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FALL 1984

AMERICAN Educator



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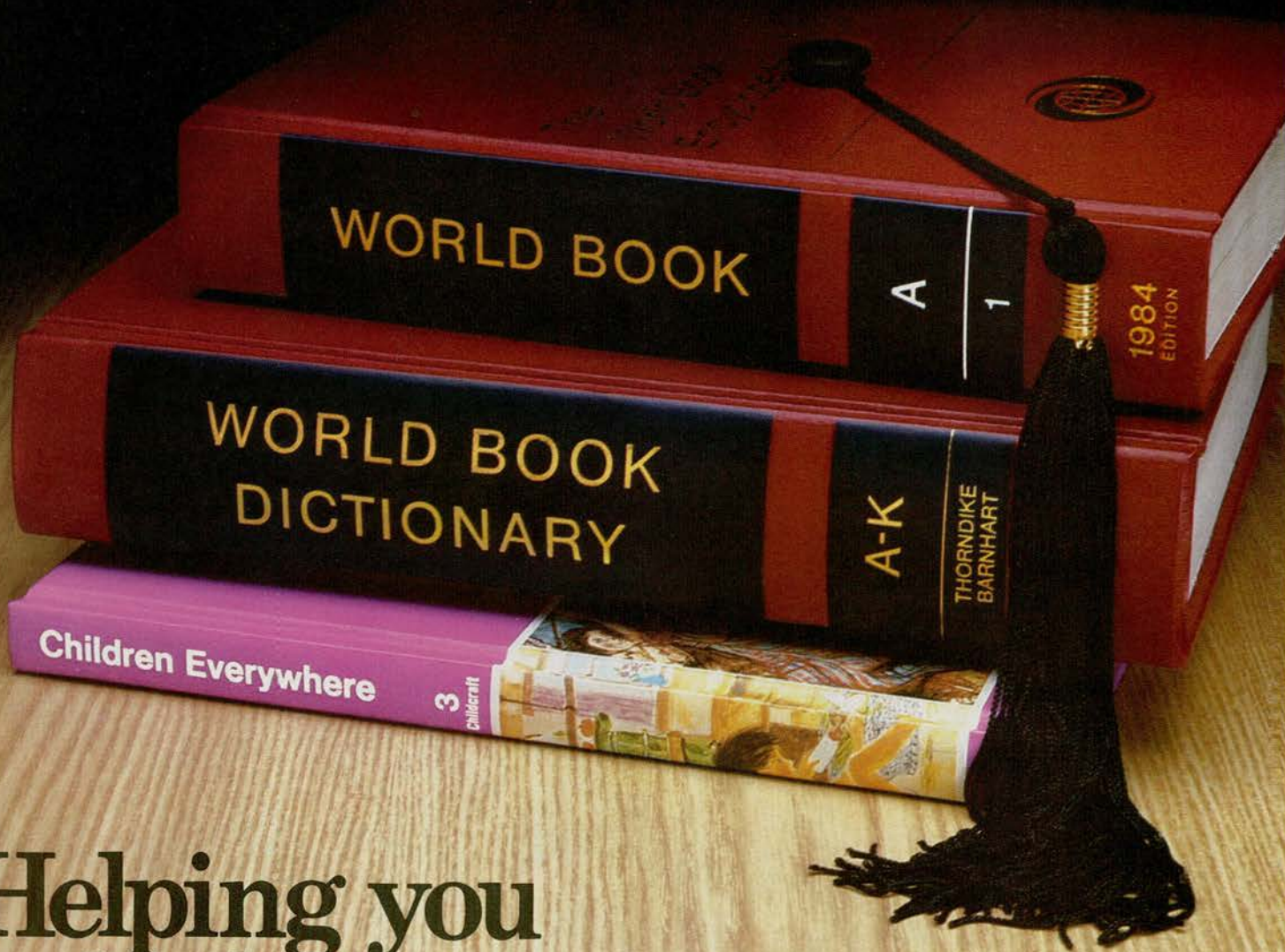
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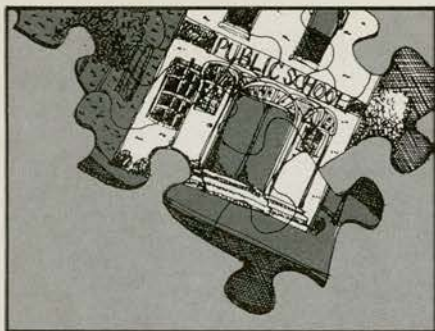
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WORLD BOOK



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President
American Federation of Teachers

Liz McPike
editor

Mary Power Boyd
assistant editor

Wanda Harper
secretary

Andrew Bornstein
design consultant

Peter Li, Inc.
advertising representative

Cover illustrated
by Susan Davis

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Notebook

GIRLS IN WHITE JACKETS

Not many girls choose careers in science. And according to data from the National Assessment of Educational Progress, girls continue to score below the national mean on all cognitive science items and to express negative attitudes toward science. But what about those girls who do like science and continue to study it? What special factors motivate them?

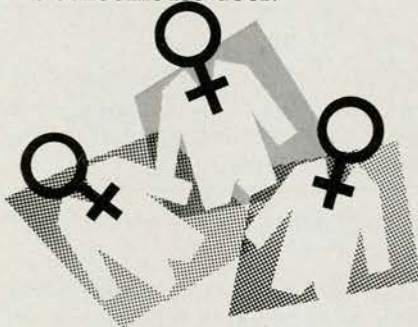
In searching for an explanation of why only 6 percent of U.S. working women are employed as scientists and engineers, past research studies have focused on social and genetic influences outside of the classroom. Now, a new study directed by Jane Butler Kahle, professor of biology and education at Purdue University and past president of the National Association of Biology Teachers, concludes that differences within the science classroom may be a key factor. In her study of eight teachers chosen for their "proven track record" in encouraging girls to pursue science studies, Kahle and her team sought to observe and analyze their teaching strategies and attitudes. Biology was the course selected for observation, "for if girls are turned off to science in biology, they effectively close the door to scientific or technological careers."

The most prominent characteristic shared by the eight teachers was their high-quality teaching: "Good teachers make a difference," the report emphasizes. "Each teacher successful in encouraging girls as well as boys to continue in science courses and careers was also a successful teacher. They were active professionally, were involved in science activities in their communities, were skilled in a variety of in-

structional techniques, and were informed about scientific careers and their educational requirements. In their own words, they were proud professionals."

Some of the teachers reported no special treatment of their female students, while others said that they actively worked at encouraging girls to pursue science courses. One teacher explained why: "I think it is ingrained in females that they don't have to take any more science. All the male students want to take advanced-placement chemistry. The teachers tell them that this is the really hard course; this is the course for the men. I think the girls get a little scared."

In addition to their solid professionalism and their concern for all their students, the model teachers displayed other common teaching techniques and attitudes that appeared to increase the retention rate of girls in science courses. The teachers favored the use of lab work and class discussion, supplemented by field trips and guest speakers. They maintained well-equipped and stimulating classrooms, avoided letting boys dominate activities, provided extensive career information and encouragement, included information on women scientists, and urged their students to "enjoy science beyond the schoolhouse door."



ILLUSTRATED BY DAN SIERBO

TEXTBOOKS FOUND FOR AFGHAN REFUGEES

The only copies known to exist of sixteen Dari-language textbooks, urgently needed for the schooling of Afghan refugee children in Pakistan, have been located in the Milbank Memorial Library at Teachers College/Columbia University in New York City.

Photocopies of the books were rushed to the International Rescue Committee headquarters in Peshawar, Pakistan, where they are being reproduced for use in camps housing about 3 million refugees, half of whom are children under the age of fourteen.

The texts present the Dari language, mathematics, and Islamic studies for grades one through six. They were written by Afghan educators who received technical assistance from Teachers College through a project sponsored from 1966 to 1977 by the Agency for International Development. All copies of the textbooks in Afghanistan are believed to have been destroyed after the revolution there; they were replaced by Russian-approved books.

Jane P. Franck, the director of Teachers College Library, noted that the library responded to a similar request by U.S. occupation forces in Germany soon after World War II ended in May 1945. German textbooks without Nazi propaganda were needed for use in German schools that September. A set of pre-Nazi Weimar texts was found in the Teachers College Library and was reproduced in time for the reopening of German schools.

Teachers College Library houses one of the world's largest collections of educational books and materials. Its Dari-language textbooks are typical of a much larger international collection of texts, including a Russian series from the post-revolution but pre-Stalin era and approximately three thousand Japanese textbooks, which cover both the period before World War II and the democratization process following the Japanese defeat.

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Letters

CORE CURRICULUM MISSING

The three appraisals of textbooks in American schools published in the Summer 1984 issue of *American Educator* were extremely informative to me and to the other university administrators and faculty with whom I have shared the articles. We see the effects of the textbook policies of the past in the students we teach today. Many of our students have never developed the inquisitiveness or hunger for learning that comes naturally from years of good experiences with books. Their limited experiences with reading, particularly of lengthy and complex pieces, have left them ill prepared to read quickly and critically enough to keep up with college-level assignments. In essence, they quite often lack the tools to be active participants in their own education.

Another issue brought up by Denis Doyle in "The 'Unsacred' Texts" looms large to teachers of college freshmen. He mentions the all-but-abandoned precept of education as a supplier of a body of common knowledge for a culture. It is not that students come to us knowing nothing; the trouble is that they all know different things. Therefore, faculty teaching introductory courses can assume nothing about the information students possess at the outset. A professor of literature cannot be certain that all students will recognize the names of central authors or the most basic tenets of various movements. This makes professors confront a difficult situation in which they must choose between

offering "remedial literature" and boring the best or assuming knowledge they know many do not possess. This latter choice virtually ensures that these students will never be "turned on" by the subject being taught. It becomes a Hobson's choice of whom one chooses to bore.

Surely there must be a way to return to a core curriculum of genuinely stimulating reading in all disciplines. Granted it is critical to be sensitive to the diversity of our schools' population, but without what Doyle calls "sight of what it is we want our children to learn," we as educators and they as students continue to flounder, dissatisfied.

—LAUREL CORONA
San Diego State University
San Diego, CA

GERALD GRANT IS RIGHT

Congratulations to you and author Gerald Grant for "The Teacher's Predicament" (Spring 1984). As a long-time AFT member, I find your magazine the best thing AFT does.

After thirty-three and one-half years in the classroom, I am taking early retirement under special incentives. Mr. Grant and his co-authors know exactly why.

—CHARLES HUTCHINSON
Plymouth, MN

TEACHING MATCHES RESEARCH

I was pleased to discover while reading "The New Research: How Effective Teachers Teach" (Summer 1984) how many of the management

techniques discussed were employed in my daily teaching. Even with acquiring my master's in Elementary Education, however, I must report that not one class I ever took dealt deeply with classroom management.

Even though the article states that "researchers adopted new methods of defining effective teaching practices in 1970," they haven't been felt until recently. I was a beginning teacher in Detroit in 1970 and suffered through many "new educational panaceas." Who is to say that I did not receive some benefit from those experiments, stored the valuable knowledge, and discarded the rest. Teachers beginning today are extremely fortunate to have *tested* strategies and techniques at their disposal.

There was another reason I enjoyed reading the article. Teachers do not have bosses that witness their daily achievements. We don't hear, "You're doing a fine job." We don't receive regular positive reinforcement. What has kept me going and constantly striving to better my skills are the parents and children who occasionally give me that necessary lift. Now, I have an article in the reputable *American Educator* that has told me I *am* a good teacher.

—PHYLLIS LIGHT
Southfield, MI

THE DISCIPLINE DILEMMA

The articles on effective classroom management in the Summer 1984 edition of *American Educator* con-
(Continued on page 48)



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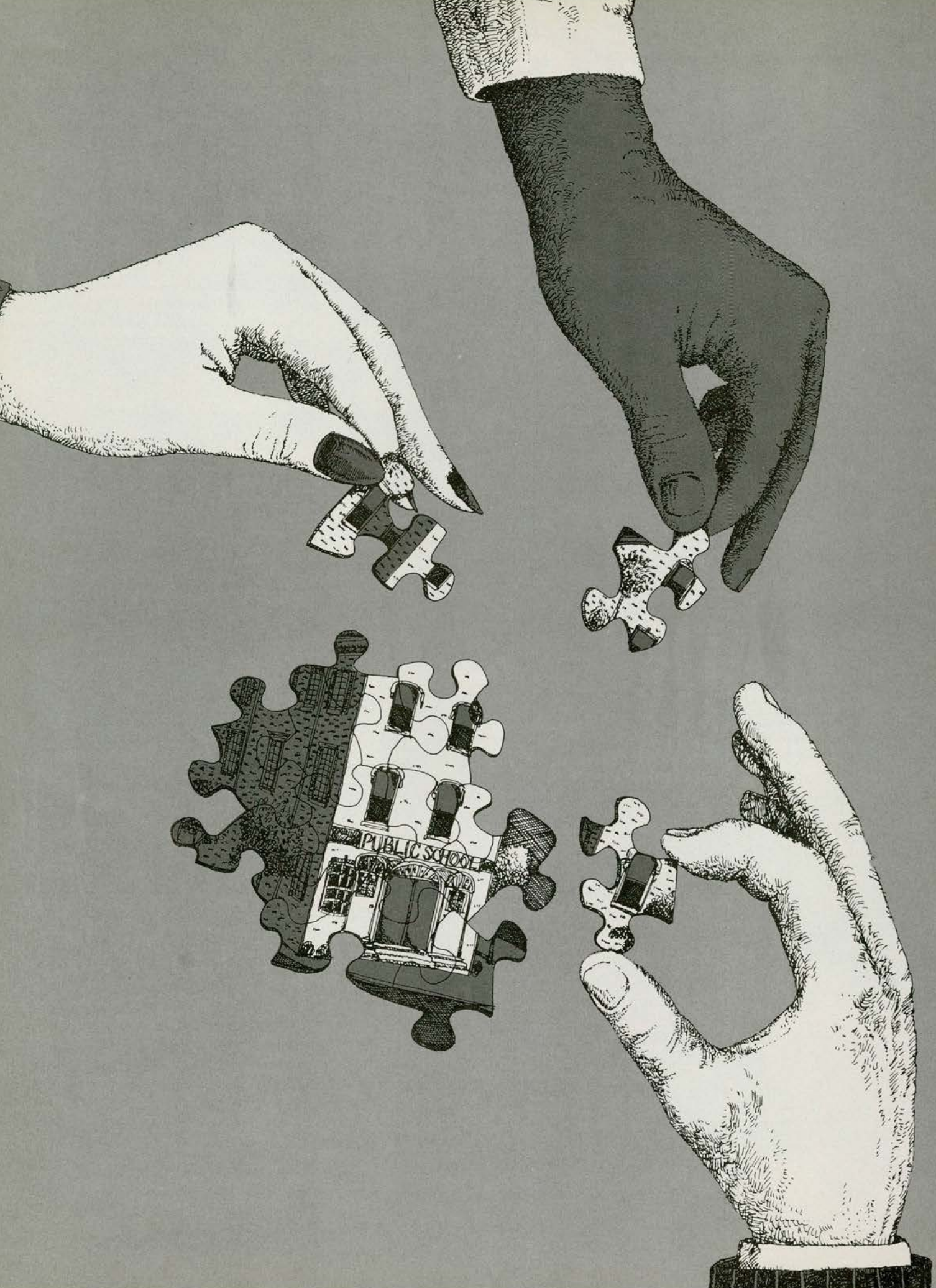
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TEACHER COLLECTIVE BARGAINING: THE CRITICAL THIRD DECADE

BY SANDRA FELDMAN

FOR STUDENTS and observers of collective bargaining and labor-management relations, this is an extremely interesting period. There is a lot of talk in labor circles about a reversion to the employer intransigence and mean-heartedness that marked the 1930s; to the kinds of bitter strikes and struggles that built our great industrial unions at terrible human cost.

And indeed, we've seen some strikes and struggles that do smack of a more punitive time in labor relations — Greyhound comes to mind, and Continental Airlines. But aside from the few extremes, many of the labor-management struggles taking place today are not easily compared to the past. The issues are not as clean, and the economics certainly are not as simple, even from the good old class-struggle viewpoint.

We are on the verge of a whole new politics in labor relations: In some large industries and in the public sector, between which it was hard to draw analogies before, management and labor have serious problems in common, and if they do not figure out a mutual way of solving them, entire industries can go down the drain.

As a phenomenon, this is disturbing; as a student of labor relations, it fascinates me; as a labor leader at the bargaining table, it makes me miserable. I can only speak of the labor side, but I imagine that the impact of sudden

decline has to hurt management as well, if not as much. So taking a good, hard look at what's happening, with a view toward making it better, ought to be in the interest of both sides.

As an example of this phenomenon, which involves radical changes in the bargaining relationship, in the membership's perceptions of the union, and in the nature of contract settlements, I will discuss, of course, what I know best: teacher bargaining in New York City. I am sure, though, from my discussions with colleagues in the union movement, that the conceptual flow would be similar in the telling of other union experiences in the recent past.

I'D LIKE to review some history, since nothing current has as much meaning at its own moment as it has in historic perspective.

Although the first teacher union was formed in 1916 by John Dewey and George Counts and other great men and women, teachers did not achieve collective bargaining until 1960. In fact, the United Federation of Teachers (UFT) in New York City was among the first public service unions to achieve a collective bargaining contract. So we are really among the youngest in the house of labor. We benefited greatly from the struggles our brothers and sisters had waged before us, and in a very short period of time we made astronomical gains. In our first contract, for example, teachers' salaries started at \$5,300 and went to a top of \$9,970 in fourteen years. In 1971, salaries went from \$9,400 to \$16,950 in seven and one-half years. Before collective bargaining, fringe benefits were nonexistent; with it, we negotiated health benefits for members and their families, includ-

Sandra Feldman is secretary and executive director of the United Federation of Teachers, a vice president of the New York City Central Labor Council, and a member of the executive council of the American Federation of Teachers. This article is based on a speech she gave to a labor-management group at the Corsi Institute in New York City on February 3, 1984.

ing free prescription drugs, eyeglasses, and dental care. Pensions, among the best in the nation, were achieved. Working conditions were vastly improved: a duty-free lunch, relief from menial chores, a defined working day, time to prepare lessons. It was a different world before collective bargaining and after it.

We also pushed to improve education, for we saw ourselves as the bearers of John Dewey's torch: "Education for democracy; democracy in education." We believed, and still do, that our unionism and our professionalism are one and the same. So we negotiated reduced class size, a procedure for removing disruptive children from the regular classroom setting, a more effective schools program — which included special remediation and clinical services — and more help for children in need.

We organized guidance counselors, school secretaries, psychologists, social workers, and others who had been in separate organizations or were unorganized. When paraprofessionals were brought into the schools as part of an anti-poverty program, we organized them — ten thousand of them — tripled their salaries, won for them the same health benefits that teachers have, and instituted a career ladder with full tuition, which is still a model for the nation.

All of this in our first decade as a union. During that period, we had four strikes, in case you were thinking it all came easily. We grew from a membership of five thousand (exaggerated) to sixty-five thousand (real). We went through about half a dozen superintendents and about as many boards of education. At the bargaining table it was tough but exhilarating.

We presented our demands, usually about seven hundred of them, carefully framed and fully discussed throughout our ranks and ranging from salary and benefits to special needs like a "clock in every home economics classroom." We sat across from the board of education and its staff and we made our arguments as persuasively as we could. We communicated formally and informally: We argued, cajoled, and pounded the table. Sometimes we had a strike, but generally there was real give and take. There were settlements, and they were implemented. No one counted the exact costs in advance. Of course, we all knew our substantial gains added considerably to the budget, but I think it's fair to say both sides felt the costs were justified.

BY OUR 1972 negotiations, however, things started to change. Some would argue that the decentralization of the school system was responsible for a very different kind of bargaining relationship. I think it had some impact, but it was negligible compared to the fiscal crisis. The free-flowing sixties had ended. The costs of a particularly rich settlement in 1969 were being felt as the city's economy began to show weaknesses. Our settlement in 1972 was not the spectacular achievement its predecessors were. Very few changes in working conditions were achieved. The city fathers began a new refrain: "ability to pay" — a song we'd never heard before.

In September 1973, in a speech on "why teachers need the right to strike," UFT president Albert Shanker tried valiantly to make a case against this new phenomenon: "The argument of ability to pay doesn't really count

in public sector negotiations. A private employer could pull out his books and show that he's going out of business if he pays more, but government can't."

In April 1975, the New York City government pulled out its books and showed its workers that it was about to go out of business. Mayor Abe Beame informed Governor Carey that New York City could not pay \$400 million in short-term notes due on April 15. It could not market any additional anticipation bonds, the usual way of meeting the city's payroll and paying other bills.

The UFT had just begun bargaining for a new contract. While we sat at the table with the board of education, the city teetered on the edge of bankruptcy for months. With the state's help, the establishment of the Municipal Assistance Corporation (MAC), the subsequent agreement to use employee pension funds to invest in MAC bonds (the teachers' share was \$200 million and rose ultimately to more than \$1 billion, about a third of the \$3.6 billion in MAC bonds bought by the employee pension funds), a loan from the federal government, and much painful budget cutting, the "Big Apple" stayed afloat.

During that summer, however, while our negotiations were heating up, rumors began to fly about teacher layoffs. It was hard to believe. Layoffs had never happened before, not even during the Great Depression.

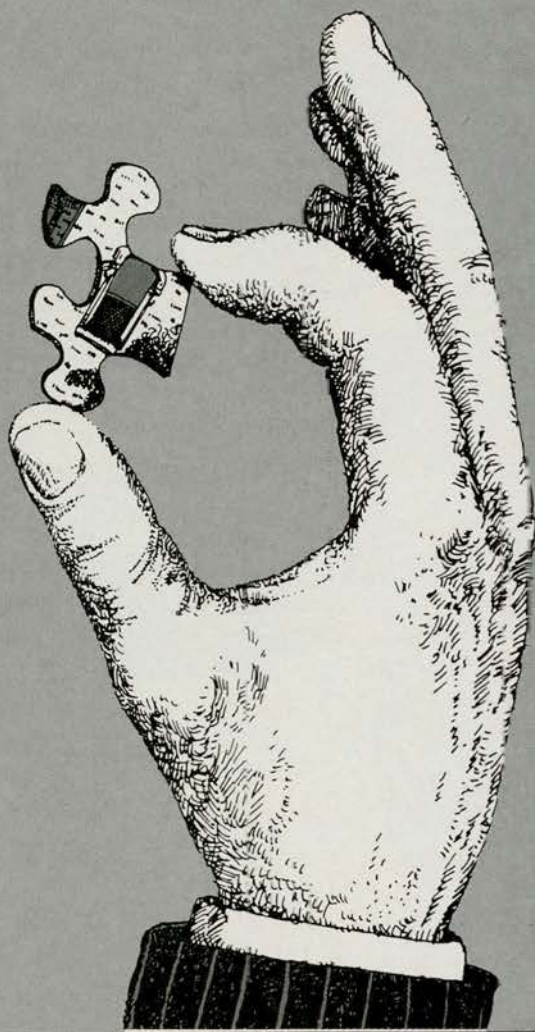
While we sat innocently at the bargaining table, an oversight mechanism to control city spending, the Emergency Financial Control Board (EFCB), was established by the state legislature, over the mayor's objections. We weren't at all sure what this board would have to do with us, which seems strange in retrospect because it is so familiar now: We know it and understand it well. We've never grown to love it, though.

That terrible summer of 1975 marked a significant shift of financial power from New York City to the state and a very great change in the nature of teacher bargaining. The control board, made up of the governor, the mayor, the city and state controllers, and the three "private" members appointed by the governor, was given the authority to review city budgets, to approve union contracts, to adjust the contribution of pension funds, and to call for periodic audits of expenditures.

The board of education, a quasi-state agency with two-thirds of its budget coming from city funds, completely lost its previous independence in making decisions on how to spend its own budget. It took time to realize that this had happened. In late August, a decision came from "somewhere" to cut the board of education budget by \$45 million! Twelve thousand positions were lost, and seven thousand teachers were laid off. The board opened schools in September in chaos. Our contract was due to expire the day after school started, and the next day the UFT went out on strike.

It was a harrowing strike — much more than usual — and we know that strikes are always painful. By the second day, several things were clear: The board of education had no power; those holding the purse strings were prepared to sit out a long strike, content to count the daily savings of millions of dollars in teacher salaries and penalties of two days' pay for each day we were out. No one really understood how to react to this crisis. After four days, we fashioned a settlement involv-

“While we sat at the table with the board of education, the city teetered on the edge of bankruptcy for months.”



ing some teacher recalls and paid for largely by the money teachers had saved the city by striking.

IT HAS been a very different ballgame ever since. The other city unions, needless to say, suffered their own forms of pain. In general, we were all hurt badly. Over the next several years, salaries were held back, wages were deferred, a new prospective pension system with significantly inferior benefits was enacted by the legislature, city contributions to health plans stayed at 1973 levels, and by 1980, employees who were accustomed to 80 percent reimbursement were getting 40 percent. Working conditions in the public sector worsened. In the schools, class size skyrocketed to prebargaining levels. Educational quality deteriorated; morale sank.

What were we to do? Given the 1975 experience, the threat of strike as bargaining leverage just wasn't useful while being "good guys" and investing pension funds to save the city didn't soften the hard hearts of the control board at all. The national economy was in almost as much of a mess as New York City's. Our experience was now being repeated in city after city, and allies or sympathizers were few and far between.

So we turned to our fellow unions. In the good old days, the public employee unions competed with each other. Now we formed a coalition. That coalition has shifted and changed and experienced some splintering, but a strong alliance has endured. "Coalition bargaining" was born — two coalitions really, for the uniformed services have their own. We bargain directly with the city on all economic matters ("tier one"), and once an agreement is reached, we go to our respective agencies for bargaining on noneconomic matters ("tier two"). On rare occasions, we can trade some cost items for other cost items at the tier-two level, but that is more bartering than bargaining, and very little creativity has been exercised.

Creativity has been stifled partly by the unwillingness of management to risk future cost and primarily by the drawn-out process of contract approval by the budget people in the city and at the EFCB. Several times in the past, after completing tier-one bargaining, we have proposed innovative methods of redistributing some of the money we negotiated at that level. Our attempts in 1978 to get annual salaries and pensions for paraprofessionals is one example. We have found, however, that seeking approval for proposals of this kind from the city and the financial control board can be a seemingly endless process. Most of the time our efforts are futile, and even if a proposal is finally approved, the money involved can be tied up for years.

Instead, what happens is that the union's "numbers" people meet with the city's "numbers" people and argue about how much money is actually available, and then the union leaders go in and fight for as much of it as they can get, which hasn't been very much in recent years. We provide an important lobby for the city in the state legislature, and given our greatly increased — by necessity — political power, we've been extraordinarily constrained and responsible in our settlements, as has municipal labor in general.

It is unfortunate that labor doesn't get the praise it deserves for keeping the city afloat at great self-sacrifice. Perhaps someday, someone will succeed in explaining

to me why, in a society that reveres money making, workers asking for raises are looked upon as "grabby" and selfish. What actually happened during the period of fiscal crisis in New York City was a proud effort the likes of which, if it could have been accomplished by the British Trade Union Council and the Labor Government, would have benefited Britain's economy enormously and might have allowed the Labor Government to survive.

COALITION BARGAINING in New York City, for all the public posturing on both sides, has worked; but its enormous creative potential remains untapped. And because the city's labor relations are driven primarily by the office of management and budget and by the policy of a mayor who feels a tough public attitude toward unions is good politics, much has been lost.

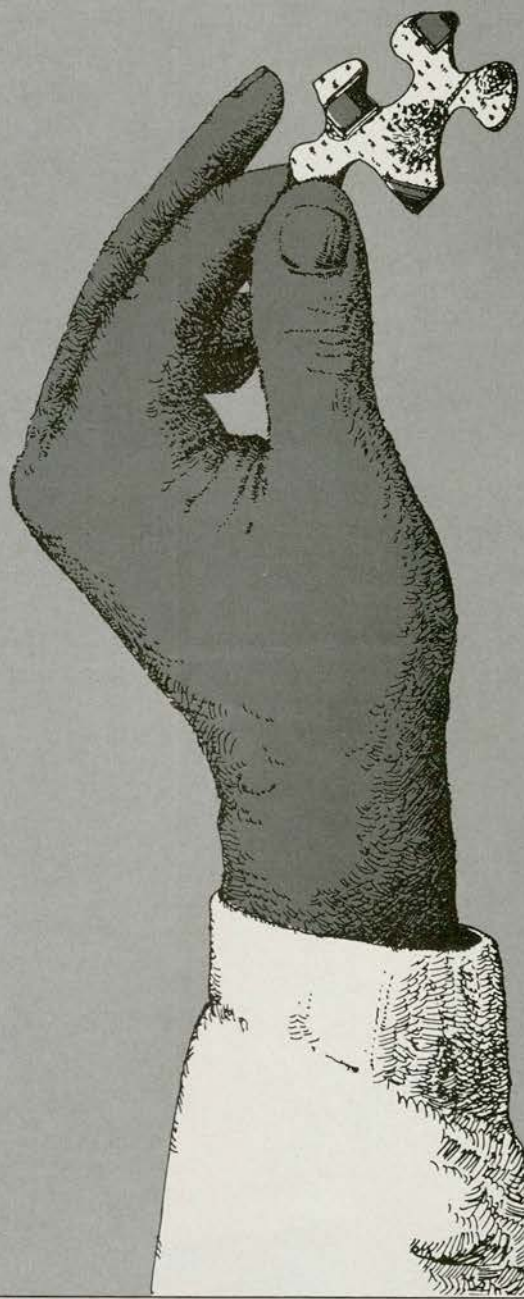
Both sides wanted to save the city; both understood the finances. The unions often disagreed with management decisions, and we made what we thought were constructive, creative suggestions on budget and personnel policies. For example, we proposed several cost-effective methods whereby the city could have promptly paid back the money deferred by union members during the crisis. The workers could have gotten their money back in a lump sum, and the city would have benefited, too. Some of our proposals were turned down flatly. Others were teased along unsuccessfully, until finally a lengthy seven-year payment schedule, plus interest, was negotiated — vitiating the good feelings of members about being paid back and actually costing the city more. Again, the city lost an important opportunity to develop a more cooperative relationship with its employees.

During the years since 1975, we've accomplished settlement anyway. But many such chances to tap the loyalty and dedication of the work force were ignored by management. The city is healthier financially, but its workers are disgruntled and demoralized and, therefore, less productive than they could be. City services continue to deteriorate.

THE FISCAL crisis and the two-tiered bargaining also served to strengthen the feelings about "managerial prerogatives" on the board of education's bargaining team and resulted in an extreme narrowing of the scope of bargaining for teachers. In the first and second rounds of coalition negotiations, when we went to the board for unit bargaining, we ended up with *no improvements* in working conditions. That contract contained nothing new but the raises bargained for with the city. The possibility of bargaining for educational changes or improvements was a lost hope.

Before the third round, the UFT looked at what the steelworkers and the United Auto Workers were trying to do in the bargaining arena. We read all the new books on "Theory Z" and employee participation, and we went to our members and radically changed our approach to bargaining. Instead of assembling hundreds of demands, we agreed among ourselves on a few broad "areas of mutual concern." In the discussions with the board on "mutual areas," these were narrowed to such items as grievances, excessing, transfers, licensure, safety. In one area, morale, we hoped our new approach would lead to

"This cooperation has to be translated into a more professional and humane situation at the school level."



some broader and more creative agreements that would enhance the professionalism of teachers and improve education.

Over these years we proposed, for example, establishing an education and cultural development fund to be administered by the union. This fund would have provided money for teachers to hold and attend professional conferences, make field trips, perhaps visit other school systems. It would have provided grants for special research, for involvement in subject matter committees and organizations, etc. This idea was rejected because management opposed having the union exercise this kind of educational policy prerogative. We also recommended that teaching schedules be made more flexible and put under the control of teachers so that they could spend time conferring about such matters as curriculum, discipline, teacher training, or develop team-teaching arrangements among themselves. This idea too was rejected. I want to emphasize that I am talking about several different sets of negotiations, with different casts of characters on the board side.

The board of education did agree, however, to talk about "areas of mutual concern," and we did negotiate some changes, but they were minimal, primitive, narrow in focus, and getting them was like pulling teeth. The main problem, I believe, is that the board was afraid to relinquish any of its powers and prerogatives, afraid that teachers would try to appropriate too much power to themselves. Thus, the whole area of morale went untouched, although we spent many hours talking about quality of worklife, worker participation, poor working conditions and the treatment of teachers by the hierarchy — all the things that are now popularly accepted as major problems by the many reports on education reform.

ADMITTEDLY, THE stalemate between our union and the board of education over conditions and morale — like many labor-management impasses — is a two-way street. Intransigence on one side is met by inflexibility on the other side, or vice versa. There is a greater responsibility on the management side, however, because in situations of this kind they have greater control.

Usually, these standoffs lead to confrontation. And don't get me wrong, there are times when confrontation is extremely creative. I am convinced, however, that in a period like this, in fiscally fragile cities and failing industries, labor-management cooperation is a necessity. But I am worried. First, because "cooperation" can come to mean "concessions," and workers don't have a lot to give up. Second, if we get over that first hurdle, I am worried because, if management doesn't learn how to reach out to its employees and to the union in a totally different way — being less rigid, less fearful, more open-minded — cooperation cannot happen. Union leaders at every level have to get elected, and collaborating with management is a risky business. There have to be tangible rewards for the workers and clear benefits on both sides. It's a tough row to hoe convincing members of the usefulness of cooperating with management. If managers can't "give over" a bit by taking employee ideas into account in their decision making, if they see this sort of sharing as an infringement on their prerogatives — not

to mention their macho — I fear for the future of American productivity.

Let me suggest a couple of ways administrators and supervisors could begin to share some of their authority and prerogatives with teachers. Under our current contract, principals are authorized to run workshops to prepare new teachers for the classroom. Now here is a classic case of a supervisory responsibility that could be handled just as ably by a veteran teacher with proven expertise in the new teacher's field. In fact, the experienced teacher has several advantages over the principal in training a novice: He or she is more in touch with the day-to-day needs of students and has more of a chance to stay abreast of his subject.

Supervisors could improve their relationship with teachers by treating them more like professionals in a variety of mundane, bureaucratic matters too numerous to mention and all too familiar to any teacher. Teacher morale would be improved immensely if principals granted to teachers the measure of personal responsibility and trust other professionals take for granted.

AT THIS point, the board of education and the UFT are cooperating pretty well with each other. At top levels, the relationship is good. We work together and cooperate fully on fighting for an adequate budget and in trying to save and improve a viable public education system. We're expanding our dial-a-teacher program and the teacher center in a joint board of education-UFT venture. But at contract time and in the labor relations areas, we are not yet succeeding in "creating a different atmosphere in the plant."

I'm not placing blame here. Both sides have the problem of staff and school-level leadership skepticism and excessive reliance on the tried and true.

To break out of some of these old patterns, we agreed during the last contract talks to try to resolve grievances in order to reduce the tremendous backlog of arbitrations. This agreement had a gestalt effect the first few months, but all too quickly things broke down into the same old bitter hassles. We were back to spending thousands of dollars resolving minor grievances that should never have arisen in the first place, such as whether a job posting in a Bronx junior high school — tailor made by the principal for his candidate — should have to be reposted; or whether, in a high school slated for closing, the union has the right to negotiate an agreement about staffing the new school.

While there are success stories, in general such battles over trivia give the feeling in the schools that we're in a war. Grievances over job postings, demands for unnecessary paperwork, and petty authoritarianism in some schools create an atmosphere that makes overall cooperation on improving education difficult. Union members understand cooperating in a fight over the budget; they also understand the union's support for a promotional "gates" program, a dropout program, a kindergarten program.

This cooperation has to be translated, though, into a more professional and humane situation at the school level. Teachers are still swamped with paperwork and are given orders to carry out that they have no part in developing or even the opportunity to express an opin-

(Continued on page 42)

LIBERAL ARTS COLLEGES AND TEACHER QUALITY

*(What! Waste Your Dartmouth Education
on a Career in Teaching?)*

BY FAITH DUNNE

THE SMALL cardboard rectangle was stuck into the nameplate on my office door. "James Brett," it read, "Insurance Representative, Mutual of Omaha." Not sufficient cause, you would think, to push an experienced college professor into depression. But it did.

Jim Brett was one of the best student teachers I have ever supervised. Bright, creative, political enough to work within the system and strong enough to modify it, he was the kind of young man who makes an academic feel good about education. After his graduation four years ago, he got the job he wanted, teaching junior high school science in a local school district. In spite of the low pay and the multiple preparations, he loved the work. Possibly the only person in North America who actively *prefers* eighth graders to other forms of life, Jim reorganized the science curriculum as a lab and field-based program capable of penetrating the hormonal hum of his students enough to teach them some basic methodology. His students loved him, their parents respected him, the principal was willing to violate all kinds of traditional regulations to accommodate his very effective teaching style.

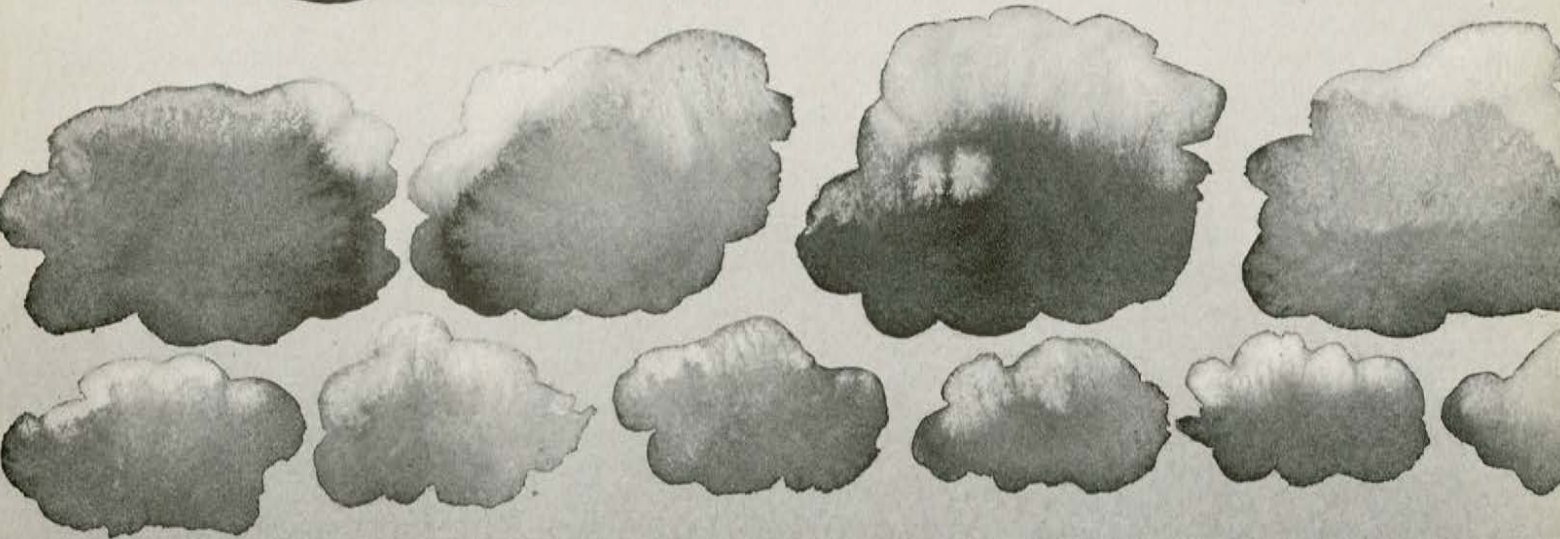
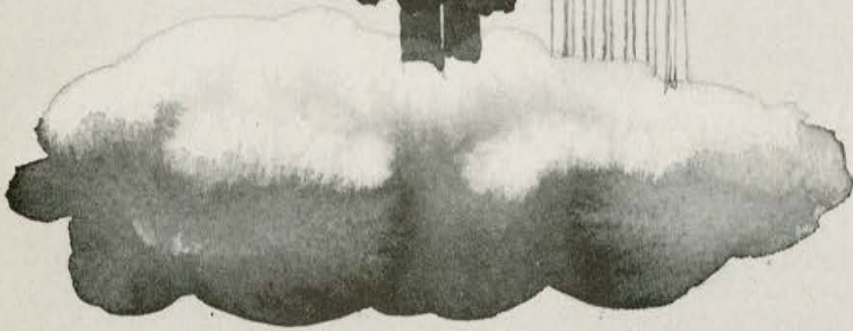
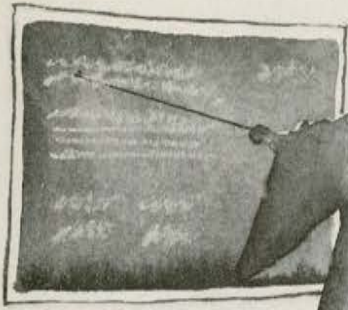
And he was gone.

Why? I knew, because Jim had turned to me for advice while he was going through his decision-making pro-

Faith Dunne is chair of the education department at Dartmouth College. She is a founding member of the Consortium for Excellence in Teacher Education, which works to support and expand teacher training programs at liberal arts colleges.

cess. He came to me in a quandary. "I love my work," he said. "But I don't know if I can go on justifying it. Beth and I want to get married, but her parents think she should wait until I get a 'real' job. My parents keep asking me, 'When are you going to stop this teaching nonsense and start using your talents?' My roommate's father has offered me a job in insurance that will start me at twice what I'm earning now — and he says I can go as far as my ambitions take me. I still owe the college \$10,000. I could pay it off in two years if I took that job. I went to talk it over with my department chair at school, and all she had to say was that she was surprised I'd lasted this long. I know I said I'd never pay any attention to that upward mobility garbage. But now I feel that I don't have any choice."

Of course Jim had a choice. He had a dozen choices. That is precisely the point. One of the gifted, one of the chosen, Jim had received the most sought-after (and most expensive) postsecondary experience available in this country — the selective liberal arts college education. All the options available to the country's brightest young people were there for Jim. Public education was lucky that he chose teaching; medicine, law, or business would have been equally fortunate. However, medicine, law, and business get — and keep — more than their share of the Jims of this world. Education gets an inadequate and decreasing share. Worse, a complex of attitudes within and outside the liberal arts college combine to work against any tendency these graduates might have to choose teaching or to stay in the profession once they have chosen it.



AT ROOT, the problem is one of deployment of talent in the United States. As the number of young people declines, the occupational competition for the most talented of our nation's youth increases. This competition clearly exists at the postsecondary level, where colleges vie for their share of the most academically able; it culminates with the career choices students form in college and pursue after graduation. In this competitive effort to garner a fair share of the ever-smaller talent pool, there is a clear loser: It is public education. Fewer and fewer of the young and gifted choose to become certified teachers. And there is no apparent end to this downward spiral.

There are many reasons for this, including the expansion of opportunities for women and minorities, the decade of scarce teaching jobs, the relatively low pay scales in public education, and the decline in public regard for schools. But there is a less-evident cause for the decreasing academic ability of teachers, one that rises from the nature of liberal arts colleges and from their position in the structure of postsecondary institutions in the United States.

Like it or not, there is a hierarchy in American higher education that places selective liberal arts colleges at the top of the competitive ladder and the teacher training institutions very near the bottom. The roots of this hierarchy sink deep into our social traditions. Liberal arts colleges were constructed to teach gentlemen the cultural and intellectual precepts they were intended to conserve. Normal schools were invented to prepare women for low-paid, low-prestige jobs as elementary teachers. As these institutions evolved, they lost the sharpness of these distinctions. But the modern liberal arts college has inherited an aura of money and power, while the modern "state teacher's college" has a legacy of self-sacrificing poverty and second-class citizenship.

The result of these traditional distinctions is a clearly unequal distribution of academic talent among the different types of institutions. Not unreasonably, the children of our culture tend to apply to the "best" colleges within their academic reach and to go to the most prestigious school they can afford. With the exception of a handful of outstanding technical institutes, such as Cal. Tech. and MIT, these will almost certainly be selective liberal arts colleges or liberal arts divisions of major universities. Since minority recruitment, need-based financial aid, and expanded co-education have opened liberal arts colleges to groups that historically filled the teacher's colleges, those institutions that specialize in teacher training have become increasingly the repository of those who didn't "make the grade."

As the applicant pool gets smaller (as it does with each passing year), a higher proportion of the academically superior students are admitted to the selective liberal arts colleges. As the literacy and numeracy level of the applicant pool declines (as it does with each passing year), the standard for what constitutes "academically superior" declines with it. Thus, even very selective schools like Dartmouth have had to learn to live with mean SAT scores of about 1,280 (down from 1,330 fifteen years ago). The teacher training colleges have had to learn to live with scores that average about 807, forty points below the national mean.

"'Didn't you get into business school?' one superintendent asked a prospective math teacher."

HAVING CAPTURED the bulk of the most academically talented students, the liberal arts college then ensures that most of them will stay away from public school teaching. This is not as easy a task as it might seem. Teaching is one of the few occupations that college freshmen have actually observed first hand over a long period of time. Good teachers often serve as adult role models for good students, thus encouraging them to consider teaching as a career. Finally, even in these self-regarding times, college freshmen often yearn for careers in social service, and teaching is the most familiar and convenient of such careers. Given that generally positive initial view, it takes structured — if often unconscious — pressure to turn all but the tiniest handful away from public education. But that pressure is part of the nature of the liberal arts college.

Liberal arts colleges define themselves as non-vocational. Their special niche in the educational ecosystem is "pure scholarship," the advancement and transmission of culture for its own sake. As the pressures of the marketplace have pushed liberal arts colleges toward increasingly specific preparation for overtly vocational schools — i.e., graduate programs — their sense of identity has become less clear and less comfortable. Holding the line at teacher preparation has been an inexpensive and comforting device for many schools trying to maintain their sense of scholarly integrity while channeling students into courses designed to get them into professional schools. At least, the faculty can say to itself, we don't *certify* anyone.

This attitude pervades the culture of the liberal arts college. Teaching is simply ignored as a possible career choice. As students start to form their occupational decisions, they turn to various sources of guidance and preparation. Professors direct some toward academic careers, help others get jobs in fields related to their undergraduate major. Preprofessional counselors and programs shower students with more information than they need about law, medicine, and business. Other occupations — the clergy, psychological counseling, college administration — are part of campus life,



providing models for students making vocational choices. In most liberal arts colleges, however, there are no programs, no models, no counseling for those interested in public school teaching. In the world of most liberal arts students, public education is an invisible career.

This neglect is not always benign. Many members of the liberal arts college community actively deride pre-college teaching as a field of endeavor, even while paying lip service to the importance of public education to the health of the nation. Typically, professors who will choose their place of residence on the basis of school quality will react with derision to a student's expression of interest in teaching. "You can go into the teacher training program if you want," one colleague of mine once said to a student. "But I don't think you'll find much challenge in the blackboard-erasing courses." This view is not restricted to the historically male institutions like Dartmouth. The director of a teacher certification program at a first-class women's college is constantly under attack from colleagues who tell her that no woman should be encouraged to become a teacher when there are "so many better opportunities open to them now." While this posture is not universal among liberal arts professors, it is often institutionally sanctioned and reinforced. In his 1983 commencement speech, Harvard president Derek Bok spoke eloquently of the crisis in public education and of the need for highly qualified teachers in the future. But he had no intention that these teachers would be recruited from among Harvard undergraduates. In the same speech, he states flatly that "recent [liberal arts] college graduates . . . can earn too much in industry to consider teaching in public schools." And, in fact, Harvard undergraduates do not have access to a certification program, thus eliminating that option even for those who might prefer service to income.

THE LIBERAL arts undergraduate who battles this complex of anti-teaching attitudes within the college often finds similar feelings in the profession. Each

year, parents call or write to me, begging for help in keeping their children from "wasting their lives on teaching." Almost inevitably, these parents are educators themselves. "My child can do better," they say, dismissing their own life commitment as willingly as the most negative professor could do it for them. One New York City AFT member wrote me a letter last year in which he declared, "When members of my family see me, they almost always ask, 'Are you still teaching?' with a look of condescension that has to be seen to be believed (loathing? revulsion?). Do you think for a moment that I want to subject my children to this nonsense? I have told them both that they must *not* consider teaching as a career. Business, law, medicine, banking, etc., yes — but *never* teaching."

Cooperating teachers who work with our students voice similar views. Last year, one first-rate social studies teacher told a student of mine to "Go to law school, for heaven's sake, Jeanne. You can be *anything!*" Another told his student teacher that he wouldn't allow *his* son to waste an expensive college education on a teaching certificate. Those in hiring positions can be equally negative. Dartmouth students are routinely grilled about their ambitions (or evident lack thereof), about their seriousness of purpose, about their reasons for wanting to teach. "Didn't you get into business school?" one superintendent asked a prospective math teacher. "If all you wanted to be was a teacher, why did you bother going to Dartmouth?" a principal inquired of another candidate. If our students begin to feel that teaching is not a legitimate choice for them, they have cause.

The impact of this pattern goes well beyond the individual vocational decisions of Jim or Jeanne. It has implications for the future of public education as a whole. Verbal and mathematical skills are indispensable tools of a teacher's trade. If the students who possess these skills at a high level are steered away from teaching, first by their choice of college, then by their potential colleagues, there will be no way to preserve educational quality in this country. We all know that no curriculum, no school structure, no technological tool can make up for poor teaching. Without its share of the brightest young people, the great American experiment in universal education cannot survive.

There is no easy way to solve this problem. The web of tradition and expectations that surrounds the liberal arts undergraduate is strong. But if we who are most committed to the quality of public education resign ourselves to the inevitability of its decline, we ensure it. Those of us who work in selective liberal arts colleges must convince our colleagues to encourage their students to become elementary and secondary teachers — on the grounds of the national education crisis or enlightened self-interest, whichever seems most likely to work. Those who legislate scholarship funds need to pay special attention to young people who must balance a desire to teach against the pressure to pay off monumental loans. And you in the profession can put pressure on the selective colleges to train teachers; and you can nurture them once they join you. It seems reasonable to work toward a day when a man like Jim, with all his options, feels he can choose to stay in a job he loves. □

SCIENCE EDUCATION FOR THE NON-SCIENTIST

BY JEREMY BERNSTEIN

ALTHOUGH I have been teaching physics and related subjects for some thirty years, it has never occurred to me to think of myself as an educator. An educator, I have always thought, is either a dean or someone who has taken at least one course in education. While I did once get an offer to become a dean — to which, incidentally, I replied that I was either too old or too young to become a dean — I have never taken a course in education. For better or worse, physicists, like most scientists, are simply set adrift in the classroom, and one hopes for the best. The results, needless to say, are mixed; but since our students are, for the most part, apprentice physicists, we can probably safely assume that their interest in the field will carry all of us through.

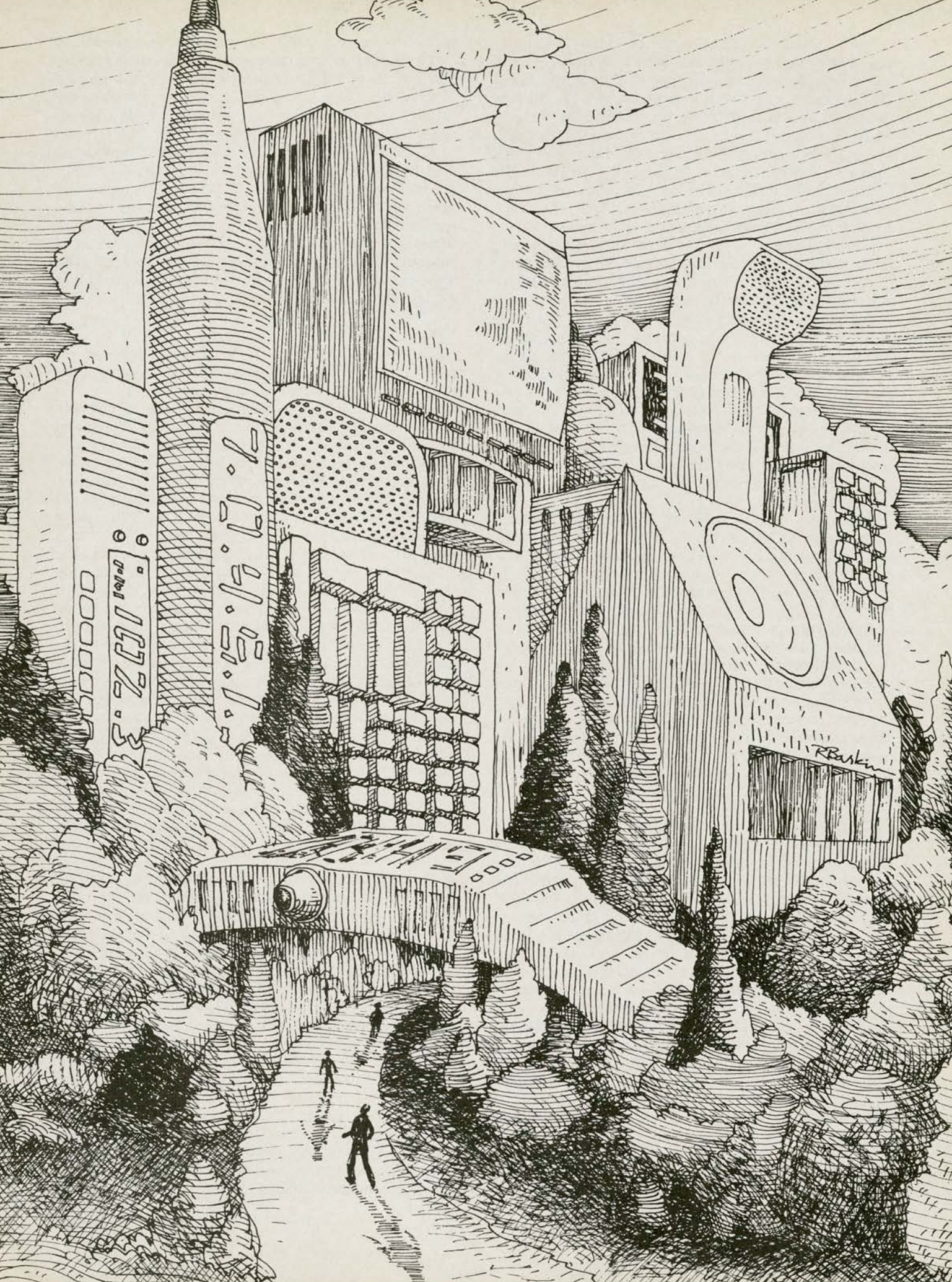
During the year before last, however, under the auspices of the Phi Beta Kappa Visiting Scholar Program, I had the occasion to visit a half-dozen college campuses located in the eastern part of the United States. Apart from offering formal lectures, one of the most significant aspects of this program is the opportunity for local scholars to discuss with the visitor problems in education. At first, when these problems were presented to me, I felt a little like a eunuch in a seraglio who is being interviewed about the sexual proclivities of the several

Jeremy Bernstein is professor of physics at the Stevens Institute of Technology and a staff writer for The New Yorker. His latest book is Three Degrees Above Zero. This essay is condensed from the American Scholar, Vol. 52, No. 1, Winter 1982/83.

ladies therein. But being a reasonably social animal, I felt that I should give the matter sufficient thought so that I could say *something*. After some time elapsed, in what the French call *l'esprit de l'escalier*, I decided to put down on paper all of those things that I had meant to say but had been too slow-witted actually to say when the questions were raised. It used to be pointed out that the French army was perfectly prepared to fight the previous war. I am now more or less prepared to respond to the questions that were asked of me that year.

ALL OF THESE questions concern how to teach science to the non-scientist. This is not exactly a novel concern, and what I have to say about it may not be very novel either; but perhaps I can articulate what some of the problems and opportunities are. In my view, before one can discuss *what* to teach the non-scientist, one must ask oneself *why bother* to teach non-scientists science at all. In thinking about this, I was led to re-read C. P. Snow's celebrated Rede Lecture, which he delivered in 1959.

Snow's reasons, I found after re-reading him, are not, in my view, entirely adequate. He seems to have had two concerns. The first I might describe by the term cultural deprivation. Snow spent a good deal of his time among non-scientists who, according to him, gave "a pitying chuckle at the news of scientists who have never read a major work of English literature." Since he does not name these unfortunates, they are safe in their Neanderthal anonymity. But Snow, dear man, rose to their



defense. "Once or twice," he writes, "I have been provoked and have asked the company how many of them could describe the Second Law of Thermodynamics. The response was cold: It was also negative." The first thought that occurred to me upon reading this was, "So what!" Put on this level, is it really more important that, say, a Cambridge classics don be able to define entropy than, for example, that P. A. M. Dirac be able to read the Upanishads in Sanskrit? (The late J. Robert Oppenheimer *was* able to read the Upanishads in Sanskrit; but that is another matter.) If we had the time and the capacity, we would all probably be pleased if we could read Sanskrit. But no college administrator that I have ever heard of has proposed making this a compulsory requirement for getting an undergraduate degree.

The precise question I am raising is why, then, are these administrators in apparently unanimous agreement that one, or more, science course should be compulsory? Snow's second concern, as I read him, was that unless science is more widely taught, there will be a shortage of qualified scientists and technicians in many countries. While this may indeed be true, it is also beside the point, if the point is the issue of teaching science to people who have not the slightest intention of becoming either scientists or technicians. What, then, is the point?

I think that there are basically three points. The first is what seems to me to be the simple fact that many non-scientists have a real curiosity about science. This fact, which is evident to those of us who write about science for the general public, did not seem to occur to Snow. One gets the impression that he feels that science is something that should be rammed down the reluctant gullets of classics majors because it is good for them, just as the learning of Latin was considered good for one when I went to high school. It never seems to enter Snow's head that his non-scientist friends might have the same sort of curiosity about the origins and destiny of the universe as the very scientists who created, for example, the theory of the big bang. A genuine desire to learn is, after all, the best reason for teaching anything to anyone.

THE SECOND reason is what I myself call technological bewilderment. Most of us, myself included, are increasingly surrounded by objects that we use daily but whose workings are a total mystery to us. This thought struck me forcedly about a year ago. One day, for reasons I can no longer reconstruct, I was looking around my apartment when it suddenly occurred to me that it was full of objects that I did not understand. A brief catalogue included my color television set, a battery-operated alarm watch, an electronic chess-playing machine, and a curious fountain pen that tells the time. Here I am, I thought, a scientist surrounded by domestic artifacts whose workings I don't understand. I then began asking several of my colleagues in theoretical physics if they had the same feeling. (I didn't ask the experimenters I know because *those* people really do understand how things work.) They, too, reported similar feelings.

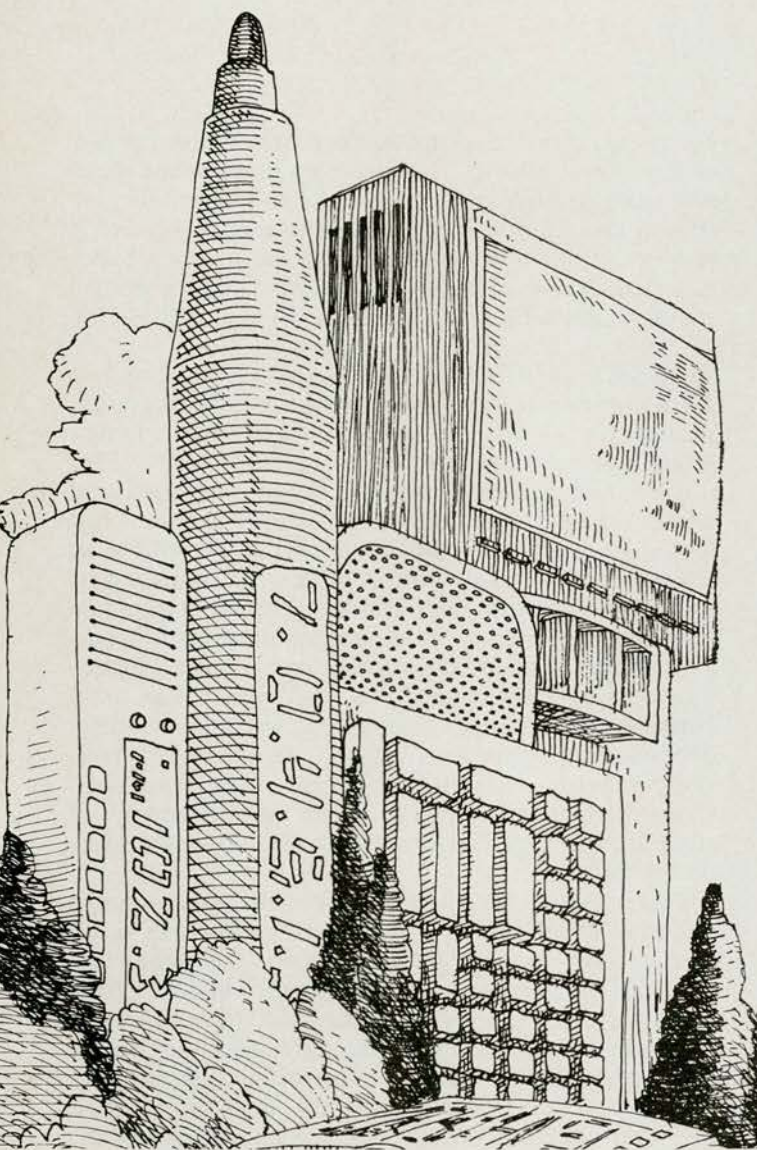
My first impulse was to try to build something — say, a radio — with the hope that if I could actually put it together with my own hands I might understand it, so to

speaking, on its own terms. I went so far as to order an electronics kit from a large scientific mail-order house in New Jersey. Following directions, I managed to make several radios, one of which actually worked. The only problem was that the components of the kit were so modular that I couldn't understand them either. A few of my friends have actually designed and built small computers. I envy them this ability. It then occurred to me that an entire course could be taught on how one nontrivial thing, say a small computer, actually works. I don't mean how to program a computer (this is a skill that is now readily being acquired by elementary school students), I mean actually building one — designing the logic circuits and the rest. If such a course were taught for lay people, I would take it myself.

THE THIRD reason for teaching science to non-scientists is what I call technological necessity. It is a fact of modern life that all of us are confronted by decisions, largely taken on our behalf by others, that have a significant technological component. Two obvious examples are the decisions related to energy and to nuclear weapons. It is crucial, in my view, that as many people as possible have enough of a technical background to be able to separate the purely technical aspects of these decisions from the political and moral ones. No one should be afraid of participating in making such decisions just because some "expert" says that there are technical factors involved that are beyond the layman's understanding. I do not believe, for example, that there is a single technical element in the general energy question that is beyond the capacity of anyone who will familiarize himself with the issues and learn to add and multiply large numbers. The latter may sound absurd, but if I had been at those gatherings where Snow had badgered his fellow guests with arcane matters involving entropy, I would have changed the discussion by asking questions like, How many gallons are in a barrel of oil? and Is it true, as Max Frisch claims in his novella "Man in the Holocene," that if the Arctic ice melts owing to the so-called greenhouse effect — which might become serious if we insist on burning more coal — then "New York would be under water"? These are matters that can affect the way we live now and the way in which our descendants will live in the future.

LEST I be accused of raising scientific and technical questions without answering them, let me comment briefly on the two questions I have raised. They are prototypical. The reason why it is important to know what a barrel of oil is, is that the barrel is the arbitrary unit by which quantities of oil are measured. Oil is, in fact, not shipped or stored in barrels, but in tanks or drums, which hold amounts measured in barrels. The standard barrel is a concept that dates back to the early fifteenth century. Henry VI of England decided that a barrel of eels should be thirty gallons, but his successor, Edward IV, raised this to forty-two gallons. After the first discovery of oil, in Titusville, Pennsylvania, in 1859, there was a general chaos as to how many gallons were in the standard barrel. This matter was settled in 1916 by an act of Congress that declared that the standard oil barrel was to be forty-two gallons. A gallon of oil, incidentally, supplies enough energy to

"No one should be afraid of participating in making such decisions just because some 'expert' says that there are technical factors involved that are beyond the layman's understanding."



keep 130 one-hundred-watt light bulbs burning for one hour. (A barrel of whiskey, which is probably enough to keep a large number of us lit for many hours, is usually thirty and a half gallons.)

We use something less than 6 billion barrels of oil a year in this country; so the next time one reads of a well that produces a thousand barrels a day — a very, very substantial well — one can use one's pocket calculator and figure out how much of a dent this makes in solving our oil problem. Knowing this scarcely requires a Ph.D. in physics, but without knowing it how can one even begin to think quantitatively about the general energy question?

Felix Rohatyn, the physicist turned investment banker, whose clear thinking and determination pulled New York City through its fiscal crisis, and who is a master at dealing with just the kind of politico-technical problem that the general energy question presents, once told me that the key element in all these matters is to bring things down to choices. "Once," he noted, "you bring it down to choices, it really gets reasonably simple." That is just what the energy problem is — a question of choices. One begins with a total figure for the amount of energy we need for transportation, heating, electricity, and the rest and then begins to list the choices for supplying that energy, and their consequences. In doing this, one must manipulate large numbers — trillions, for example — and one must have the appropriate numbers to manipulate. Isn't this just the sort of thing we should be teaching non-scientists? If we don't, how are we going to arrive at sensible decisions? People will be at the mercy of any energy huckster who happens to have a loud voice and ready access to a television studio.

Max Frisch's confusion can be settled by taking an ice cube and putting it in a completely full glass of water and watching what happens. After the water spills — due to sticking in the ice cube — *nothing* happens. The ice cube melts, and the water it has displaced gets replenished with no change in the surface level of the water in the glass. This is characteristic of floating ice such as the ice in the Arctic. If it melted — leaving Greenland aside since the ice there is *not* floating — the level of the oceans would not rise at all. No one is quite sure what would happen to Greenland if the temperature in the Arctic rose enough to begin melting ice. The climate might change so drastically that, in fact, the ice on Greenland might get thicker. But of one thing everyone who has studied the matter is sure, and that is that a warming of a few degrees in Antarctica would be a collective disaster. The Antarctic ice is attached to the continent and is not floating. A recent Department of Energy report indicates that if we keep burning coal and other hydrocarbons at something like the present rate, or greater, the global temperature could rise five degrees in considerably less than a century. This would come about because the burning of these hydrocarbons produces carbon dioxide, which traps the heat that is re-radiated from the earth after the sun heats it. There is no possible technology that can stop carbon dioxide from being formed when, say, coal is burned. That formation is simply part of the burning reaction. Given this, and given the other pollution problems caused by burning coal, how much of the stuff can we afford to

(Continued on page 44)

TAKING THE MEASURE OF EXCELLENCE

The Case against Basing Teacher Evaluation on Student Test Scores

BY LINDA DARLING-HAMMOND

TALK OF excellence in education and of higher standardized achievement test scores go hand in hand in today's discussions of educational reform. In fact, standardized achievement test scores seem to be both the measure and the goal of excellence for many policy makers and school practitioners. Translated into educational practice, this increasingly means using test scores for making decisions about student placements and promotions, curriculum design, and teacher effectiveness. Overreliance on this measure, I will argue, means substituting very limited measures of student performance for professional judgment while sacrificing some of the most important goals of education for anemic proxies that are cheap, easy, and bureaucratically convenient. Indeed, because of the incentive structure created by test-managed schooling, we may be killing excellence by mismeasuring it.

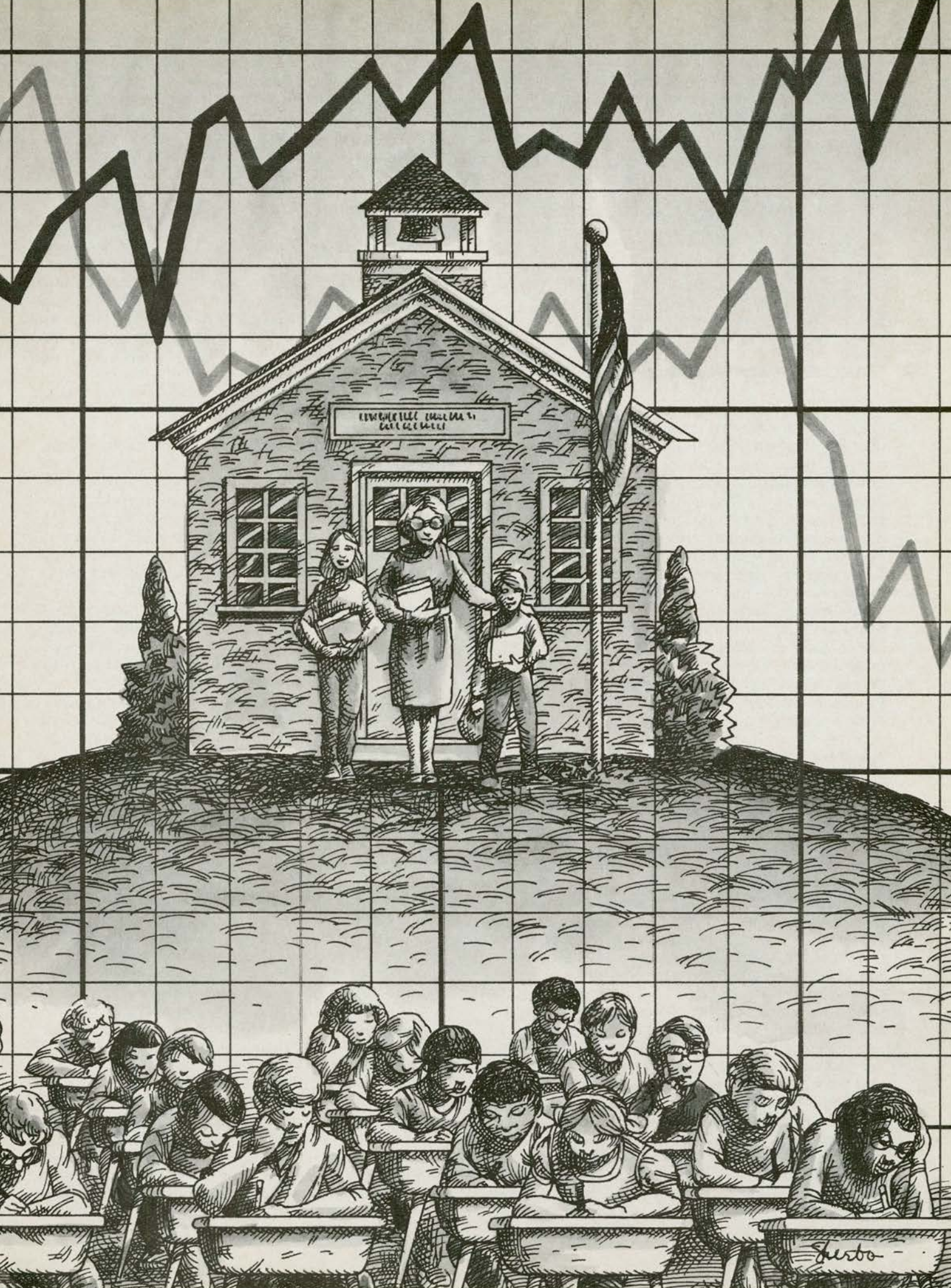
Many examples of this phenomenon are available. Use of test scores for student promotion and placement decisions has become fairly commonplace. Use of tests as the basis for curriculum design is increasingly routine. This year, school districts in at least seven states — including major urban systems like Dallas and Houston — are using student achievement test scores as the major performance criterion for making merit pay decisions about teachers. Other districts are adopting similar practices for rating teachers in annual performance evaluations that may affect tenure, salary, or promotion decisions. The temptation to use a single, "objective" measure for assessing teacher competence is strong,

given the complexity and subjectivity inherent in any evaluation judgment. However, such simplistic decision making poses great dangers for the education profession and for the integrity of the teaching-learning process. Ultimately, both students and teachers suffer from irresponsible uses of the limited data provided by standardized achievement tests.

MANY ARGUMENTS against the use of class test scores for rating teachers have been raised. Teachers work with classes of differing achievement levels: Some students are farther "ahead" than others at the start of the school year; some students test well and others do not. Whether the measure is absolute test scores or gains over the course of the school year, teachers' ratings made on this basis will be affected by the composition of their classes, regardless of actual teaching performance. Statistical adjustments to measure "predicted gains" cannot fully overcome the biases inherent in normed measures of student attainment. Furthermore, teachers' ratings can vary substantially depending on whether the aggregate measure is average percentile ranking, mean grade-level equivalent scores, dispersion from the mean, the percentage of students above or below some cut-off score, or some other statistic.

Research on school and teacher effects also points to a variety of influences on students' test scores other than teacher performance. These include important variables outside the teacher's control, such as school and class size; the quantity and quality of available instructional resources, materials, and support personnel; centralization of school decision making; school discipline practices; peer group influences; curriculum and textbook decisions; and the ways in which schools are organized, including the amount of time allocated

Linda Darling-Hammond is a social scientist at the Rand Corporation. She specializes in policy research on teaching practices and has recently completed a major study of teacher evaluation.



for instruction and the ways in which students are grouped into classes. All of these factors interact in shaping the learning environment. While teachers respond to these constraints and opportunities in delivering instruction, they do not control these variables.

“Research points to a variety of influences on students’ test scores other than teacher performance.”

Furthermore, teaching effects are both short and long range, and they may be manifested in a variety of student learning behaviors at different points. A student’s test performance in the third grade is as much a function of what his first- and second-grade teachers did as it is determined by the teaching he encountered in third grade. Learning is a subtle and cumulative process that does not parcel itself neatly into discrete little chunks between pre- and post-tests. Studies have found that the test scores of a given teacher’s students are not stable from year to year; that is, students’ test scores have low reliability as a measure of teacher competence. One team of researchers estimates that a twenty-year average of students’ test score gains would be required to make a reliable judgment about a single teacher’s competence. Obviously, all of these factors undermine the validity of student test scores as a performance indicator for judging individual teachers.

WHILE THESE concerns are not trivial, the more important problem for American education is that when policy makers, practitioners, and the public make invalid inferences about instructional quality from students’ test scores, wrong-headed educational policies are born. When test scores are used to make important decisions about students, programs, and teachers, they create a set of bureaucratic incentives that distort the educational process and can ultimately lower the quality of education delivered to students.

The assumption that standardized achievement tests measure all the “right” things is the first major problem. The kinds of basic skills tests that are typically used for making school decisions measure a very few things fairly well, a large number of things pretty poorly, and some extremely important things not at all. In general, they measure the very particular recognition of some very limited skill applications pretty well. They can tell you if someone can recognize correct punctuation or spelling, if the test taker can find what the test maker considers to be the topic sentence in a paragraph or the correct answer to an arithmetic problem or the closest synonym to a given word. They cannot, of course, tell you whether right or wrong answers are the result of attentiveness to the task at hand, understanding of the

test procedure, logical or illogical reasoning, good or bad guessing, or even seeing something in the question that the test makers themselves did not think of.

There is another problem with assuming that tests measure students’ understanding of a body of knowledge: Bodies of knowledge are vast and complex, and drawing a sample of items to represent that body of knowledge must, to a certain degree, be arbitrary. If test users understood how most standardized achievement tests are constructed, they would know that items to which too many, too few, or the wrong subset of students know the answer are excluded from the tests. The rules used to achieve certain statistical properties in tests reduce the range of types of knowledge tested and compromise the integrity of test content. Thus, scores on “achievement” tests do not measure achievement as we normally think of it. They do not actually tell us what a child knows; they tell us how a child ranks against his or her peers on a measure of a subset of information that already excludes a great many things that we might expect or want the child to learn.

THERE IS a much more important problem, though, when standardized test scores are used to make important decisions about students and teachers. Standardized multiple-choice tests are a pretty poor measure of how well students can apply skills to real-life tasks, since, of course, recognizing a correct answer out of a predetermined list of responses is entirely different from conceiving and framing a task and then implementing it. Reducing a complex activity to its tiny, discrete components is artificial. Knowing the components does not mean one can perform the activity well, and conversely, being able to perform the activity well does not mean one interprets the component parts in the same manner that the test maker does.

As Anne Bussis and her colleagues at the Educational Testing Service (ETS) discovered in their Collaborative Reading Study, young children’s performance on many reading tests doesn’t reveal whether or not they can read. That is because the act of reading, which involves discovering and creating meaning in letters, words, and ideas, is quite distinct from the act of decoding particular phonic combinations or even from finding the topic sentence in a paragraph. In fact, a very good reader may do quite poorly on a test of decoding ability, while a good phonic decoder who tests well may be a relatively poor reader.

The same is true, of course, for virtually all other complex activities we expect students to be able to perform as a result of their education. Being able to recognize misspelled words and identify synonyms does not mean necessarily that a person can write coherently, lucidly, or even grammatically. Being able to conjugate verbs or even decode passages in a foreign language does not mean that a person can speak or write in that language.

Then there are those abilities that standardized, multiple-choice tests cannot measure at all: the ability to evaluate evidence in the face of first-hand knowledge of the world, the ability to generate alternative approaches to tasks and problems, the ability to speculate intelligently about the meaning of events, the ability to create and implement ideas. These abilities are not sus-

ceptible to this kind of testing because, of course, they must allow for more than one right answer. Furthermore, these abilities require very different thought processes and performance modes than those used or encouraged by the tests. Thus, the very things that we claim to pursue in the name of educational excellence are those least suited to our performance measures and attendant teaching strategies.

TEST-MANAGED INSTRUCTION creates incentives that change the nature of teaching and learning and the very definition of education. It fosters standardized teaching that emphasizes the acquisition of discrete skills rather than the development of performance abilities. It reduces the learning process to a single type of thinking and a single mode of performance. It redefines education from a quest for knowledge and understanding to a quest for the one best answer to predetermined, narrowly configured problems.

Because of the disjunctures between students' actual performance abilities and their test performance, teachers find that they must spend a great deal of time preparing students to take tests. If they are to be judged effective and their students are to be judged knowledgeable, teachers must succumb to the artificiality of the test format and the test definition of a domain of knowledge in their day-to-day teaching. Teaching to the test means far more than teaching content areas that appear on a test. It means rendering students passive respondents to multiple-choice versions of mechanical "skill work" rather than active participants in thoughtful and meaningful educational tasks.

What does this mean in concrete terms? A study by Harriet Talmage of the implementation of a test-managed instructional program in a major city found that the program "eliminated virtually all subjects except reading and mathematics from the curriculum" and produced "less satisfaction, competitiveness, difficulty, and higher thought processes in [students'] learning environment" than had existed before the program in reading and math testing was instituted. Other stud-

"Our students can decode and compute, but they cannot analyze, synthesize, make reasoned judgments, or express themselves lucidly."

ies have found that the types of teaching behaviors that produce higher scores on tests of lower-level cognitive skills are nearly opposite from those that increase complex cognitive learning, problem-solving ability, and creativity.

As Columbia University's Diane Ravitch warned at the recent annual ETS meeting, the "fill-in-the-blanks mentality" of testing can produce a counterproductive em-

phasis on the one right answer, substituting basic skills "busy work" for writing, thinking, and other fundamental skills. This type of "basic skills" work increases test scores while totally ignoring more important types of learning.

Two recently released, major studies of American education call attention to this problem. Ernest Boyer's study of American high schools found an overabundance of teaching consisting of the transmittal of "fragments of information, unexamined and unanalyzed." Boyer notes, "The pressure is on to teach the skills that can be counted and reported. As one teacher said, 'We are so hung up on reporting measured gains to the community on nationally normed tests that we ignore teaching those areas where it can't be done.'"

JOHN GOODLAD found in his massive study of more than one thousand classrooms that, for the most part, "the curriculum appeared to call for and make appropriate only some ways of knowing and learning and not others." He found that students listen, read short sections in textbooks, respond briefly to questions, and take short-answer or multiple-choice quizzes. They rarely plan or initiate anything, create their own products, read or write anything substantial, or engage in analytical discussions. And there are few incentives for their teachers to pursue these approaches. As Goodlad comments:

Teachers are sensitive to the pressures that state and district testing programs place on them. They get the message. The other messages — that there are goals beyond those that the tests measure, that pursuing such goals calls for alternative teaching strategies, that the fundamentals of the curriculum transcend grade-level requirements — are faint to begin with, and they are drowned out by the more immediate and stronger message.

In recent years, officials of the National Science Foundation, the National Councils of Teachers of English and Mathematics, and the National Assessment of Educational Progress (NAEP) have also attributed the steady decline in students' analytical and problem-solving abilities to the tight coupling of basic skills testing and teaching in American schools. They charge that the "back-to-basics" movement's emphasis on teaching what is tested on standardized achievement tests has resulted in the neglect of higher-order thinking skills and performance abilities. This neglect manifests itself in the recent poor performance of students on those areas of the NAEP tests that most diverge from the testing instruments commonly used in schools — tests of writing ability, scientific understanding, mathematical problem solving, and ability to draw inferences from text. Our students can decode and compute, but they cannot analyze, synthesize, make reasoned judgments, or express themselves lucidly.

Teachers who participated in a Rand Corporation study of the classroom effects of educational policies described how these outcomes occur. In districts and schools that emphasize basic skills test scores as the basis of decision making, they reported that preparing for tests, administering tests, and keeping records related to attainment of tested objectives decreased the time available for "real teaching." Real teaching included the teaching of nontested subjects and non-

(Continued on page 46)

One Hundred Years Later

WHAT'S MORAL ABOUT HUCKLEBERRY FINN

BY JUNE EDWARDS

ONE HUNDRED years after its first publication in 1884, *Huckleberry Finn* is still being attacked. Right-wing critics object to Huck's unorthodox speech, manners, and religious ideas. Recently, others have tried — sometimes successfully — to censure the book because of its use of racially disparaging epithets and the image of blacks that it presents. Neither group understands Twain's satire, the pins that prick social mores and beliefs. Both fail to see in the two main characters the essence of human morality or to appreciate that this novel is a moving literary statement in support of racial equality.

The book is attacked, first of all, because of the author's supposed atheism. But true religious integrity need not fear Twain's pen. His targets are simplistic religious beliefs, moral hypocrisy, and the gullible actions of do-gooders. For instance, when Miss Watson, the sister of Widow Douglas, tells him about hell, Huck says he wishes he were there. The woman is shocked, but he "didn't mean no harm," he says. "All I wanted was to go somewheres; all I wanted was a change, I warn't particular."

Miss Watson considers such talk blasphemous. She plans to live her life so she can go to "the good place." Huck can't see any advantage in going where she is going, so he decides not to try for it. Besides, singing and playing the harp all day sound terribly boring. He asks if Tom Sawyer is going to heaven. "Not by a considerable sight," Miss Watson snaps. Huck is glad about that, "because I wanted him and me to be together." Clearly,

June Edwards, a former junior high school teacher, is an associate faculty member at the National College of Education, based in Evanston, Illinois. Her articles have appeared in numerous education journals, including Contemporary Education, English Journal, Educational Forum, and the American School Board Journal.

Twain believes that her picture of heaven is ludicrous, while hell would be more interesting and would certainly contain better company.

The author also challenges the efficacy of prayer. Miss Watson tells Huckleberry to pray every day and whatever he wants will be provided. Huck tries. He gets the fishline he asks for, but no hooks. "It warn't any good to me without hooks," he complains. Besides, if all you have to do to get what you want is pray, "Why don't Deacon Winn get back the money he lost on pork?" or "Why can't the widow get back her silver snuffbox that was stole?" The widow says what one gets are "spiritual gifts," like the wish to help other people and never think about oneself. Huck can't see any advantage to that either — except to other people — and decides prayer is a questionable practice.

The hypocrisy of those preaching moral purity also bothers Twain. Huckleberry is anxious for a smoke — something he has done for years — but the widow tells him it's a "mean practice." She, however, takes snuff. "Of course," says Huck drily, "that was all right, because she done it herself."

Next, Twain ridicules the shallow thinking of do-gooders. Huck's derelict father, on learning of Huck's six-thousand-dollar fortune, demands that the boy quit school and live with him in his run-down shack. The Widow Douglas tries to gain custody, but a new judge in town refuses. A child belongs with his natural parent, he decrees. The judge takes Pap home and proclaims his instant reformation. That night Pap climbs out the window, trades his new clothes for liquor, wrecks the bedroom, then falls off the porch in a stupor and breaks his arm.

WHILE TWAIN has no use for the stuffy, the self-righteous, and the hypocritical, honest piety and actions he respects. After escaping his abusive father and faking his own murder, Huckleberry hides on an island to watch mourners drag the river. A belief of the



Gates

day is that quick-silver placed in loaves of bread will sink and find a drowned carcass. Hungrily, Huck waits for a loaf to float near. Then he realizes the parson and the Widow Douglas are praying the bread will find him — and it does. Maybe, he thinks, there is something to prayer after all. At least it sometimes works for good people. Later, the boy is moved when a grateful young woman, to whom he has restored an inheritance, says she will remember him in her prayers. He feels unworthy. “Pray for me! I reckoned if she knowed me she’d take a job that was nearer her size.” He wishes he were a better person so he could pray in return and know he was heard.

The goodness and sincerity of Mr. Phelps, who is both farmer and preacher, also impresses Huck. He was the “innocentist, best old soul I ever see,” says the boy. The man built a church and school on his land at his own expense and never charged for his preaching. “It was worth it too,” adds Huck.

Huckleberry may not accept all the religious beliefs of the day, but he is not an atheist. He has questions rather than answers. He does believe in a guiding spirit. Toward the end of the story, after Nigger Jim — as everyone calls him — has been betrayed, Huck locates the Phelps farm where the slave is held and saunters in with no plan, sure that his actions will be steered in the right direction:

I went right along, not fixing up any particular plan, but just trusting to Providence to put the right words in my mouth when the time come; for I’d noticed that Providence always did put the right words in my mouth if I left it alone.

Despite his skepticism toward prayer, Huck tries it when he is consumed with guilt about helping a slave. But he has problems. The words won’t come. Why not?

I was trying to make my mouth *say* I would do the right thing and the clean thing, and go and write to that nigger’s owner and tell where he was; but deep down in me I knowed it was a lie, and He knowed it. You can’t pray a lie — I found that out.

He decides to first write a letter to Miss Watson telling where Jim is and *then* pray. When the letter is done, he feels “all washed of sin.” But then he thinks about how good Jim was and how grateful. Huck picks up the note: “I studied a minute, sort of holding my breath, and then says to myself, ‘All right, then, I’ll go to hell’ — and tore it up.”

**“You can’t pray a lie —
I found that out.”**

So Huckleberry takes up “wickedness” again, “which was in my line, being brung up to it,” and makes immediate plans to help Jim escape his bonds. True morality, the reader sees, lay not in the religious teachings of the day, but in the actions of this uncultured boy who followed his own feelings, defied authority, and helped a fellow human being gain freedom.

RIGHT-WING CENSORS believe Huck Finn to be a poor role model for teenage readers. But is he? They object, first of all, to his use of “bad grammar.” The

story is told in the boy’s own words and reflects his uncultured background. This is important, for only someone marginally touched by society would defy its sacredness-of-property tradition. An adolescent speaking perfect English would not likely commit the heinous crime of slave stealing. Thus, the dialect not only adds humor and authenticity but makes Huck’s “immoral” behavior credible.

Huck’s coarse manners also bother the critics. He smokes and dislikes clothes, school, and anything related to civilization. But he is always polite. For instance, he avoids telling Miss Watson what he thinks about the heaven she describes “because it would only make trouble, and wouldn’t do no good.” After he figures out that the “duke” and “dauphin” are “low-down humbugs and frauds,” he still treats them like royalty for, says Huck: “What you want, above all things, on a raft, is for everybody to be satisfied, and feel right and kind towards the others. . . .”

The boy feels especially bad when his thoughtless actions humiliate Nigger Jim. The two become separated in a thick fog around Louisville — Huck in the canoe and Jim on the raft. When the fog clears the next morning, Jim is overjoyed to find the boy not drowned. Huck, however, pretends he just woke up and the black man dreamed the whole thing. At first the slave is convinced and relates an exaggerated story. Then he spies the broken oar and knows he’s been tricked. He is deeply hurt: “Dat truck dah is *trash*; en trash is what people is dat puts dirt on de head er dey fren’s en makes ‘em ashamed.”

Huck is overwhelmed with remorse. It had never occurred to him that a “nigger” had feelings:

It made me feel so mean I could almost kissed his foot to get him to take it back. It was fifteen minutes before I could work myself up to go and humble myself to a nigger; but I done it, and I warn’t ever sorry for it afterward, neither.

Huck’s speech and manners are crude by civilized standards, but his kindness and willingness to change biased behavior are qualities of the highest order.

A third aspect attacked by censors is Huckleberry’s deceptions. After his faked death, for example, Huck dons a dress found on a wrecked boat and slips into town to hear what is being said. He pretends to be a penniless girl looking for her uncle but switches to being a runaway apprentice when his story is doubted. Later, after the raft is smashed, Huck gives a fictitious name and background to the kind family that befriends him. In both cases, the lies do no harm and protect his freedom. Several times his actions save his black companion. He tells the two swindlers that he inherited Jim from his father so they won’t turn him in, and he not only tells some slave hunters that Jim is white but implies there is smallpox on the raft so they will go away without checking. Near the end of the book, Huck lets the Phelps family believe he is Tom Sawyer so he can proceed with his plan to free Jim from captivity.

Finally, the boy’s thievery is another issue for moral absolutists. On the trip down the Mississippi, Huck sometimes “lifted a chicken that warn’t roosting comfortable” or “borrowed a watermelon, or a mushmelon, or a punkin, or some new corn” for supper. He steals back the money fleeced from the orphaned girls and

***"It is an assault on absolute values,
racial prejudice, and
authoritarian arrogance."***

helps the actors in their various schemes to defraud gullible audiences.

Though lies come easily, stealing bothers Huckleberry's conscience. He feels bad about the audiences being gyped by the duke and dauphin. When the frauds run out of money, Huck is afraid they will extend their activities to robbery or worse. His biggest anxiety, however, is over his role in "stealing" a slave. Early in the story, when Huck and Jim come near Cairo on their raft, the slave is ecstatic over soon gaining freedom. He plans to find work and save every penny to buy his wife and children. If the master won't sell, he says, he'll steal them. Huck is horrified. *Steal* them!

It most froze me to hear such talk. . . . Here was this nigger, which I had as good as helped to run away, coming right out flat-footed and saying he would steal his children — children that belonged to a man I didn't even know; a man that hadn't ever done me no harm.

Huck debates whether or not to turn Jim in and thus relieve his guilt. He doesn't want to be thought of as a "low-down Abolitionist." If it were discovered he had helped a slave escape, he says later, "if I was ever to see anybody from that town again I'd be ready to get down and lick his boots for shame."

Toward the end of the book, when Tom Sawyer arrives at the Phelps farm, Huckleberry is flabbergasted that his friend wants to join in the plan to free Jim:

Here was a boy that was respectable and well brung up; and had a character to lose . . . without any more pride, or rightness, or feeling, then to stoop to this business, and make himself a shame . . . I couldn't believe it. Tom Sawyer a *nigger stealer!*

What Huck doesn't know, but Tom does, is that Jim was set free by Miss Watson in her will. To Tom, it's a chance for a lark, and the elaborate plan he designs merely prolongs Jim's misery. Huck believes what he was taught — that "nigger stealing" is a mortal sin. Nevertheless, he is willing to risk the consequences of societal punishment and eternal damnation to free his friend. The real sin, says the author, was enslavement.

ANOTHER GROUP has recently striven to remove *Huckleberry Finn* from school libraries and classrooms, not understanding that in the hands of a good teacher (and at the appropriate grade level) the book can be not only an experience in great literature but also a basis for examining true moral behavior.* These critics object to the many negative attitudes toward

* A recent study by Pennsylvania's State College Area School District and The Forum on Black Affairs of the Pennsylvania State University found that students who read the novel and discussed it in class "demonstrated a deeper sensitivity to the moral and psychological issues central to the novel" and "more positive attitudes on matters calling for racial understanding and acceptance and were significantly more accepting of contact with blacks." The committee felt that grades eleven and twelve were the best ages for full appreciation of the book and that "the novel requires more literary sophistication than can reasonably be expected from an average ninth-grade student."

blacks that the book records. But to try to wipe from memory the fact that black people were commonly called "nigger" and frequently treated as less-than-human by whites does not make it less true, nor does it erase that ugly part of our country's history. To censure a novel for including historical accuracies is to lose the lessons of the past. Truth is always the most trustworthy teacher. But that is not the major point. One suspects that Twain used the word "nigger" to underscore the irony. The morally superior person in the story, Nigger Jim, is called by the name society reserved for its most despised.

Twain does not denigrate blacks in this book. On the contrary, the theme is the stupidity and inhumanity of the Caucasian belief in genetic superiority. For instance, Huck's vicious, slothful father is compared to a free black college professor. The latter knows several languages and dresses well. But "that ain't the wust," says Pap to Huck. "They said he could *vote* when he was at home. Well, that let me out. Thinks I, what is the country a-coming to?"

Pap claims it was election day when he heard about this development and that he was just about to go vote himself, "if he warn't too drunk." But when he heard that a free Negro could vote in Ohio:

I drew out. . . . I'll never vote ag'in as long as I live. And to see the cool way of that nigger — why, he wouldn't 'a' give me the road if I hadn't shoved him out o' the way. I says to the people, why ain't this nigger put up at auction and sold?

Pap later drinks himself into *delirium tremens*, screams about snakes crawling up his legs, and takes a knife after his own son. Nothing shows more clearly Twain's feelings about the innate superiority of one race over another.

In contrast, the author gives many examples of black Jim's attributes. The slave cleverly fixes up the raft with a wigwam in the center, a dirt pile on which to build a fire, and a lantern pole. He hides from the boy the bloated face of his drowned father, Pap. He sits up all night on the raft doing double duty as watchman rather than wake the lad. After the boating mishap when Huck is staying at the Grangerfords, Jim risks his own safety by hiding in a nearby swamp and rebuilding the raft.

At the end of the story, the black man makes the ultimate sacrifice: He gives up his dream of freedom to save the life of a young friend, who happens to be white. After a series of humorous debacles engineered by the unconscionable Tom Sawyer, the boys help Jim escape to a nearby island. But Tom is shot. Jim sends Huck for a doctor, then helps with the surgery and nurses the boy through the night, even though it means his recapture. No greater love hath a man than this. No more noble character exists in literature than Nigger Jim. Far from degrading blacks, Twain's novel attacks the inhumanity of one group of people owning another and of skin color being the basis for judging character and worth.

One hundred years after its first publication, *Huckleberry Finn* still offends those with narrow views and biased behavior and those who misunderstand its message. Besides being a masterfully told story, full of wit and humor, it is an assault on absolute values, racial prejudice, and authoritarian arrogance. Ernest Hemingway called it the best book in American literature. Certainly, it is one of the most moral. □

RESILIENT CHILDREN

The Search for Protective Factors



BY MAYA PINES

THEIR PARENTS are poor, illiterate, alcoholics, drug addicts, or schizophrenics. The children may be neglected or abused or may have severe physical handicaps. One would expect such youngsters to be seriously disturbed and to fail both at school and in adult life. But to the amazement of researchers, a number of these children do remarkably well despite all the strikes against them.

What is their secret? What makes these particular children so resilient when others in similar conditions succumb to illness or delinquency? Is their strength inborn, or can it be produced in some way?

After decades of focusing on the maladjusted and the mentally ill, a growing number of psychologists and psychiatrists are asking such questions. In recent years, they have launched several long-term studies of children who are at risk in an effort to find out how those who develop into competent human beings differ from those who collapse or go astray. And while such research is still in its infancy, a few tantalizing leads have emerged. Some of these leads point to the power of the

*Maya Pines lives in Washington, D.C., and writes on a broad range of behavior science topics. She is the author of *Revolution in Learning: The Years from Birth to Six* and *The Brain Changers: Scientists and the New Mind Control*.*

schools and teachers.

The schools can provide one of the most effective protective factors for children under stress: a sense of success at a meaningful task, says Dr. Michael Rutter, a British psychiatrist and researcher whose best-selling book, *Fifteen Thousand Hours*, examined what actually happens to children during the many hours they spend in school.

In his book, Rutter points out that some schools seem to foster delinquency, while others generally produce good behavior in their students, even with students of similar backgrounds. The key difference between the two types of schools was their social organization — how they treated their students, the availability of incentives and rewards, and whether children were given positions of responsibility. Rutter concluded that some of the social factors in the good schools exerted an important protective effect on their students.

Now Rutter has completed a fourteen-year follow-up of ninety-four British women who, as children, were at particularly high risk of developing serious problems because of “quite horrendous experiences” with their parents, who either abused them or abandoned them. All of these girls were placed in an institution for their own protection, usually before the age of five. From then on, they alternated between returning to their parents, where they found much discord, and staying in



ILLUSTRATED BY BOBBI TULL

the institution, where there was a constant turnover of staff and lack of affection. During their years in the institution, they attended a local school, which, according to Rutter, turned out to be the source of salvation for many of the girls.

In 1978, when these women were in early adulthood, Rutter and his colleague David Quinton, an anthropologist, tracked down nearly all of the eighty-nine women who were still living — including one in Germany and three in Australia — and interviewed them at length.

They found that, in many cases, history had already repeated itself: Nearly one-fifth of the children born to these women had already been placed in institutions or in foster care, and there had even been one case of infanticide. The women also suffered from an unusually high rate of psychiatric disorders. Nearly half of them had become pregnant before the age of nineteen, frequently out of wedlock.

“Nevertheless, about a third of them were ordinary, well-functioning citizens, doing perfectly okay,” says Rutter. “So we looked to see what kinds of things had made a difference. And one of them was positive experiences at school.” These positive experiences were usually not academic success, he explains, but success in sports, achievement in music, getting positions of responsibility in the school (from classroom monitor to

team captain), having a good relationship with a teacher, or sometimes just social success — “anything that they either succeeded in or got pleasure from.” There had to be good experiences in at least three areas of school life to make a real difference.

WHAT THESE good experiences produced was at first invisible but in retrospect crucial: a kind of self-esteem that made it possible for these girls to exert some control over their lives and avoid such disastrous mistakes as becoming unwed mothers in their teens or marrying men who had severe behavioral problems.

“We found that the most important protective factor in this group was a harmonious marriage to a nondeviant man,” says Rutter. “That was so important it overwhelmed almost any other influence.” At first he thought that the girls who were themselves well functioning married the best men, but this did not prove to be correct. Instead, the key factor was whether the women had “planned” their marriage. “‘Planned’ is our shorthand term for dealing with the fact that a high percentage of these institution-reared girls married to escape,” Rutter explains. “They were in an intolerable home situation when they left the institution, and their prime reason for getting married was to get out, a negative reason. A number were forced by pregnancy to marry men they did not wish to marry. However, we did

not count pregnancy as a negative reason if the relationships were ones that they wished to continue. So we defined "planning" as simply meeting two criteria: they had known the men for six months or more and they married for positive reasons, meaning anything other than escaping from a bad situation."

The women who were planners were much more likely to have a good marriage, Rutter found. And it appears extremely significant that the girls who became planners were generally those who had had good experiences at school.

Other researchers have also found that children under stress desperately need an oasis — some activity that they can throw themselves into and feel that they are successful.

"Children under stress desperately need an oasis."

One eleven-year-old boy whose schizophrenic mother ran a chaotic household kept himself in good shape through his interest in a model city that he was building with a friend. Every day, as soon as he came home from school, he'd meet his friend and they would go up to the attic to play with this city. Amid lawns and parks made of fuzzy green fabric and miniature trees, they had a variety of houses constructed out of balsam and other woods, a railroad, a school, two airports (civilian and military), and hundreds of model airplanes that they put together. The boy also knew the history and strategic strength of each plane, which led him to study military history and war games. At school he was getting straight A's.

Children who later do well in spite of stressful circumstances often develop intense interests in certain subjects at an early age, says Dr. E. James Anthony, a psychiatrist who works with the offspring of psychotic parents at Washington University Medical School in St. Louis, Missouri. He notes that many eminent artists, writers, and political leaders come from families that have also produced victims of schizophrenia or manic-depression. Since these illnesses have a marked genetic component, people in such families are at a relatively high risk of breaking down. Anthony believes that very often the act of creation — writing, painting, composing, developing new ideas — is what saves them. And the encouragement that such children receive from teachers, relatives, baby sitters, or other adults often plays a key role in their lives.

Having strong outside interests makes it easier for children to put some psychological distance between themselves and their sick parents and to think for themselves, Anthony explains. This makes them less vulnerable to mental illness. He tells the story of three children whose schizophrenic mother believed that someone was poisoning the food at home. The oldest girl, a twelve-year-old, shared her mother's fears and refused to eat except in a restaurant. The middle child, who was

about ten, also refused to eat at home — except when her father was there. But the seven-year-old son ate at home every day. When Anthony asked him why, the boy shrugged and said, "Well, I'm not dead yet!" This boy went on to a brilliant career, while his older sister eventually became as psychotic as her mother.

About 10 percent of the three hundred children Anthony has been studying since 1966 have done exceptionally well, he says. He calls them "the invulnerables." In the case of the boy described above, "his mother's illness gave him a tremendous need to overcome obstacles, to cope with problems," Anthony says. "He seemed to see the environment as a sort of challenge." By contrast, his middle sister had occasional symptoms of maladjustment, although she remained sane.

"It's as if you had three dolls, one made of glass, one of plastic, and one of steel, and then someone comes along with a hammer and hits each doll on the head with the same force of blow," Anthony explains. "The first doll breaks down completely. The second one is dented — one might say scarred — for life. And the third doll just gives off a fine metallic sound, for it is made of steel."

No one knows yet how much of the invulnerable children's strength comes from their particular genes, how much from a favorable environment during gestation and delivery, and how much from their own experiences during their early years. But nature and nurture constantly interact, and various aspects of the environment affect different children in different ways. In the doll analogy, for instance, the glass doll is more vulnerable to a blow from a hammer, but the plastic doll would be more vulnerable to heat. Anthony also points out that mishandling either of these dolls after it left the manufacturers could have left it in a heightened state of susceptibility.

THE SMALL number of children who function exceptionally well in the face of severe stresses share certain qualities, according to Anthony and other researchers:

- Socially, they are strikingly at ease — and they make other people feel comfortable, too. Anthony describes a nine-year-old girl who was referred to him as apparently at high risk because of poverty and overcrowding at home, because her unemployed father beat her when he was drunk, because her mother was chronically depressed, and because she suffered from a dislocated hip that had produced a permanent limp. "I was struck by her immediate friendliness," Anthony writes. "She settled down at the interview in a warm, comfortable, trustful way that utterly took me by surprise, since I was expecting almost the reverse. . . . She almost immediately put me at ease, and I soon found myself talking to her with much less guardedness than I usually use in a first interview."

- They know how to attract and use the support of adults.

- They actively try to master their environment and have a sense of their own power. In fact, they often volunteer to help others whom they believe to be even needier.

- They develop a high degree of autonomy early in life.

• They get very involved in various activities or projects and generally do well at most of the things they undertake.

Summing it up, "they work well, play well, love well, and expect well" despite much deprivation, says Dr. Norman Garmezy, professor of psychology at the University of Minnesota, who has been conducting a research program on stress resistance in children for the past ten years.

PROGRESS IN psychology often comes from studying extreme cases, Garmezy points out, and as much may be learned from focusing on extremely stress-resistant children as from studying those who break down. So far, researchers cannot offer any formula for producing resilience. But they do point to factors that seem to offer children a degree of protection — factors that may be necessary, though not sufficient, for resilience.

The main ingredient appears to be "a sense of coherence," according to Emmy E. Werner and Ruth S. Smith, co-authors of *Vulnerable But Invincible*. Published in 1982, this book reports on a total of 698 children — all those born on the island of Kauai in Hawaii in 1955 — whom they studied for two decades. They were particularly interested in a group of seventy-two children who did very well even though they came from poor families and had at least four serious risk factors, such as low birthweight, early health problems, or family disruptions. They called these children the "resilient" group.

One of the children they focused on, Michael, was born prematurely to teenage parents and spent his first three weeks of life in a hospital. He did not see his father for two years, since the father was sent with the Army to Korea soon after Michael's birth. Then the father returned and three younger siblings were born. But by the time Michael was eight, his parents were divorced. His mother left the island and had no further contact with him. Michael and the younger children lived with their father in the home of their paternal grandfather, but there was a great deal of friction between the two older generations.

"It's as if you had three dolls, one made of glass, one of plastic, and one of steel."

In spite of all these difficulties, at the age of eighteen Michael had turned into "an individual of accomplishment and varied interests, high self-esteem and sound values, caring for others, and liked by his peers," according to Werner and Smith. His high school grades were all A's and B's. He had received a college scholarship from a local organization, had been accepted at a small college, and planned to become a teacher. "I'm contented with what I did, and right now I'm just looking toward the future," he said.

Looking at Michael's life and that of the other resilient

"Progress in psychology often comes from studying extreme cases."

children, the authors conclude that "the central component of effective coping with the multiplicity of inevitable life stresses appears to be a sense of coherence," which is produced by different factors at different ages.

In their first year of life, most of the resilient children received a great deal of attention, the authors point out. In Michael's case, for instance, his sixteen-year-old mother found the baby "cuddly and very active" and spent much time playing with him, with the help of her own mother and grandmother, in whose house she lived and who lavished attention on him. The authors note that the resilient infants "not only received but *elicited*" such attention and that their high levels of activity and social responsiveness "significantly differentiated resilient infants from future problem children."

Constant feedback from a few adults early in life gave the resilient infants a basic trust and a sense of coherence — a feeling of confidence that their environment was predictable and that things would probably work out as well as could be expected, Werner and Smith write.

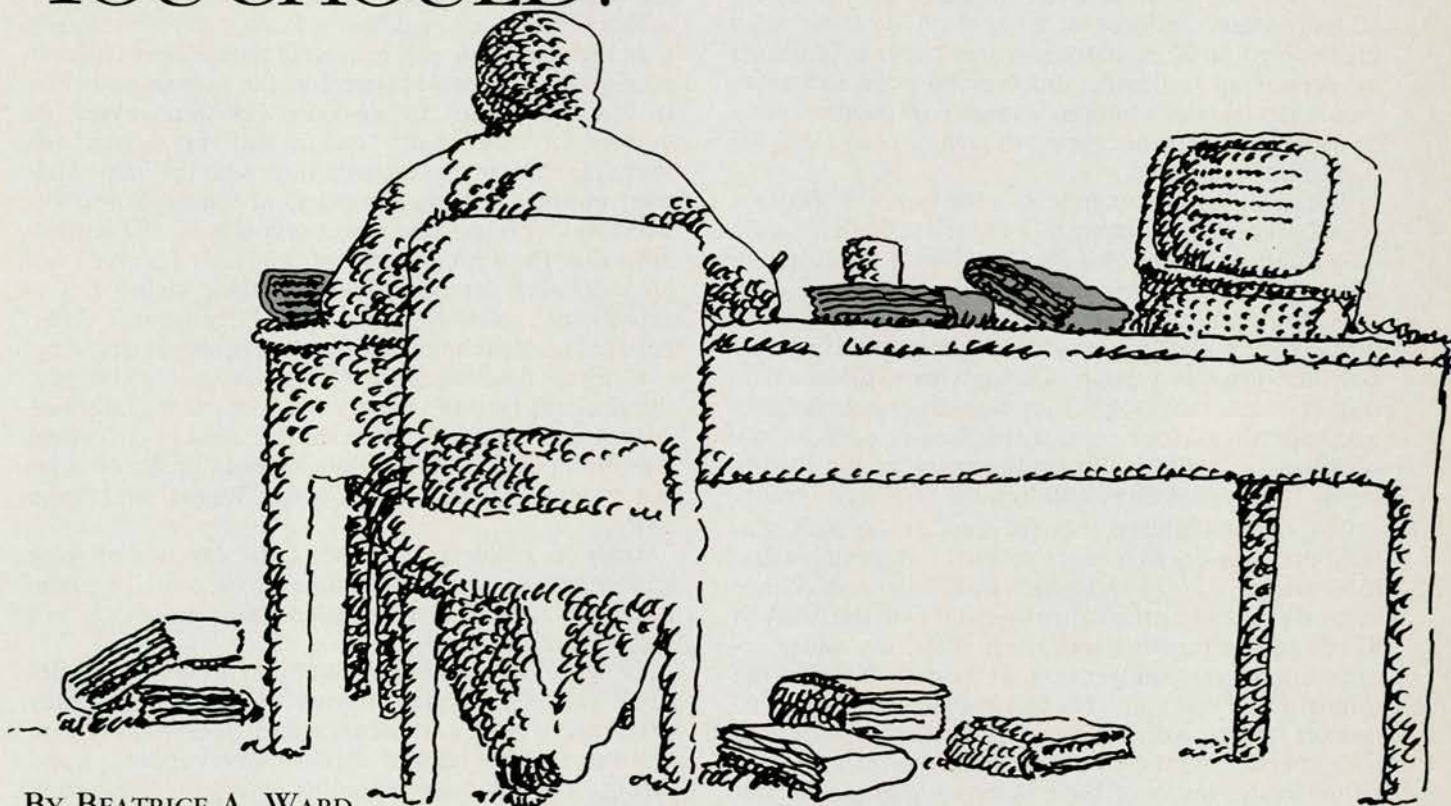
Later on, children may need to be exposed to some challenges in order to develop a strong sense of coherence, the authors believe. Adaptability to change is a hallmark of resilience.

Finally, older children and adolescents who are under stress can still develop a sense of coherence if they encounter "new experiences and people who give meaning to one's life and a reason for commitment and caring," write Werner and Smith. In other words, teachers who fire up their students with a special interest in a particular subject or who give their students tasks that make them feel important and useful may actually be making a major contribution to these children's resilience.

The authors also looked into the matter of working mothers — did the mother's employment outside the household have any effect on children's resilience? They concluded that it "had no negative effects on the resilient children and may actually have contributed to the competence and independence of the resilient girls." It was only in cases of great family discord that the mother's working outside of the house and leaving the children unsupervised risked a higher rate of delinquency in adolescence. Boys, in particular, were at increased risk.

Michael Rutter likes to emphasize that "a stress-free life is inconceivable." Stresses are not necessarily bad for you, he points out. "The question is what you do with them, how you overcome them." Now that researchers are looking for the roots of resilience in children who face the most terrible odds, they may discover ways to help all children deal with the wide range of stresses that will, inevitably, come their way. □

DO YOU THINK OF YOURSELF AS A TEACHER-RESEARCHER? YOU SHOULD!



BY BEATRICE A. WARD

AS AN effective teacher, you undoubtedly have been gauging your students' abilities and monitoring their achievement, adjusting your teaching strategies accordingly. With observation and testing as your instruments, you have gathered insights into your children's behavior and performance. You have listened, watched, and "interviewed," recording both progress and decline. You may also have helped to design new curricular materials and shape new courses, and to then collect data on their effectiveness. In all of these activities — in looking at the how, what, and why of teaching and learning and in studying the outcomes of both — you have, indeed, been a researcher in your own classroom.

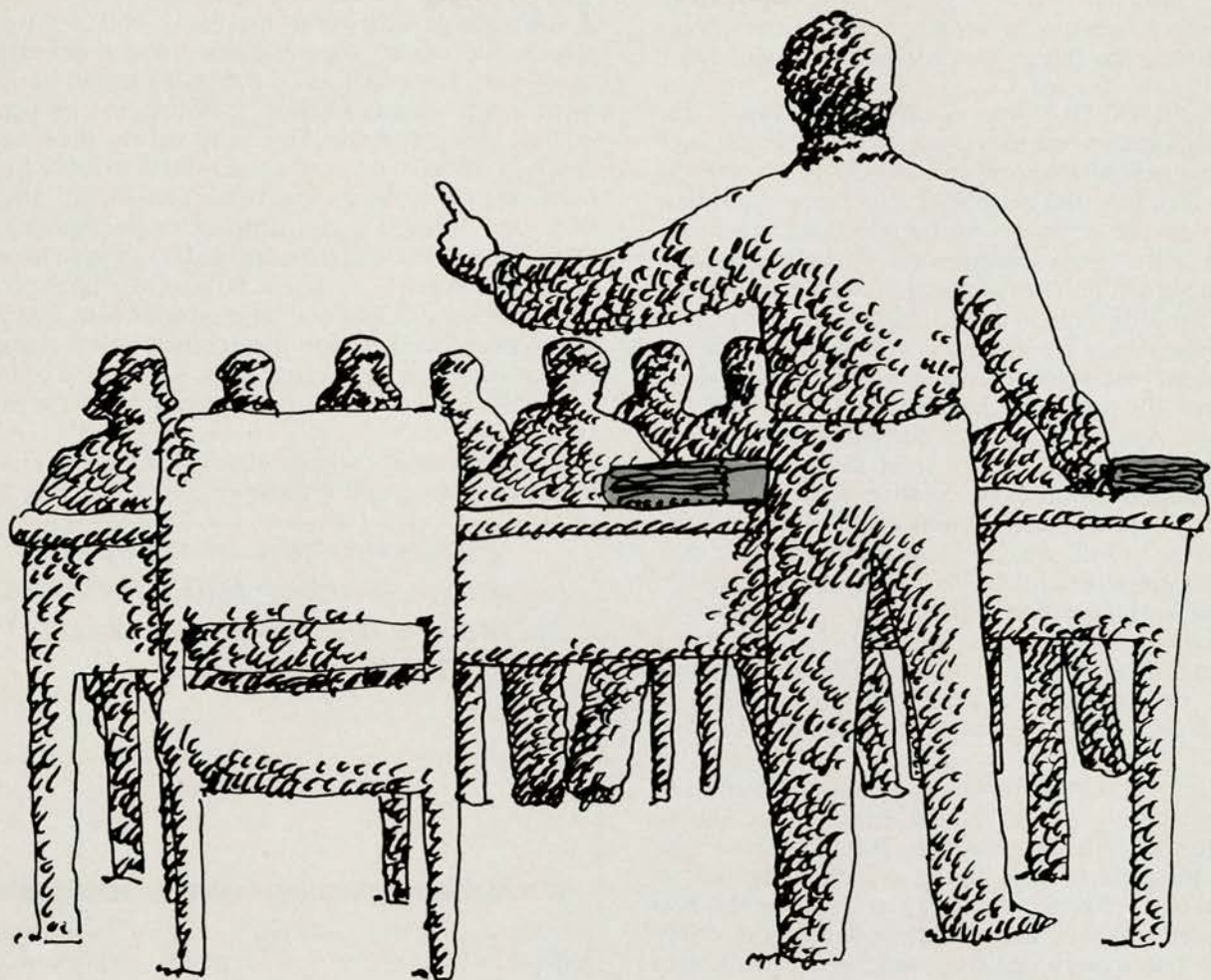
Yet, teachers usually are not recognized for this aspect of their work. Why not? In my opinion, it is because their findings are seldom reported beyond the confines of their individual classrooms.

However, this situation is changing. Finally, after

Beatrice A. Ward is president of the Center for Interactive Research and Development, an education research firm based in San Francisco, California.

some twenty-five to thirty years of blindness to the research and development skills and the rich data bases teachers possess, the education research world is recognizing the importance of teachers' inquiry. More and more, educational researchers, as traditionally defined in the formal sense, are joining with teachers as partners in research. I say that this is occurring after some twenty-five to thirty years of blindness because there was a period in the late 1940s and early 1950s when teachers and researchers formally worked together in ways that are similar to those that are emerging now. The major difference is that today teachers are involved as researchers, whereas earlier, they served primarily as curriculum designers.

Collaborative action research or interactive R&D, as these new joint researcher and teacher-researcher ventures are called, are occurring in an ever-increasing number. To cite just a few examples: Teacher center specialists in New York City and faculty from Teachers College, Columbia University, recently formed a team to examine the factors that enable teachers to feel and act positively about their jobs. Teachers in a large California district joined with other school district staff to



ILLUSTRATED BY GUY SCHUM

conduct a study of classroom distractions. In Michigan, teachers from a middle school and a professor from Oakland University combined to investigate the strengths and weaknesses of various types of middle-school scheduling. In Texas, teachers and members of the teacher education faculty at Texas Tech. University formed teams to study a variety of topics, such as how to reduce impulsiveness in young children, peer tutoring as a means of decreasing disruptive behavior, secondary math teachers' concerns about team teaching, cognitive restructuring and mastery learning, improving students' attitudes toward reading, and teachers' attitudes toward handicapped students.

TEACHERS WHO joined these projects participated in a five-to ten-hour overview of the key requirements of high quality, formal research. They then tackled the identification of the research questions, development of a research plan, design and carrying out of data-collection procedures, and analysis and reporting of the findings. In addition, the teachers in New York City and California developed training programs to assist other teachers in using *both* the findings and the

data-collection procedures from their studies. At all steps, the teachers assumed major responsibility. The professors and other participants served as technical assistants and resource people. However, in some other projects, teachers have relied more heavily upon the researchers to do the analysis and reporting. When teachers have not been major participants in these aspects, it generally has been due to time problems rather than a lack of interest. Nonetheless, it should be noted that the goal of producing research that is more meaningful and useful to teachers makes reduction of teacher participation at these points undesirable.

When asked why she became involved in collaborative research, a New York City teacher explained, "To engage myself in education research that will matter to other teachers and kids." One teacher active in the Michigan project wanted to avoid getting professionally stale: "I've been teaching for twelve years now, and I'm determined not to fall into the rut of an experienced teacher whose most important teaching tool is the file cabinet." Others felt that the new skills acquired would help them advance to roles of more responsibility.

Many of the teachers involved shared the feeling that

traditional educational research was often remote and irrelevant. As one of the Texas teachers said, "I am concerned that the researchers are way too far from the classroom setting and that the individual child's needs are not diagnosed properly or met by testing or published data. If more research were done on the local level by classroom teachers, guided by college professionals, I feel there would be more help for each teacher in diagnosing the classroom child in his/her situation."

THE NUMEROUS practical applications of the collaborative research projects indicate that such studies are not "just theory" and do help improve teaching and learning. The New York City team found that, contrary to the emphasis on burnout and negativism stressed in the media and in some education publications, there are numerous teachers who feel positive about their jobs, even in large, urban districts. Based on interviews with teachers who described themselves as "burned out" and teachers who were enthusiastic about their work, the research team identified nine characteristics of a positive teacher. They found that, among other things, such a teacher feels supported by the school administration to be creative in the classroom, has a sense of independence, gets results from students, cares about children, and takes on added extracurricular responsibilities. The training developed by the New York City consortium helps other teachers learn how to obtain similar information about themselves and their colleagues and to plan ways to facilitate teacher creativity, independence, participation in worthwhile extracurricular activities, etc., in their schools.

After interviewing teachers, students, and parents to assess their opinions of modifications in the school schedule, the Michigan team found that active participation of teachers in developing a scheduling plan is essential to its effective implementation. They also recommended that their middle school consider development of team teaching, give increased attention to matching learning styles with teaching styles, build shared time for preparing materials into the school's schedule, and investigate flexible scheduling. Their findings and recommendations have been taken to the board of education for consideration in terms of all middle schools in the district as well as being the focus for improvement efforts in the one school.

Using extensive classroom observation, the California team interested in doing something about classroom distractions identified twenty-nine categories of distractions that take teacher time away from instruction. Contrary to their beliefs prior to the study, they found that school administrators are not the major source of the problem. Most distractions are generated by a few students. Moreover, teacher use of body language and gestures can eliminate many of these distractions quickly and effectively. The impact of the distractions was also somewhat different than expected. As one teacher said, "I was surprised, both in the observations I conducted and in being observed, that while the teacher was distracted, the children usually were not. Hardly ever was more than the one child or his/her immediate neighbor bothered, and most often it was just the teacher who was taken off task." As a result of the study,

minimizing classroom distractions has become a cornerstone of an achievement goals program developed by the school district, and most of the district's elementary teachers have participated in a training program developed and conducted by the research team.

IN ADDITION to the new knowledge and new training packages that result from such collaborative research, the impact on the participants themselves is significant. The teachers on the teams report improvement in the quality of their teaching. As one teacher commented, "For the first time in my professional career, I understand how I can be accountable for the learning that is taking place in my classroom." Another said, "I've learned that a little extra preplanning can yield a lot more useful information [about what happens in the classroom]." A member of the Michigan project saw a dramatic before-and-after comparison: "I'm absolutely convinced it was the [collaborative research] process that was important. I saw some very ordinary teachers become very extraordinary in a short period of time."

Participation in collaborative research also reduces teacher isolation and makes the job of teaching more

"Participation in research reduces teacher isolation and makes the job of teaching more stimulating."

stimulating. Numerous teachers reported a heightened self-confidence, professional renewal, a feeling of being "in charge for a change," and a gratifying sense of collegiality. Teachers in Michigan noted the satisfaction that comes from "being thought of as an expert in something so when you meet [other people] they have the feeling that you know something and you even have the feeling that you know something. That's a good experience."

The sense of ownership, of substantial voice in the development and execution of education policy, fits perfectly with the recommendations growing out of the effective schools research. According to that body of research — which has now become the mainstay of most school improvement efforts — good schools are those in which teachers are actively involved in finding solutions to educational problems.

Another benefit of collaborative research is that other teachers seem more likely to use the findings, probably because teacher involvement at every step of the process ensures that the work makes sense to teachers and reflects what is really going on in the classroom. After only reading the California research report, one teacher commented: "The concept [of classroom distractions] was sufficient for me to begin to conjecture or to extend and elaborate in my own head what I would do with

that. What I am reading in this report is sufficiently similar conceptually that I can [use it] in my own situation." The general acceptance with which other teachers greet the new research seems to stem from both a revolt against the often tedious and obscure style of traditional research reports and a desire to have change developed from the bottom up rather than imposed from the top down.

Given all these positive comments, it is important to point out that collaborative research makes heavy demands on teachers. Reflecting on their experiences, the New York City teachers indicated that while they would participate in this sort of effort again, they felt that the time commitment required should be clearly explained before hand. They recommended that teachers who participate receive release time so they can be heavily involved in all aspects of the work. Despite the time problems, the overwhelming view of teachers who have engaged in such research is that the benefits more than outweigh the difficulties.

IF YOU are interested in becoming part of the growing teacher-as-researcher movement, here are some ideas that you or your AFT local might pursue:

- Try to establish the collaborative research model as the basis for all future staff development and school improvement efforts. With the educational benefits of such an approach so clear, you will have strong arguments on your side.

- Building upon the Texas model, teachers in a school or school district that accepts preservice teacher trainees can negotiate support of a collaborative research project by the university as part of the preservice training agreement. Depending on the type of agreement that is reached, the flexibility the preservice trainees add to the school setting may be used to carry out data-collection activities and to release teachers for planning, data analysis, and reporting activities.

- In some states and school districts, funds are being made available for teachers to conduct research projects, curriculum development, evaluation studies, etc. By actively seeking such funding and then asking a researcher to help with the design and execution, a teacher can initiate a formal collaborative action research effort. Inclusion of several teachers will increase the depth and breadth of such projects.

- Along similar lines, some national professional associations, such as the National Council of Teachers of English, are providing grants to teachers to conduct classroom-based research studies. Funds can be used for clerical help, research assistance, and reproduction of the findings. The NCTE grants vary in amount, with a ceiling of one thousand dollars. For information, write Teacher-Researcher Grants, NCTE, 1111 Kenyon Road, Urbana, IL 61801.

- Increasingly, corporations are looking for ways to help improve the quality of public schools. You may be able to interest a local business in providing funds for a specific research project.

Above all, if you are interested in being known as a teacher-researcher in a formal as well as an informal sense, do seek out opportunities for collaborative projects. You may be surprised how many "ivory tower" researchers are willing and waiting to work with you. □



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TEACHER COLLECTIVE BARGAINING

(Continued from page 17)

ion on in a meaningful way. They are asked to fulfill dozens of the system's bureaucratic needs at the expense of their teaching. While this is not the situation in all schools, it is a serious problem. It's also a national problem, as most of the education reform reports have said.

ALBERT SHANKER often points out that schools are still managed on a hierarchical model that has become outdated. There was a time when teachers were educated only slightly more than their students, when the principal was often the only one in the school with a degree. That has changed. Now teachers are as well educated — and often more so in their area of expertise — as the principal. Yet the schools and the system are not equipped to seek their advice; nor do most supervisors seem inclined to grant to teachers the kind of “voice” in the management of school affairs that teachers deserve. This resistance takes its toll on teacher morale, as Ted Sizer points out in his recent critique of American high schools, *Horace's Compromise*: “Teaching often lacks a sense of ownership, a sense among the teachers working together that the school is theirs, and that its future and their reputation are indistinguishable.”

“Schools are still managed on a hierarchical model that has become outdated.”

Sizer's book and all the other recent reports on education reform stress that the education of our children would vastly improve if teachers were allowed to participate fully in running schools. John Goodlad summed up the situation aptly in his study of American public schools, *A Place Called School*. “Without doubt, teachers will experience greater work satisfaction when they are viewed by their principals as the professionals they perceive themselves to be.” Significantly, Goodlad found that those schools in which teachers felt they had good professional working relationships with their principal and supervisors were also the most successful schools academically.

What teachers need are more vehicles for expressing their ideas about better education. There are some interesting models where management has been strong enough — and enlightened enough — to give over decision-making power to workers in their areas of expertise. At the General Motors plant in Fitzgerald, Georgia, for example, with the help of Jerome Rosow and the quality of worklife movement, self-managing work teams now make many decisions once reserved for management. The worker participation program has

achieved lower absenteeism, better quality production, and greater customer satisfaction — all accomplished in a company in which the labor relations situation had often been bitter.

If worker involvement works in a plant, teacher involvement ought to work in a school. Quality circles and self-managing work teams could be translated into various professional committees devoted to items such as discipline or curriculum or teaching methodology in particular subject areas or school districts. They could meet regularly to formulate policy and solve individual problems — but they need time to do so (or paid after-school time) — and they have to know that their deliberations will be acted on. Some of this is going on in pilot projects like our school improvement program in New York City.

IBELIEVE THAT collective bargaining can either advance this effort toward increased collaboration or hinder it. I do not believe we can separate labor relations from education decision making as the system now does. It's time for a change.

We are at a crossroads, and the challenge to both labor and management — in the schools and in other troubled industries — is to see if we can break out of a pattern in our relations that is almost a century old. Can we keep the useful and discard the vestigial?

I believe that in the education industry, survival depends on our pulling together. Given the problems our society faces in education, the improvements desperately needed in our school system, and the threat of tuition tax credits and increasing government support for private education, the continuation of labor-management conflict is suicidal.

In all the discussions about revitalizing our economy, the role of human capital is pivotal. We're going to need greater numbers of highly skilled technical workers than ever before, and we are going to have even larger numbers of lower-skilled service and clerical people. The growth of technology and electronics is changing the nature of work at every level, and the change is going to be continuous and rapid. Workers, skilled or unskilled, will need to be able to adapt, to respond to retraining, probably several times in a lifetime — and adaptability comes only with education.

High-quality teaching is essential to good education, and the more highly qualified the teacher, the more tension there will be if he or she cannot make professional decisions. And the more tension there is, the slower will be our climb to the heights of education.

The same is true for our nation's overall productivity. More than ever, government officials are seeing the critical links among education, job training, and economic development and the need for cooperation and coordination in these areas. Government, business, and labor will have to work together to strengthen the economy. Adversarial, conflict-ridden labor-management relationships will stand in the way of that process.

For a teachers' union — for any union — with a great many needs as well as dreams still unfulfilled, entering a new era of labor relations is another tough challenge to face. I believe we will rise to the occasion. I hope our “partners” on the management side will do as well. The stakes are too high to allow ourselves to fail. □

(Continued from page 25)

burn? And if we decide that we had better be cautious about burning all we have, what then are the choices? Here, again, is a matter that non-scientists had better learn to think about before we are all drowning in the approximately 150-foot rise in sea level that would occur if all the ice in Antarctica were to melt.

HAVING OFFERED three reasons to teach science to non-scientists — curiosity, technological bewilderment, and technological necessity — I would now like to offer some ideas on how courses addressed to these reasons might be taught. Some of this I have already hinted at. It is, I think, clear that the three kinds of courses I have in mind are quite different and would serve differing needs and interests. The curiosity course is, by now, of a fairly familiar kind. My own interest in physics was aroused by just such a course, taught by the late Philipp Frank in the spring of 1948, when I was a freshman at Harvard. I doubt that anyone, before or since, has taught a better one. But nowadays, "Physics for Poets" courses are fairly ubiquitous. Gerald Feinberg, who is now the chairman of the physics department at Columbia, has been teaching such a course at that university for the past several years. The last time he taught it, it had an enrollment of over two hundred students — some of them, presumably, poets, and none of them scientists. Feinberg has had a good deal of experience lecturing and writing for lay people, so he was able to lead his charges expertly through a thicket of quarks, relativity, gluons, black holes, and the rest, with relatively few casualties. He was surprised, and pleased, to discover just how much his students were able and willing to absorb. Before it was over, in fact, a few of them decided that they might want to major in physics.

The present generation of students has been exposed to television programs such as "Nova" and "Cosmos," which, as bad as the latter was, drew the largest audience ever to watch a public television series. I do not really have any special words of wisdom about teaching a curiosity course, except that it clearly takes someone

"I decided that the only way a course like that could work was if we all learned some new science and wrote about it."

to teach it who is actively engaged in science. To be good, it must come from someone who is really on top of the material. Otherwise it simply becomes a digest of other people's popularizations. That can be done, but it is a little like eating Wonder bread; it won't do you much harm, but is not very exciting either.

I have never heard of anyone who has tried to teach a technological bewilderment course. Since I am as nearly bewildered as anyone else, I certainly have never tried to teach one myself. I think that I would very likely electrocute myself the first day. On the other hand, I have taught something very like a technological necessity course, and I would like to describe a bit of it, as well as to describe a remarkable course I witnessed and participated in during one of my Phi Beta Kappa visits.

IN THE spring of 1980 I was a visiting professor at Princeton University, where I taught a course under the auspices of the Humanities Council in a program that is called the Literature of Fact. The nominal subject of the course was science writing for scientists. All of my students, ranging from sophomores to graduate students — fourteen in all — were science majors of some kind. Only a small number were physicists. I decided very early in the game that the only way a course like that could work was if we all learned some new science and wrote about it. I decided that a subject that we might learn about was energy. Since I had a small budget for outside lecturers, I was able to invite a variety of my colleagues to be interviewed by the students, who then wrote up these interviews as part of their course work. A final ten-thousand-word essay was required that would answer the question, How would you solve the energy problem? It was to be written in a style appropriate for a magazine article.

The first day of class I asked the students a few things about their views on energy. In particular, I asked them how many were in favor of using nuclear power. I was not very surprised when no hands were raised. I then asked how many of them understood how a nuclear reactor worked. I was again not very surprised when no one raised his hand. Most physics majors never learn how an actual nuclear reactor works, since this is considered to be nuclear engineering. I then invited four experts on nuclear power to talk to my class. They were David Rossin, a nuclear engineer who is a leading spokesman for the use of nuclear power; Henry Kendall, the founder of the Union of Concerned Scientists, who vehemently opposes nuclear power; Norman Rasmussen, the M.I.T. professor whose reactor safety study is still the basis for most reactor safety estimates; and Ted Taylor, who had just finished serving on President Carter's Three Mile Island commission. I invited them on different weeks since I was not interested in having a live debate but rather a series of thoughtful interviews.

The students at first must have found this somewhat bewildering. I think they were especially impressed by Rasmussen, whose competence and integrity are obvious the minute he begins speaking, and by Ted Taylor, who is not an advocate of nuclear power, to put it mildly, but who told the students that he could find no scenario, however far-fetched, that could have turned Three Mile Island into any more of an accident in terms of threats to human life than it was — which was,

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essentially, no threat. I took no position in any of these discussions and simply let the students boil around in their own intellectual stew. The net result of all of this was that, in their final reports, *every* student, however reluctantly, said that nuclear power was an essential short-term part of the solution to the energy problem. During the course, we had had an opportunity to examine all of the possible choices of power sources, including solar and wind power. It had come down to a matter of choices; and while no choice was perfect, the students decided that nuclear power, on the basis of what they had learned, was an acceptable imperfect choice. Perhaps another group of students would have reacted differently to what was presented to them. That these students were science majors is not, I think, very relevant to the workability of a course like this. When we began, none of them knew much, if anything, about the actual details of the general energy problem. The students — and their teacher — learned about it as they went along.

THE OTHER example of a technological necessity course is one that was designed specifically for non-science majors. I encountered it on my Phi Beta Kappa visit to the University of Delaware. I am reluctant to attempt to give credit to any particular individual for creating the course, since I do not know the details, but my tour guide and host was the astronomer H. L. Shipman. On the day I visited, he was teaching it in collaboration with a biologist and a philosopher. The three teachers were present in the classroom. The subject that day was world hunger. In previous classes, I gathered, the biologist had explained the facts about hunger and had made it clear what the resources were. On this particular day, the discussion, led by the philosopher, had to do with choices — specifically: Whom shall we choose to feed? This is, obviously, an agonizing question. The moral dilemma is clear. Feeding people raises health standards, especially the health standards of children. Hence, it produces a growth in world population, which, in turn, lowers the standard of living for everyone. The discussion got quite personal. Individual students were asked if they were willing to lower their standards of living — for example, to reduce their consumption of meat, which is a notoriously inefficient way to use both food and energy — in order to feed people they did not know. What are our moral and ethical obligations? How do we balance our self-interests against what is possible and what is right? These are immensely difficult questions, and the students, rightly so, were deeply serious about them. The discussion affected all of us, and, one would like to think, helped the students to think about a future that is, after all, theirs.

WE LIVE in a complex, dangerous, and fascinating world. Science has played a role in creating the dangers, and one hopes that it will aid in creating ways of dealing with these dangers. But most of these problems cannot, and will not, be dealt with by scientists alone. We need all the help we can get, and this help has got to come from a scientifically literate general public. Ignorance of science and technology is becoming the ultimate self-indulgent luxury. □

THE MEASURE OF EXCELLENCE

(Continued from page 29)

tested modes of thinking and performance — reading of books, discussion of ideas, writing, creative activities, and projects requiring inductive problem solving. Because these kinds of activities take a great deal of time and are not easily matched against the measurable objectives, they lose out to the more narrowly conceived, tested basic skills curriculum.

MOREOVER, RIGOROUSLY enforced test-managed instruction frustrates teachers who hold broader goals for education and who feel constrained in meeting their own perceptions of student needs. When asked if there were any school policy that would make them leave teaching, nearly half of the teachers in the above-mentioned study answered that increased standardization of the curriculum or prescription of teaching methods would make them leave. If it seems puzzling that efforts to improve education could push teachers out of the profession, consider this analogy.

Imagine for a moment that our nation's concerns about the quality and costs of health care resulted in the adoption of a single performance measure for judging patient health and doctors' competence. The cheapest, easiest, and most reliable measure of patient health we find is a simple, widely available tool called the thermometer. We decide to base all our health care decisions and rewards for doctors on patients' thermometer scores. After all, we reason, a patient with a good thermometer score is likely to be healthy in other respects as well.

Three things happen in this scenario if our bureaucratic controls are effective. First, more aspirin is prescribed and consumed. Second, use of other treatment tools and methods declines because they are more costly and fail to show a direct, immediate relationship to thermometer scores. Third, doctors who are uncomfortable with the measure and its treatment implications become dissatisfied, complain about their lack of professional autonomy, and either engage in subversive practices or leave the established profession. Their complaints are dismissed as defensive and self-serving attempts to avoid accountability.

Does health care improve? There is no way to know, because we have no other legitimate measures.

Goodlad calls standardized multiple-choice achievement tests the Dow Jones index of education. Just as the Dow Jones industrial average fails to reveal aspects of economic health like unemployment and poverty, basic skills test scores fail to reveal aspects of educational health like the production of actual performance skills and creative abilities. Teachers know that this is the case, and their pleas to be evaluated on more comprehensive and educationally sound criteria ought to be honored. If teacher evaluation is to serve the cause of educational excellence, it must incorporate a variety of performance measures that both reflect and encourage "real teaching" and meaningful learning. To settle for the unstable and seriously limited data provided by standardized test scores in the name of "objectivity" or convenience is to prostitute the teaching-learning process at the expense of students as well as their teachers. □

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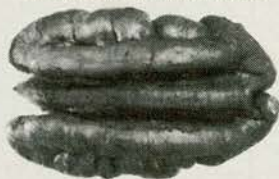
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LETTERS

(Continued from page 8)

tain much that is insightful. There is one area, however, that is treated sketchily: the way of imposing consequences on students for misbehavior in class. No specific suggestions are offered to assist teachers faced with pupils who disrupt classrooms repeatedly.

A student may be disruptive because he is emotionally immature; there is little a teacher can do in a class of thirty-odd students to effect maturation in an instant. Or the student may feel the need to attract the attention of his peers because he has been placed in a class where he either cannot keep up academically or he is so far advanced that he is bored. The attempt to integrate classes often results in widely heterogeneous groupings.

The methods I have seen used to discourage misbehavior all fall short:

- Offering prizes as positive behavior modification is a technique that fails either because the prizes are of no value to the students or because the expense of procuring the prizes is too great for the teacher to bear.

- Assigning extra work as punishment, even if the student does it, gives the impression that school work is a punishment.

- Calling a parent's home or invoking the aid of a supervisor diminishes the authority of the teacher.

- Ignoring the troublemaker makes him even more desirous of obtaining attention.

- Holding an after-class discussion with the student may be helpful, but it is too late to salvage the lesson.

- Inflicting corporal punishment is, of course, taboo.

A teacher's dignity demands that he be able to refuse to teach students who don't let the lesson proceed. It seems to me that the only effective answer is expulsion (not temporary suspension!). If the student, and especially his parents, know that the student will lose his chance at an education unless he obeys the rules, the vast majority of students will behave. Those who still carry on will not get an education anyway and will prevent others from learning.

—RENA GARTER KUNIS
Bellerose, NY

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