, February 1966). Litchfield, after suffering a mild heart attack in June of 1965, left the university in July of that year. Litchfield now divides his time between his corporate directorships and his service as chairman of the board of

the Governmental Affairs Institute in Washington, D.C.

Although many at Pitt still praise Litchfield for the pioneering work he did in helping bring Pittsburgh into the ranks of nationally known universities, some also add that he often tended to be arrogant in his dealings as chancellor. Trustees sometimes felt ignored, the faculty occasionally felt slighted, and neighboring educational institutions felt little inclination to cooperate with Pitt's aggressive leader. As a result, the powers at Pitt were ready for a less Olympian chancellor.

They found him in an unexpected place—at the Air Force Academy where he was chairman of the division of social sciences. In contrast to the usual civilian stereotype of the military officer, the soft-spoken Colonel Posvar gives the impression of being a modest and self-effacing man. At his first press conference at Pitt, on 18 January, Posvar said he had no plans for sweeping



Wesley W. Posvar—Air Force colonel who will become chancellor of the University of Pittsburgh on 1 June.

changes, adding, "I must be very humble, I don't know all the answers yet." According to his philosophy, he explained, "a new broom ought *not* to sweep clean." In his tours at Pitt after being appointed chancellor, Posvar dutifully visited university officials in their own offices, rather than having his new subordinates call on him.

Though the trustees were willing to elect a military officer as head of a major university, the initial reaction of the faculty was different. "Many people were aghast. Informal arrangements had been made to circulate petitions against him," explained David Halliday, dean of the Division of Natural Sciences, in an interview. History Department chairman Samuel P. Hays commented, "Throughout the whole institution there was a great skepticism about a military officer, almost an anger." But both Halliday and Hays, as well as other faculty members, said that this initial anger largely subsided within a few days.

"First, we were amazed by the selection of a military officer," commented one professor in the humanities division, "then our hostility lessened when we learned he was a Rhodes Scholar; we became more reconciled when we learned he was first in his class at West Point and held a Harvard Ph.D., and our doubts were finally removed when we learned his wife was a Metropolitan Opera Star." (Posvar's wife, Mildred Miller, is a leading mezzo-soprano.)

Posvar faced his major faculty test on the evening of 8 January. Board chairman Gwilym A. Price, who was once head of the Westinghouse Electric

Corporation, brought Posvar together with the half-dozen members of the faculty advisory group which was aiding the trustees' search committee. Because Price did not want the faculty members to formulate their opposition to a military man as chancellor before they had actually met him, he refused to give the faculty group advance notice about the identity of the candidate. After meeting Posvar and learning about his background, the faculty group put him through an exhausting 4-hour intellectual workout. By vigorous questioning they attempted to ascertain his views on academic freedom and on student and faculty protests, and tested his comprehension of the role of the tightly knit economic and social establishment which so greatly determines the fate of Pittsburgh universities. Although initially annoyed by not being told the candidate's name in advance of the meeting, the committee members were impressed by Posvar's responses to their questions and emerged from the inquisition with high praise for the cool-headed colonel. Their enthusiasm has helped quell the doubts of their fellow faculty members concerning the appointment of a military officer. Also, the unanimity of the faculty committee may have helped remove doubts felt by some trustees who wondered whether they should select a man who was only 41 for the top job.

Quick Approval

On the day after their grilling of Posvar the faculty advisory subcommittee unanimously approved his selection. On the same day Posvar was introduced to the trustees whom he had not yet met. On the following day, 10 January, he was approved as chancellor by the trustees.

The Posvar-Pittsburgh match came after a whirlwind courtship. The leading Pitt trustees only became aware of Posvar's suitability in the last few days of December, after Clifford C. Nelson, president of the American Assembly in New York, called Pittsburgh to suggest him. Within 2 weeks after that telephone call Posvar had visited Pitt twice, had received the approval of the faculty advisory committee, and had been elected by the trustees.

Several reasons for this speedy selection process are suggested at Pitt. First, Gwilym Price was retiring as chairman of the board of trustees on 10 January and wanted to leave office with a new chancellor already selected. Second, it was difficult for Pittsburgh to shift back



David H. Kurtzman, financial expert who will continue to serve as Pitt's chancellor until Posvar takes office.

into high gear academically until a permanent chancellor was appointed. Adolf Grünbaum, a member of the faculty advisory committee, explained in an interview that "there was a sense of urgency about picking the chancellor; we needed funds flowing back to the university from private sources." The university had hesitated to approach private givers until the decision on the chancellorship had been made.

The new chancellor has had an unusual military career. Instead of seeking the field commands which lead to the highest military positions, Posvar has spent most of his service in academic institutions. After graduating from West Point in 1946, he spent 3 years reading philosophy, politics, and economics at Oxford, taught at West Point from 1951 to 1954, and became a professor of political science at the Air Force Academy in 1957. For the most part, he has been at the Academy since that time, except for the period 1962-64, when he completed work for his Ph.D. at Harvard, writing his doctoral dissertation on the effect of military expertise on national defense policy. Posvar, who now prefers to be called "Doctor" rather than "Colonel," emphasizes that he is primarily an academic and does not anticipate any difficulties in his university role arising from his military background.

At the end of this academic year, Posvar will have served 21 years in the Air Force. He asked that his appointment as chancellor be delayed for a few days while he confirmed his eligibility for the retirement pension given to those who have completed two decades

in the armed forces. Although some officers have to scramble to make ends meet on their retirement pension, Posvar will have no such trouble. As chancellor, he will receive ample fringe benefits, plus an annual salary of \$41,500.

In addition to providing Posvar a handy bonus to supplement his retirement pay, the chancellorship at Pittsburgh today offers a more pleasant administrative prospect than it would have 18 months ago.

The primary reason for the change is the fact that the financial storm of 1965 has been weathered. After suffering annual operating deficits for 6 years, the university compiled an operating surplus of more than \$1.4 million for 1965-66. David H. Kurtzman, who has served as chancellor for the past year, estimates that the surplus for the current academic year will be about \$2 million. As of 31 July 1966, the university still had a \$21.5-million excess of obligations over assets, but this represented a \$6.2-million reduction in obligations from the preceding year.

Praise for Kurtzman

In Pittsburgh, Kurtzman is widely praised for having reversed Pitt's financial erosion. Several university officials told *Science* that the 63-year-old Kurtzman would have been given the post of chancellor on a more permanent basis if he had been a few years younger. Kurtzman served as acting chancellor from 30 January 1966 to 10 January 1967, when he was promoted to the rank of chancellor, a position he will hold until Posvar assumes the office on 1 June. After that date, Kurtzman will stay on to assist Posvar with fiscal matters and relations with the Commonwealth of Pennsylvania.

Relationship with State

A second and connected reason for improved finances and heightened morale is the fact that, in the late summer of 1966, the university became a state-related institution, under an arrangement similar to that made earlier between the Commonwealth and Temple University in Philadelphia. Under this agreement, the Commonwealth provides about \$20 million of Pitt's \$70-million budget in the current academic year. Slightly more than half this state support represents a tuition subsidy for Pennsylvania students. In-state students now pay only \$450 tuition for a regular academic year; the other \$950 of the

regular \$1400 tuition is borne by the state.

As a result of this sharp drop in tuition charges for in-state students, Pitt is now being besieged by applicants from all over Pennsylvania. In past years Pitt has had difficulty in filling its existing places with qualified applicants—one of the causes of its financial difficulties. Now Pitt can expand its student body rapidly and demand higher academic qualifications for admission. "Overnight, we've passed from famine to feast," Dean of Admissions Jack Critchfield exclaims. The university agreed to expand its enrollment in return for getting state aid, and the number of students is expected to more than double in less than a decade.

Other financial advantages which accrue to Pitt from the state-related plan include having the state provide the funds for the construction of all academic buildings and being able to borrow money at a lower interest rate through the issuance of tax-exempt bonds. Pitt officials do not count tuition rebate for Pennsylvania students when they speak of the financial advantages of their new method of operation, and they point out that Pitt received only \$9.5 million in "real" income from the state in the current academic year, only \$3.5 million more than in 1965-66. Even before becoming "state-related," the university received an annual subsidy from the state to cover part of its expenses, as do several other Pennsylvania institutions of higher learning.

Pitt's leaders are quick to state that their university is still privately run, despite the closer tie with the Commonwealth. In exchange for state aid, Pitt accepted an arrangement whereby one-third of its trustees are state-appointed. Pitt officials point to the generally high quality of the public trustees, several of whom are Pitt alumni. Public trustees appointed in the past year include I. W. Abel, president of the United Steel Workers of America; Sidney P. Marland, superintendent of the Pittsburgh public schools; and Everett E. Utterback, a Pittsburgh attorney and former Pitt track star. Utterback is the first Negro trustee to serve on the Pitt board.

Faculty Loyalty

A third cause for high morale at Pitt is the fact that the distinguished faculty members acquired by the university in the past decade have remained during the financial crisis. Very few talented faculty members have left

the university during the past 18 months because of the university's financial difficulties. For instance, the philosophy department, perhaps Pitt's most nationally noted department in the academic disciplines, "has remained as firm as a rock," according to one of its members.

Despite offers from other institutions, the faculty remained at Pitt. The reasons for their loyalty are several: public statements by the trustees of continued dedication "to pursuing a policy of sustained growth toward excellence"; greater confidence because of the financial agreement with the state; an increased faculty voice in the running of the university, which included helping select the new chancellor; and the granting of substantial faculty pay raises during the past year, especially to highly-sought-after professors. Although non-academic expenditures were reduced greatly at Pitt, the administrators tried to keep expenditures for existing academic programs and salaries intact. Now, for the academic year 1967-68, all university departments and sections are actively recruiting new faculty members, partly to fill previously unfilled vacancies and partly to prepare for the greater number of students expected next year.

The Pressure of Numbers

But all is not ideal, even at the now happier Pitt campus. Some faculty members fear that the greater number of students brought in because of the state agreement will give Pitt the atmosphere of a mass-production university. In past years, many faculty members have prided themselves on the small classes that Pitt has been able to maintain. Another concern at the university is fear that the trustees have lowered their sights in their hopes for Pitt. Such fears were further sparked by Price's 10 January valedictory remarks to the board of trustees: "the biggest single task facing this Board in the immediate future is to establish and help fulfill a new goal for the University. That goal should be to make Pitt a really fine regional University. . . ." Although Price said he felt no contradiction between a regional orientation and "a desire for genuine excellence," some faculty members and students thought they saw a backing away from what they assumed was a commitment by the trustees to make Pitt a great national university.

As with most universities, the need for more money is paramount at Pitts-

burgh. As Kurtzman readily points out, "as long as you have a \$21 million excess of obligations, there's still a financial crisis." Even under the financially helpful state relationship, the University of Pittsburgh still needs large grants from corporations, trusts, and wealthy private givers. University officials hope that the state relationship will not serve to convince private givers that they no longer need to support the university. In light of this concern, university officials were understandably joyous in December when the Richard King Mellon Trusts announced a gift of \$3.23 million for the creation of a department of neurology in the School of Medicine, the first major private gift to the university since it became state-related. The Mellon family's gifts have represented Pitt's largest single source of private support, and the university seized eagerly on the comment, in the letter announcing the gift, that "this grant can be taken as a reaffirmation of the faith of the Trustees of the Richard King Mellon Charitable Trusts in the University's future."

But the Mellons and other private givers have tended to lavish most of their gifts to the university in the areas of medicine and public health. No doubt many faculty members and administrators who have remained loyal

to the university during the financial crisis expect their own areas to be better funded in the future than they have been in the past. Samuel P. Hayes, chairman of the history department, expresses the views of many of his colleagues in the academic disciplines when he says, "People here won't be satisfied unless there's a major drive to support the university with free and unallocated funds."

One of the main points of contention between Litchfield and the trustees was the amount of money the trustees had agreed to raise to help build Pitt into a great university. At one point Litchfield mentioned the figure \$125 million, but the trustees always shied away from such specific figures. They still seem wary of making any specific financial commitments to their chancellor. When this reporter asked William H. Rea, the man who has now replaced Price as chairman of the board of trustees, what financial commitments the trustees had made to Posvar, Rea emphatically replied, "None." Rea explained that Posvar was a realistic man who didn't expect such arrangements. Posvar confirmed the statement that no financial commitments for the university had been made to him by the trustees.

In recent years the trustees of the University of Pittsburgh have chosen

two men to assume the long task of making Pittsburgh a university of nationally recognized excellence. There are certain superficial similarities between Edward H. Litchfield and Wesley W. Posvar. Both lifted themselves to positions of prominence at an early age through their own abilities; both are political scientists; both were 41 when called to the chancellorship at Pittsburgh; both had held positions in academic administration but neither had headed a university before coming to Pitt. The trustees took an immediate liking to both men and made quick decisions to appoint each chancellor.

But such "liking" is put to a hard test when it comes to running a university as complex as Pittsburgh. As chancellor, Posvar will have to keep an ambitious faculty and student body happy, will have to maintain the confidence of the elected officials of Pennsylvania, and—perhaps most important of all—will have to encourage the Pitt trustees and other financial powers in the Pittsburgh area to increase their support of the university. Hired as an educator, the new university chancellor may soon conclude that his place in educational history will be largely determined by his skill in opening up the hearts and the coffers of the financial potentates of Pittsburgh.—BRYCE NELSON

CERN II: The Strong Focus Is on the 300-Bev Machine

London. There is no such thing as institutional genetics, but universities, research institutions, and government agencies seem to reproduce themselves in ways that perpetuate the old familiar strengths and defects. Among national institutions a pattern, a tradition, a style develops and hardens. Only when radically different demands arise is the mold likely to be broken.

When the European Organization for Nuclear Research (CERN) was conceived, multinational influences and special circumstances were sufficiently strong so that no particular academic or bureaucratic pattern was imposed. CERN consequently had latitude to develop an internal structure and exter-

nal relations fashioned to meet its specific needs.

As J. B. Adams, now a member of the United Kingdom's Atomic Energy Authority but an influential figure in CERN's formative phase, and others have noted, the next step is for CERN innovations to become a new orthodoxy. In a more than usually candid essay on CERN in a recent book on research organization* Adams observed, "future European laboratories will no doubt be modeled on the system that CERN developed during these years, and depending on its ultimate

efficacy, be either blessed or saddled with it."

Adams was alluding principally to the organization for research within the laboratory itself, but much the same thing can be said of CERN's relations to scientists in the CERN member countries and to the governments which support it. CERN successfully put high-energy physics into a European framework (*Science*, 27 January), and the CERN formula will no doubt be imitated in future "regional" research organizations. This does not mean, however, that CERN has solved for the member countries the problems they face in planning and financing their national programs in high-energy physics or in other sciences.

It was clear to CERN's founders that, if European scientists were to continue to work on the advancing frontier of research in their field, the demand for much more powerful and costly accelerators would have to be met by regional efforts. At the same time it was recognized that integration

**The Organization of Research Establishments*, Sir John Cockcroft, Ed. (Cambridge, Univ. Press, London, 1966).