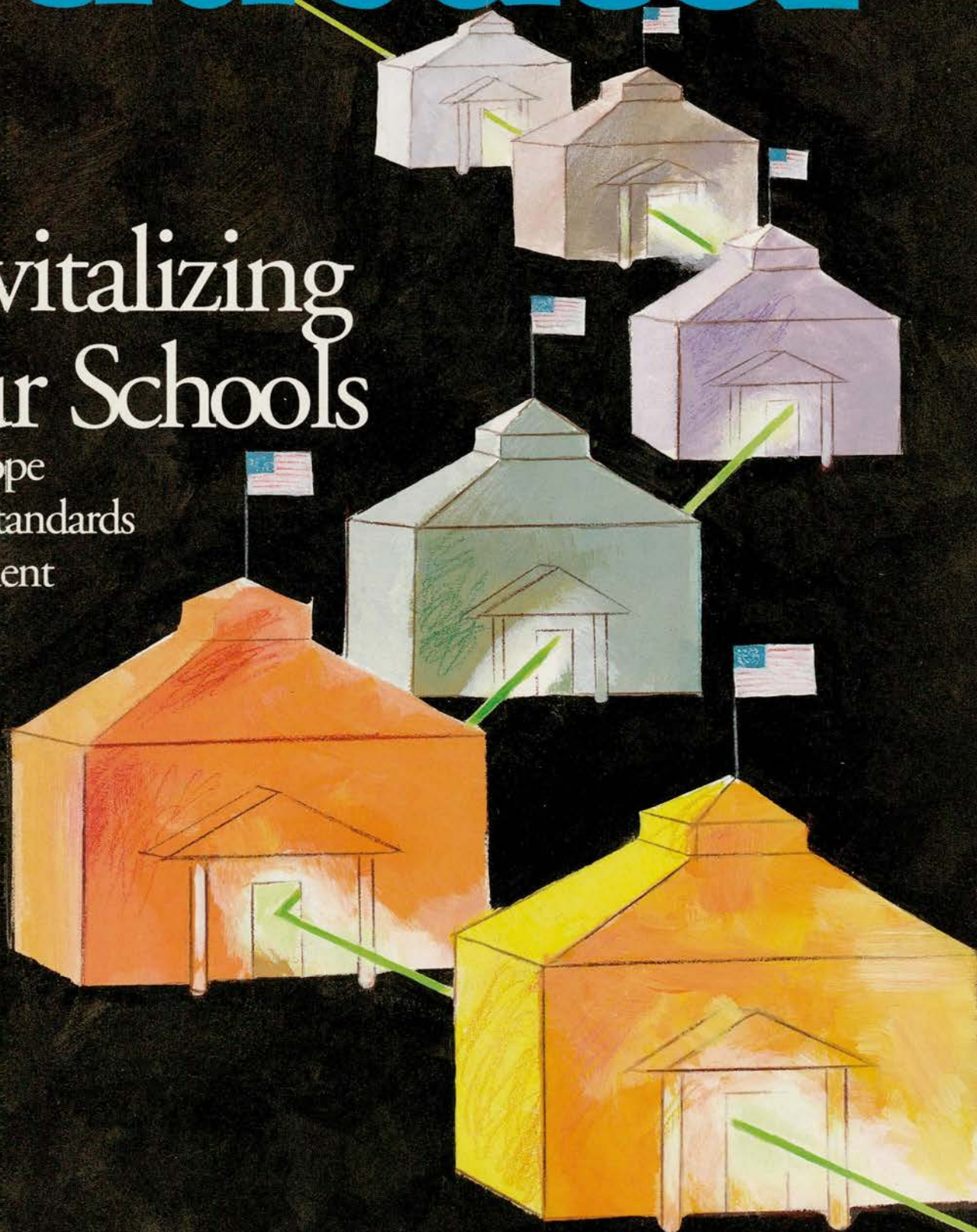


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FALL 1994

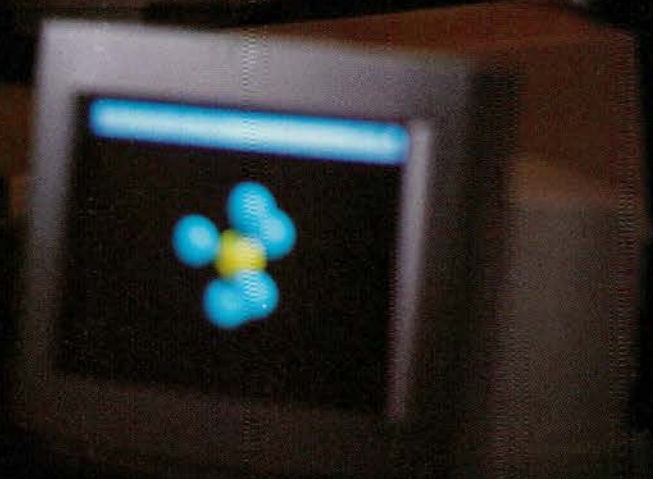
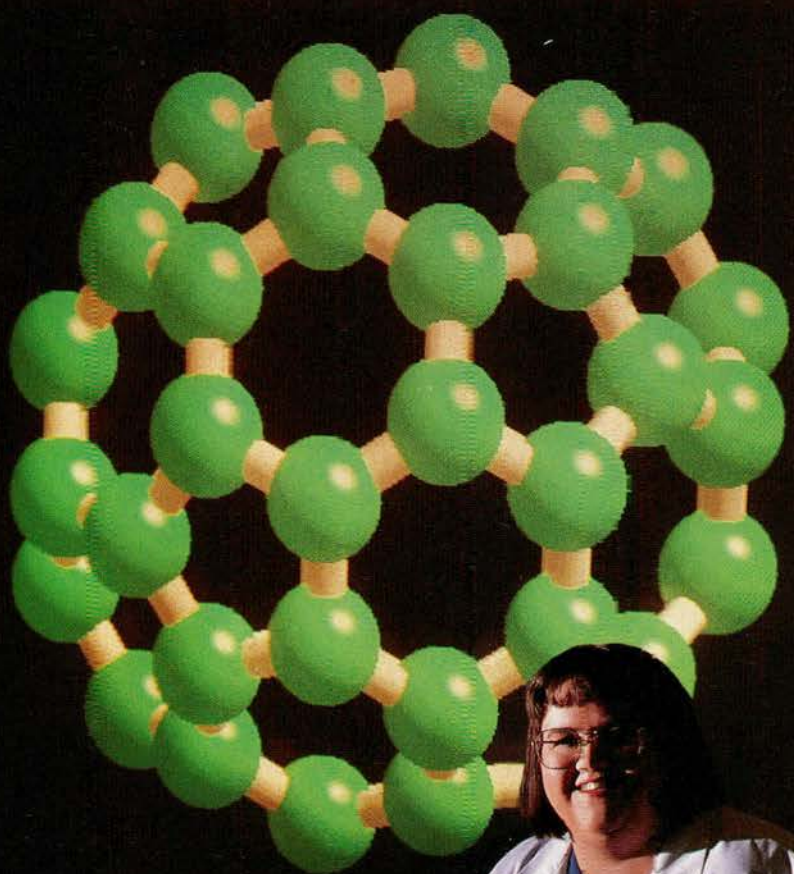
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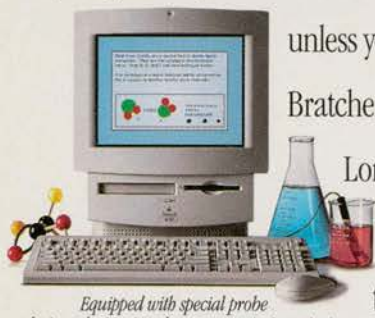
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Elizabeth McPike
editor

Mary Power Boyd
associate editor

Sandra Brown
editorial assistant

Andrew Bornstein
design consultant

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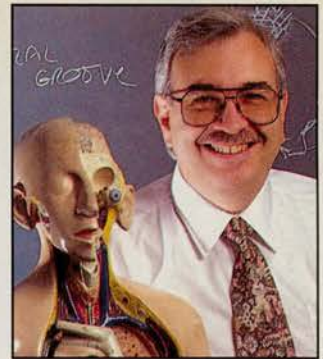
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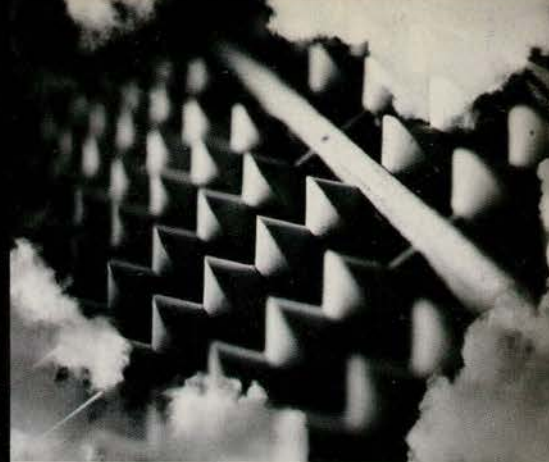


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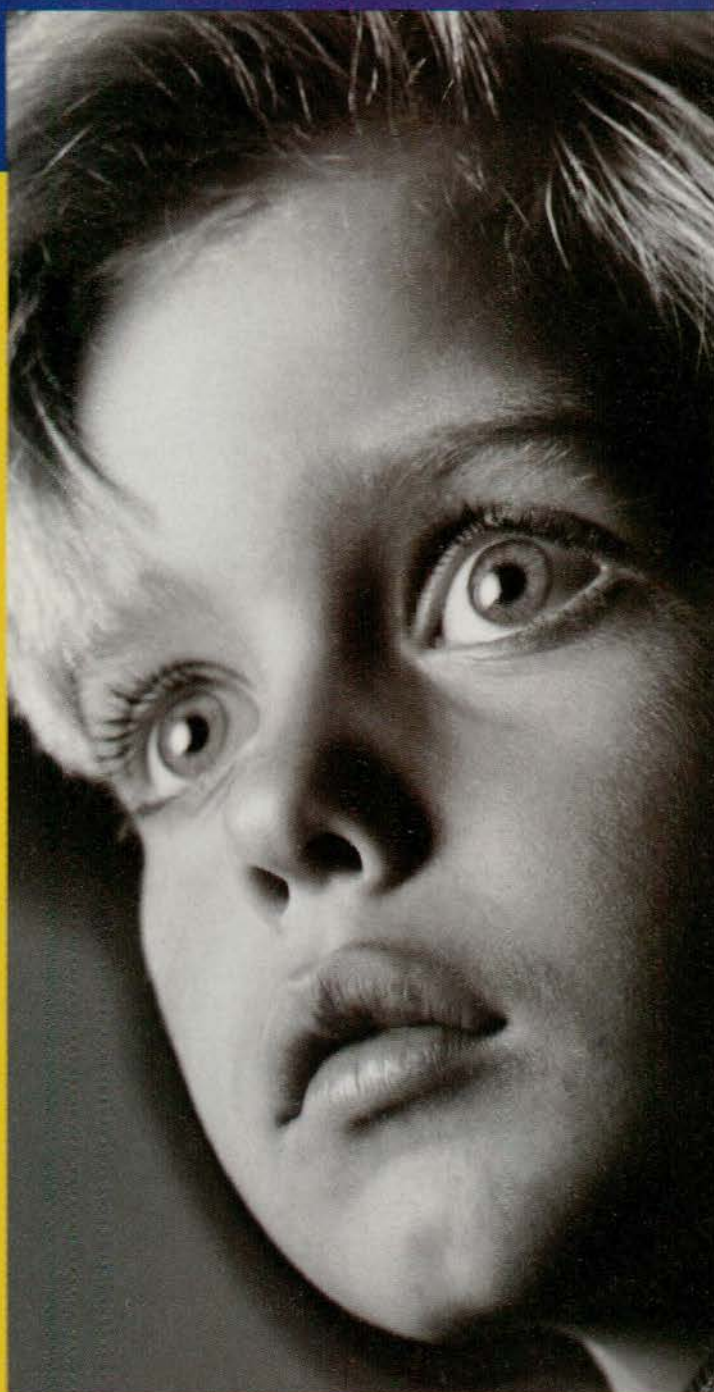
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LETTERS

THANKS!

As an educator for 25 years, I continue to be impressed by the wonderful and informative articles you have published. The articles I read inspire and captivate me. In particular, I was impressed by the articles describing conditions in Bosnia and the one most recently written by Melba Beals ("Warriors Don't Cry," Summer 1994).

I have often read portions of the articles to my students, so that they will know what strides we have made in education and what the future holds for them. These articles must be shared not only among professionals but among the children who are truly "our tomorrow." Our school is going to participate in the exchanging of information and letters with schools in a foreign country this year, another service of the AFT.

Please continue your magnificent work. Despite all the talk about the sorry state of education in America, your efforts to inform give us all hope and inspiration. Bravo, *American Educator*!

—PRU WARREN
FRANKLIN SQUARE, NY

THE NEGLECTED HEART

I would like to offer you my congratulations for printing Thomas Lickona's timely article, "The Neglected Heart—The Emotional Dangers of Premature Sexual Involvement" (Summer 1994).

In my opinion we would be doing our young people a great favor if we made this article a part of every health and sex education course—to be studied yearly from middle school through high school—to cover the developmental stages of adolescence and to provide for reinforcement of the valuable ideas and information included in the article.

—DOROTHY KRYSTOCK
SCHOOL PSYCHOLOGIST
MERIDEN, CT

I'm writing in reference to the summer edition of *American Educator*. I was so pleased to see the article "The Neglected Heart" by Thomas Lickona. The article was well written and added new insight to teenage sexuality. The article addressed the emotional issues of teenage sexuality rather than the mechanics of a sexual relationship. It was so good to see fragile self-esteem and sensitive emotions of teenagers included in this article. Teenagers are feeling and thinking beings. Sexuality as a function cannot be addressed apart from the emotional context.

I also appreciated the references to waiting for a sexual relationship and the importance of a total commitment of two people. The commitment of marriage and abstinence before marriage are concepts that also need to be represented.

—CHARLEEN BURGHARDT
HOLLYWOOD, FL

In his article "The Neglected Heart" (Summer 1994), Dr. T. Lickona listed "10 negative psychological consequences of premature sexual involvement." I agree with him that most parents and teachers could do a far better job of educating children and adolescents about the psychological consequences of early sexual intercourse. I commend him for offering his article for us to use to improve upon the status quo.

After describing the 10th "consequence," and in his concluding paragraph, Lickona wrote that, while sex could be "a source of great pleasure and joy...sex also can be the source of deep wounds and suffering." It sounded as though Lickona may attribute deep psychological "wounds and suffering" to the act of intercourse itself. It is very important to note that at least 7 of the 10 negative consequences he discusses have more to do with poor interpersonal interaction between the people involved than with the fact that they had sexual intercourse. A careful reading of the vignettes he employed in his article reveals multiple forms of

disrespectful interpersonal behavior following the sexual involvement of the people whose anecdotes were used.

I believe that many (perhaps most) adolescents have had sexual intercourse before they were "ready" to do so with the maturity and responsibility required to prevent the unwanted physical and psychosocial effects. But let us be clear in recognizing that there is nothing magical about waiting for marriage (to having sex) that removes the barriers to mutually respectful interpersonal behavior. Fully half of the negative consequences Lickona described ("shaken trust," "rage over betrayal," "depression," "stunted personal development," and "ruined relationships") occur frequently within the marriages of many people, even when they are well beyond their adolescence.

In closing, I'd like to hypothesize a reaction I'm pretty sure many adolescents would have after reading and discussing the contents of Dr. Lickona's article. I can imagine them thinking... "Okay, I hear you. Having sexual intercourse with someone can be risky in a number of ways. So my question is: How can I know when I have passed the point in my relationship (with my partner) when sex would NOT be premature?"

Perhaps the editors would consider inviting *American Educator* readers interested in continuing this dialogue to send in their responses to this important question.

—WILLIAM SECHRIST
HEALTH DEPARTMENT
STATE UNIVERSITY OF NEW YORK, CORTLAND

"The Neglected Heart" by Thomas Lickona (Summer 1994) is a timely piece. It seems incredible to me that while many sexually transmitted diseases are preventable, we allow the movies and television shows to convince us that sexual contact is a necessary part of a young person's meaningful relationship with others. We are talking about a national crisis of

(Continued on page 48)

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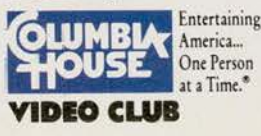
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School Reform:

Rigorous Standards, a Core Curriculum, and Incentives for Students To Work Hard

I imagine it is 10 years from now. Instead of endless news stories decrying the low quality of American schools, instead of constant proposals for private school vouchers and other forms of privatization, and instead of school bond votes sinking because voters feel they are pouring good money after bad, America's public schools have turned themselves around.

Teachers, parents, taxpayers—and the students themselves—all know what we expect our children to know and be able to do, because states have adopted and publicized clearly defined academic standards and translated them into curriculum frameworks that guide instruction. What our students study is no longer delegated to a handful of textbook publishers. The standards and curriculum frameworks ensure that all youngsters—whether in wealthy or poor districts—are studying a challenging core curriculum. The expectations for students are high—as demanding as the standards met by students in other industrialized countries. And the belief that all students can do challenging work has put an end to the watered down curricula that so many kids—especially those in the inner city—used to receive. Inspired by the descriptions they read of what their children will be learning, and the work they see them doing, parents say, “Yes, this is the kind of

education I want for my child. This is where I want my child to be.”

Students are periodically tested on whether they're reaching the standards, and if they're not, the system responds with appropriate assistance and intervention.

Until students meet the standards, they won't be able to graduate from high school or to enter college; and they won't have an easy out—even McDonald's won't hire them until they meet some version of the standards. Since learning now “counts,” parents no longer complain about too much homework or too strict teachers. Instead, they support teachers' efforts to elicit hard work from their children. The relationship between teachers and their students has improved, too; it has become similar to that of a coach to his team. Students know that much depends on their success in reaching certain, clearly defined goals, and they see themselves aligned with their teachers in that joint effort.

Teachers' roles are further strengthened because all components of the school system are devoted to student achievement of the standards and, therefore, are all working together: The curriculum that teachers use is based on these standards and so are the assessments (instruction is no longer distorted by the drive to produce high scores on multiple choice, basic-skills tests); teacher education and professional development programs are focused on preparing teachers to help students meet the standards (instead of one-shot workshops on generic teaching skills or the latest fads);



ILLUSTRATED BY BRU ASSOCIATES

Getting It Right

and textbooks and other instructional materials are tailored to the content of the curriculum frameworks.

And the federal government, the state education agency, and school district—which are now able to monitor school progress based on student achievement, as measured by sophisticated assessments—have greatly loosened the rules and regulations that have smothered innovation in the past. Schools and teachers are freed up to find and devise the best means for helping students meet the standards.

* * *

This may sound like a fantasy, but it is the way school systems in most other industrialized countries function, which is a major reason their students consistently outperform ours on international assessments. It is also the vision that undergirds the newly passed Goals 2000 legislation, signed by President Clinton this past spring. The law creates a framework for each state to construct a reform strategy based on three principles: rigorous academic standards; the alignment of curriculum, assessments, textbooks, and teacher education; and clear incentives for students to work hard.

In a recent column, AFT President Albert Shanker described what the new legislation could mean: "Goals 2000 offers us an unprecedented opportunity as a nation to decide what we want our students to know and be able to do as a result of their schooling. We have managed to evade this basic decision throughout our history, and the results have been disastrous—a proliferation of meaningless courses on subjects like life management and self-esteem; student promotions based on 'seat-time,' not

achievement; and a plethora of well-intentioned reform efforts that have done little to raise student achievement. Until you know where you're going, you won't know when you've arrived. Goals 2000 gives us a destination—high standards for all students—but lets states and localities choose the path they want to take to get there."

The three articles that follow sketch out how we might—beginning with the development of high quality standards—bring all our children the kind of education that, in this great country, should be their birthright. The first essay, based on a speech Mr. Shanker gave at the Brookings Institution this past May, describes how and why students in other industrialized countries are achieving at such higher levels than ours are. The two key ingredients missing from our system are a common core curriculum and real-world consequences that motivate students to work and learn. The second article, prepared by the AFT's Educational Issues Department, explains how the Goals 2000 process works and makes compelling arguments for ten essential criteria that strong standards must meet. And the third one, by historian Paul Gagnon, takes the mystery out of terms like "content standard" and "curriculum frameworks," by giving us concrete—and inspiring—examples of what those might look like in two subject areas, World History and English, and how an imaginative teacher might translate them into engaging lessons. As you read his descriptions, also envision parents reading them. And then try to imagine those parents wanting their children to be anyplace other than the schools in which such an education would be offered.

Making Standards Count

BY ALBERT SHANKER

AT THE celebration for the passage of the Goals 2000: Educate America Act, there were signs at the White House calling for "World Class Standards." This was always the hope behind Goals 2000—that we would set and try to help students meet world class academic standards.

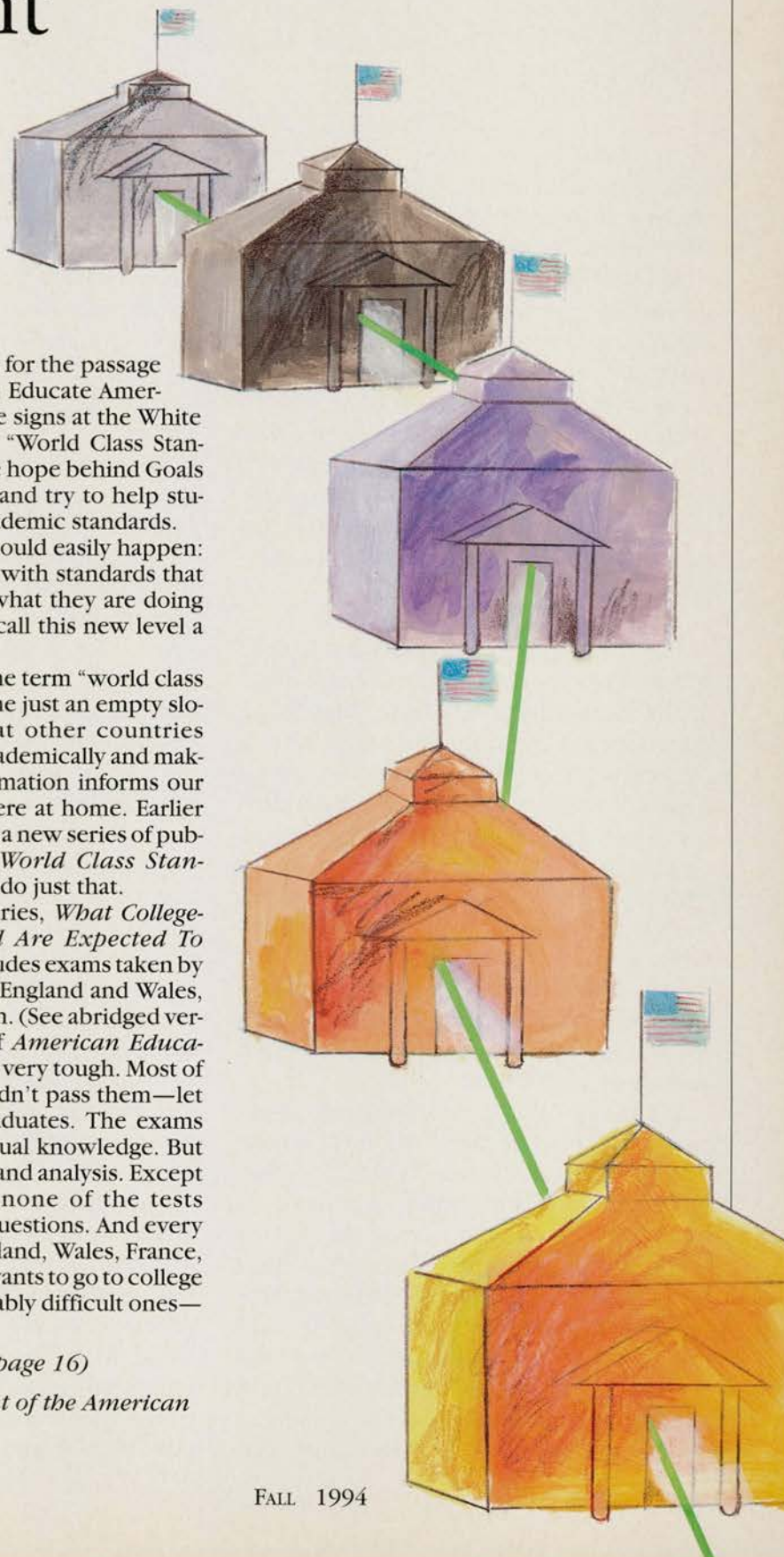
But I can tell you what could easily happen: Each state could come up with standards that are one slight peg above what they are doing now, and each one could call this new level a "world class" standard.

How do we make sure the term "world class standards" does not become just an empty slogan? By finding out what other countries expect of their students academically and making sure this type of information informs our standards-setting efforts here at home. Earlier this year, the AFT launched a new series of publications—the *Defining World Class Standards* series—designed to do just that.

The first book in the series, *What College-Bound Students Abroad Are Expected To Know About Biology*, includes exams taken by college-bound students in England and Wales, France, Germany, and Japan. (See abridged version in Spring '94 issue of *American Educator*.) These exams are very, very tough. Most of our college graduates couldn't pass them—let alone our high school graduates. The exams require a great deal of factual knowledge. But they also demand thought and analysis. Except for the Japanese exam, none of the tests includes multiple choice questions. And every high school student in England, Wales, France, Japan, and Germany who wants to go to college must take them or comparably difficult ones—and they must pass them.

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Albert Shanker is president of the American Federation of Teachers.



Making Standards Good

And Bringing Them to the Classroom

BY PAUL GAGNON

GOALS 2000 is a new kind of federal education law, a new approach. Unlike its predecessors, which targeted federal dollars on discrete problems—educating the poor or the disabled, for example—this law urges states to overhaul their education efforts entirely, and provides funds to help them get started. States that participate in Goals 2000 are asked to establish clear standards for student achievement and to refocus all of their educational efforts around these standards. They are asked to develop assessments to measure progress toward these standards and strategies to help students meet them. The law's basic premise is that once these standards and monitoring practices are up and running, there will be little need for federal regulation. Indeed, state regulation itself will be less necessary, which means local districts and schools will be given the flexibility to determine the best ways to help their students achieve. Goals 2000 advocates hope that the many state and local efforts sparked by the new legislation will add up to a national effort to dramatically improve education.

This means Goals 2000 is not really a single reform plan, but a strategy for catalyzing more than 50 separate reform movements. It has the potential to succeed or fail in 50 places, depending on the quality of states' plans and their ability to carry them out.

The first and most important step states will take is to set academic standards that will drive the rest of their Goals 2000 strategies. Because so much else will flow from these standards, it is critical that they be of very high quality. They must be designed to challenge every child to

(Continued on page 20)

This piece was prepared by the Educational Issues Department of the American Federation of Teachers.

HOW DO we get from a content standard to something we can teach in the classroom? In three steps, if things are working the way they ought to. First, we—subject-matter teachers and scholars working together and under public review—set the standard itself, respecting sensible criteria for its integrity and usefulness. Next, we build it into a state curriculum framework. Third, we turn it into engaging lesson plans.

The right kind of content standards—outlines of what is *most* worth knowing from each core subject—must be brief, scrupulously selected. Whether issued as “national” or state standards, they have but a single function: to lay before the students, the parents, the teachers, and the teachers of teachers the essential common core of learning that all high school graduates in a modern democracy have the right to confront.

More detailed will be the document at Step Two: the state curriculum framework must say in which grades, and in what courses, the essentials called “standards” are to be taught. As its scholar/teacher authors decide how they want to incorporate each standard into a teachable curriculum, they—or their counterparts at the local district level—may offer their own

(Continued on page 28)

Paul Gagnon taught history for many years at the University of Massachusetts, was chief of staff for the Bradley Commission on History in Schools, and was one of the founders of the National Council for History Education. He has also served as historian-in-residence for the AFT's Education for Democracy Project, for which he wrote Democracy's Untold Story and Democracy's Half-Told Story, two widely acclaimed critiques of high school history textbooks.

Making Standards Count

(Continued from page 14)

In England and Wales, 31 percent take the A-level exam; in France, 43 percent take the *Baccalauréat*; in Germany, 37 percent take the *Abitur*; and in Japan, well over 40 percent take the university entrance exams. And as for the pass rate, it's 25 percent of the age cohort in England and Wales, 32 percent in France, 36 percent in Germany, and 36 percent in Japan.

Moreover, students in these countries must pass exams in more than one subject in order to qualify for college. In Britain, it takes an average of three exams; in France, seven to eight; in Germany, four; in Japan, three to four.

The exam used in our country that comes closest to these foreign exams in terms of rigor is the Advanced Placement test. Yet only 7 percent of American 18-year-olds take it, and only 4 percent pass it. It is not required for college entrance.

Now, if I were to ask you which of these five nations is elitist, what would be your answer? Which system would you say provides a top-rate education to a sliver of its population? And which to a substantial portion? In which country is there more likelihood that a broad range of students receive a top-notch education? And in which is it likely that just a few—probably the children of the nation's elite—will get such an education? Despite common myths to the contrary, the kids in our country who get a top-rate education are a small group who have a lot going for them. They are the ones who are making it, not the rest. In this group of countries, *we* are the elitists.

What do you think would happen in Japan or Germany or Britain or France if they announced next year that youngsters could get into college without passing any of these examinations? Would that have any effect on the number of students who would take them and prepare for them and study for them? Would it have any effect on how much home-

work they would do leading up to these examinations? On whether they would turn their television sets off? Any effect on whether teachers would take their time in class seriously or spend more of it on other things that don't relate to the exams? Any effect on whether parents and principals would tolerate chronic student discipline problems? You bet it would.

Without stakes for students, the education reforms that are proposed in Goals 2000 will not work. Without stakes, nobody has to take education seriously. Nobody has to be geared up to doing anything. When I taught, whenever I gave an examination or a quiz or told kids to bring in an essay, the whole class shouted out, "Does it count? Does it count?"

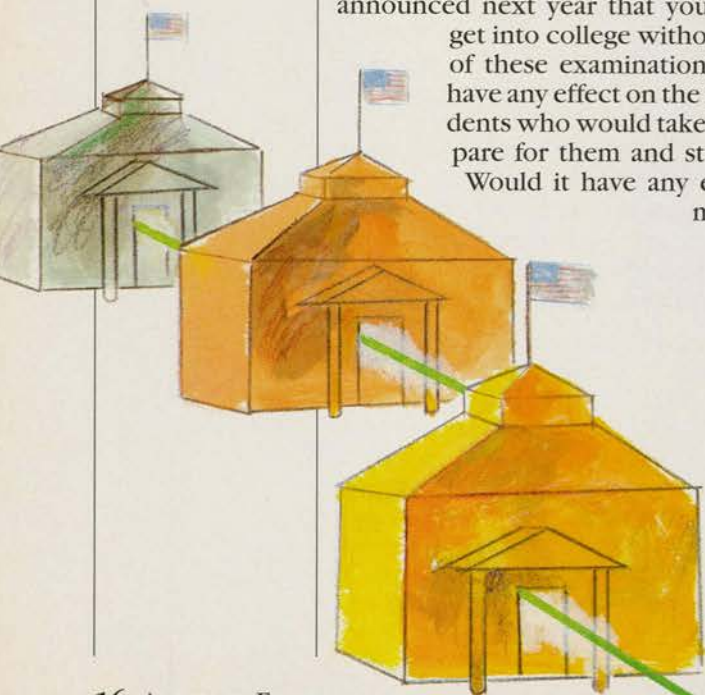
We have an educational system in this country in which nothing counts. As long as it doesn't count, the kids are very smart: They will do the least that they need to do in order to get what does count. And what does count is a piece of paper—the diploma. Grades don't count, except for the small proportion of students who want to go to an elite institution; these kids work hard, but they are a very small group.

All of the standards, all of the other measures called for in Goals 2000—curriculum development, assessment, professional development, parental involvement—will not mean a thing unless we attach stakes to students' achievement of the standards, as represented by passing assessments similar to those taken by students in other high achieving countries.

Right now the issue of stakes is not part of the public debate. But the absence of stakes threatens to make the effect of the Goals 2000 reforms—and all of our efforts on their behalf—trivial. Without genuine world class standards and stakes, we will continue to have an elitist education system—in contrast to the more democratic systems that are emerging abroad.

THIS IS the one and only country that ever developed the philosophy called pragmatism. Europeans and Asians don't really understand it. John Dewey and William James and Charles Sanders Peirce were never popular anywhere else. And yet, when it comes to trying to change our schools, we are the most unpragmatic and I would say the most unintelligent. We should look at how other democratic, industrialized countries organize their more successful school systems.

Many of these countries have become demographically diverse in recent years. Like our schools, theirs are accommodating growing numbers of new immigrants. These countries are not identical to us—or to each other; but neither are they so dissimilar. If these societies can produce school systems in which 25 percent to 36 percent of the youngsters can



pass exams of this caliber, there is no good reason why we can't.

Moreover, while producing large numbers of well-educated college-bound students, these school systems also tend to do better by their non-college-bound students than we do. In each of the foreign countries represented in our first volume of *Defining World Class Standards*, all children receive essentially the same quality curriculum in common schools until at least fifth grade (in the case of Germany); and, more commonly, until age 15 or 16. Young children in these countries are not siphoned off into tracked groups at early ages. And, in these countries, non-college-bound students generally have access to high-quality work preparation, along with an academic program that is substantially more rigorous than we typically offer to our work-bound youth. These countries show that tracking, provided it doesn't happen too early or too permanently, doesn't have to be evil. It isn't tracking that's evil; it's what you do with kids once they are on a track. Tracking can be evil, or it can be good.

NOW, HOW would each of us behave if after being very successful in a particular business for a number of years, suddenly our sales dropped and our competitors shot far ahead of us. I think the first thing each of us would do is look at what our competitors were doing. We would think about how we could copy them or leapfrog over them. We wouldn't copy everything, but we would try to learn as much as possible from them.

The reaction of all of us to the high standards met by students overseas should be to look at these other systems. What are these educational systems doing that we should be doing? This kind of benchmarking is exactly what industry does. Companies hire people from their competitors; they investigate what their competitors do. If you look at these systems, you'll see that they all do a number of things we don't. I want to concentrate on two of their practices.

First, they have a common curriculum. You don't prepare a student to pass an exam at this high level without using every minute in school and out of school to prepare. This is serious stuff. If you have fifty different educational systems—as we do in each of our states—and if each of these systems is so different that, as your kids move from one to another, the teachers can never be sure of what students studied before, the teachers will do exactly what ours are doing now—which is to spend about 30 percent of the time going over everything the student should have learned before entering the class because they are not sure what the students have already learned. So we start with about a 30 percent waste of time. Our citizens are terrifically mobile—and that's not likely to change. We

have to come to grips with this.

And the curriculum will have to be fairly descriptive—which is also rare now. As one example: When I was teaching in New York City, I got big fat books of thirty or fifty or sixty different topics and was told to teach whichever topics the kids liked or I liked, or if I didn't like any of them, I was to make up my own list. That was the curriculum. That won't do. Education involves building blocks, continuity, and articulation.

We have to deal with this issue or we will never provide our students with the education they deserve.

Second, if you want people to do certain things, you have to provide incentives. If you want students to buckle down and study and really work at school, you have to connect that work to the things youngsters want.

The last great experiment with a system that dismissed incentives—and instead relied on people's goodness—recently went down in flames across a good part of the world. I once hoped for such a world—one that didn't rely on crass incentives. I would prefer a world where you didn't have to force people to do things—where they would pick up a book by Shakespeare and say, "Gee, I'd love to read this." But unfortunately, the vast majority of young people won't do this—unless they have to. Once they've had to read difficult but rewarding material, many of them will do it again, on their own, for the joy of it. But if we don't require them to wrestle through it the first time, most will never discover the joy that's there.

What are we really saying to our youngsters when we offer no incentives? It is the equivalent of saying to people: "From now on you don't have to come to work. This has been a very oppressive system—we realize that many of you have done this work and resented it. From now on you'll be paid and get your health insurance and pension whether or not you come to work." What would be the result? A few people who love their jobs—and there are such people and such jobs—would continue to come. (And there would be a handful of compulsives; they would either continue to come to work, or they would seek psychiatric help!) The rest of the system would descend into chaos. This is what we have visited on our youngsters. They can get their pay, their pension, and their health plan, but they don't have to work. They don't have to learn; they barely have to show up; they don't have to do anything.

In such a system, how much they learn becomes a function of how much the teacher is forcing them to learn. The onus is on the teacher. As a teacher, if I assign students homework, if I give difficult tests, or assign papers, their response is, "Mr. Shanker, you're mean! You give us so much work. My sister—down

Making Standards Count

the hall in Miss So-and-So's class—she doesn't have to do any work at all."

When there are no stakes, the teacher has to negotiate with the students because the students know that no one in the outside world requires them to have learned anything serious. It's the kids versus the teacher, and it's a negotiation. This whole story has been told well in *The Shopping Mall High School*. It's all there; it's very clear.

This unhealthy situation does not exist in Japan, Britain, France or Germany. In each of these countries, the teachers are all assigning similar work because all the students are heading for similar assessments. And when the kids say, "You're mean," the answer is, "Look, I'm just giving you the same work that all the other teachers in the state and country are giving And, I know you can do it. All the fifth grade kids did it last year, and the year before, and the year before that."

The teacher in these countries is seen as the coach. It's like the Olympics. There's an external standard that students need to meet, and the teacher is there to help the student make it. The existence of an external standard entirely changes the relationship of teachers and youngsters, and it changes the relationship of children and parents.

When parents today tell their kids to work hard, the kids say, "Why? I don't care if I go to Harvard, and most of the other colleges will take me even without top grades. Some will take me no matter how poor my grades are. What's bugging you? The school doesn't care. Why should I work hard when I don't need to?"

When colleges dropped entry standards—and when a high school diploma became little more than an attendance certificate—our children lost the benefit of an external standard. And when we lost the external standard, we took away parental authority and we took away teachers' authority. Now all of us have to plead and beg. With a system of stakes, teachers and parents would regain that authority.

What do students want? One thing they want is to go to college. So we need to make going to college dependent on high achievement in high school. Is there any doubt that if one-third of French and Japanese and German students can pass an exam similar to the Advanced Placement that at least one-third of American students have the potential to do so as well? And is there any doubt that it would be worthwhile to have them do so? Would it make a difference to those youngsters and to the nation? Would it make a difference to higher education? There is no question but that it would.

Of course, we will need to phase in the higher entry standard. If we established a world class entry level tomorrow, we would have to shut down nearly all of our institutions of higher education and turn them all into junior high

schools and high schools.

And what about the youngsters who are unable to pass such an exam and who thus would be excluded from going to college? This is very tough. Going to college in America is now regarded as an entitlement. Any effort to say that one needs any knowledge or skills to get into college will be viewed as a way of cutting off access and opportunity. But the truth is a huge number of our students who enter college don't graduate. They drop out because they're not prepared to do college work. In countries where college students have to pass rigorous exams, you don't have a 50 percent college dropout rate, as we do. In Germany, for example, 83 percent of those who enter college graduate. More of our kids enter college—but many don't survive it. We're not doing our kids any favor by pretending that they are prepared for college.

WHAT ABOUT youngsters who are not headed for college? What incentive could prod them to work hard and do well in school? In many other countries, these students can study for special certificates that will entitle them to some sort of further technical training or facilitate their getting a good job. Or their school grades will count when they leave school and apply for jobs and for special job training. The connections between school achievement—and school effort—and what the students want are very direct and very well known.

Consider the effect such connections could have here. Suppose Roy Rogers and McDonalds and every one of these outfits that hire high school students said that from now on they're going to hire kids on the basis of some sort of standard; they are going to hire the best students first. There would be two immediate problems: First, they couldn't tell which students genuinely achieved more and worked harder because every teacher marks differently. Unless you have some sort of national currency—a national standard—a grade has little meaning outside the walls of an individual teacher's classroom. Second, high schools are not accustomed to getting the transcripts out quickly. It would take about six months for the school to send out the transcripts, and the employers would need it to take a few days.

But suppose we solved these problems. Suppose every high school student knew that getting a job depended on being a good student. Would that have an effect on students' working hard in school? I don't think there's any question about it. But employers don't do it.

Why don't they do it? One reason may be that they worry about civil rights laws that can prohibit employers from using hiring criteria that are not directly related to the job someone is being hired for. It's pretty hard to argue that high grades in school are necessary for a

job at McDonalds where the employee simply punches a cash register with pictures of Big Macs. So the employer who tries to reward hard-working students might find himself liable for civil rights violations. None of these other countries has to grapple with anything like this.

But there's also a more intangible reason at work. In other countries, employers deliberately seek high-achieving students because they feel that's part of their social responsibility. It's how they help make the school system work.

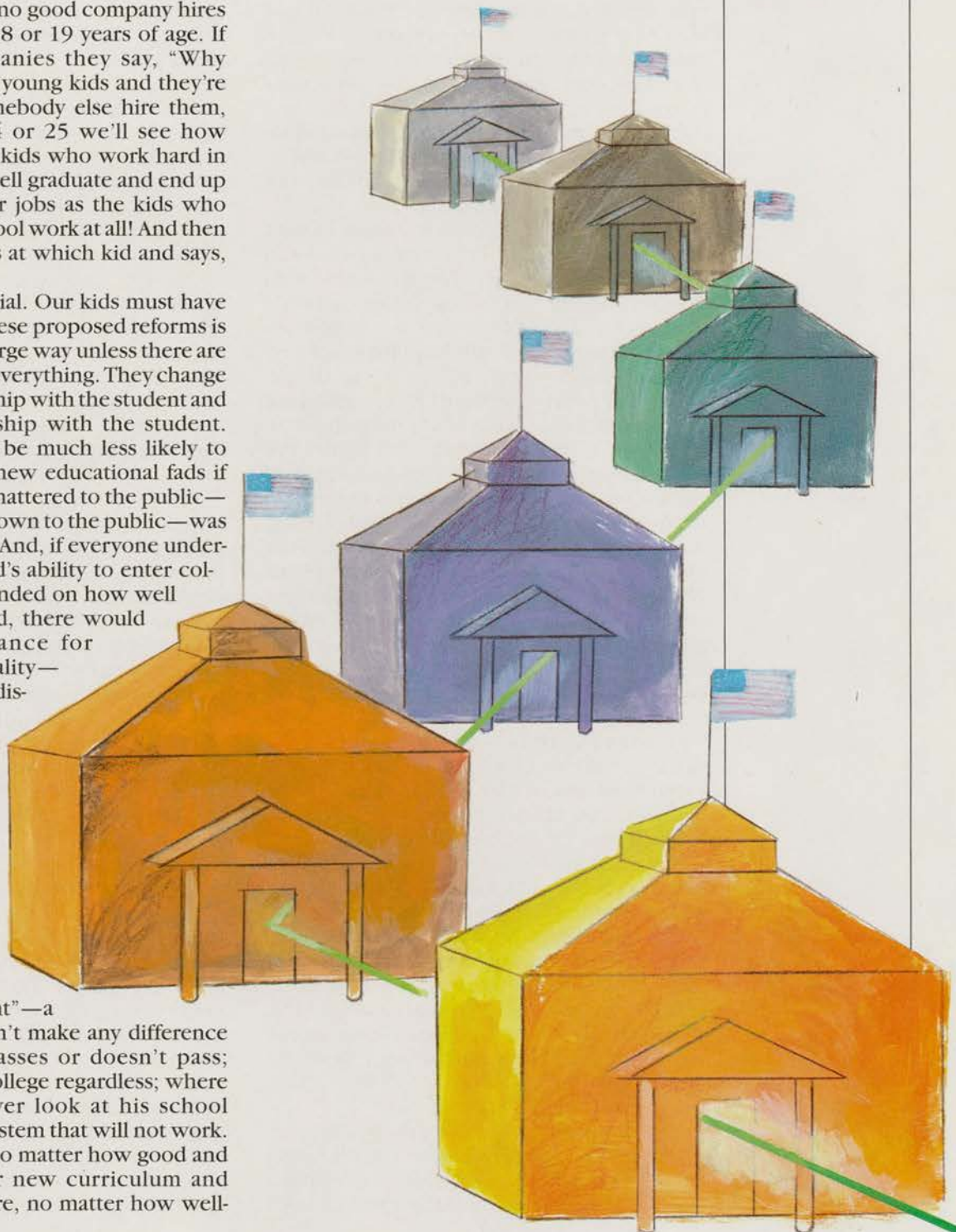
In the U.S., kids know that whether they do well or don't do well, no good company hires anybody who is just 18 or 19 years of age. If you ask these companies they say, "Why should we? These are young kids and they're irresponsible. Let somebody else hire them, and when they're 24 or 25 we'll see how they're doing." So the kids who work hard in school and really do well graduate and end up getting the same poor jobs as the kids who weren't doing any school work at all! And then guess which kid looks at which kid and says, "You're a sucker."

So stakes are essential. Our kids must have incentives. None of these proposed reforms is going to work in any large way unless there are stakes. Stakes change everything. They change the teacher's relationship with the student and the parents' relationship with the student. School boards would be much less likely to uncritically promote new educational fads if they knew that what mattered to the public—and what would be known to the public—was student achievement. And, if everyone understood that his own kid's ability to enter college or get a job depended on how well the system functioned, there would be a lot less tolerance for schools' dysfunctionality—for the way we keep disruptive students in the classroom, for the way we turn teachers into social workers, and so on. There would be more mobilization of public concern and public support and participation.

When you have a system that basically says, "It doesn't count"—a system where it doesn't make any difference whether your kid passes or doesn't pass; where he can go to college regardless; where no employer will ever look at his school record—you have a system that will not work. And it will not work no matter how good and well intentioned our new curriculum and assessment reforms are, no matter how well-

aligned everything is. Right now, what students want—college admissions, jobs, and job training—is disconnected from their school work. And so long as it stays disconnected, our educational system will not work. □

Making Standards Count



Making Standards Good

(Continued from page 15)

the maximum of his or her ability. As described in the introduction to this series of articles, strong academic standards could lead to dramatic improvements in the quality of our schools and, at the same time, strengthen their capacity to offer equal opportunity to all children. If standards are set too low, however, nothing will change, and student achievement will remain flat. If standards are too vague, or not firmly rooted in academics, they can't provide a firm basis for curriculum, assessment, or professional development. Moreover, many states have recently found that vague standards that wander away from academics alienate the public and leave the schools vulnerable to attacks from right-wing groups interested in defeating reform efforts.

Finally, if the standards that emerge in each state are too different from each other, it will be harder for textbook publishers, assessment developers, and teacher educators to create products and programs that are aligned to them. Publishers will still feel obliged to produce 10-pound tomes, stuffing their textbooks with every point covered in fifty separate state curriculum guides, instead of producing lean, coherent, interesting texts that cover the essentials well. Standardized assessments will remain focused on broad, generic skills, with no direct link to the curriculum, thus forcing teachers to divert valuable time from their planned lessons. Teacher education programs will continue to veer away from content knowledge, since the knowledge teachers require will be so different from state to state. And many of the students in those states that fail to outline an essential core—or that succumb to pressures to keep standards low—will be denied the opportunity to be exposed to the central learnings of each discipline.

But how, out of fifty separate plans, can a common core curriculum emerge? It is possible that, over time, a set of standards will emerge that are of such obvious high quality that a consensus will form around them. This will not happen over night. It took other countries a long time to arrive at useable descriptions of the essential knowledge and skills they want their students to learn. We are not likely to be any different, although we can learn from their efforts. We should be prepared for a number of rounds, an evolution of revision and refinement—and a lot of hard work.

An update on where the process currently stands might be useful: Under Goals 2000, a National Education Standards and Improvement Council

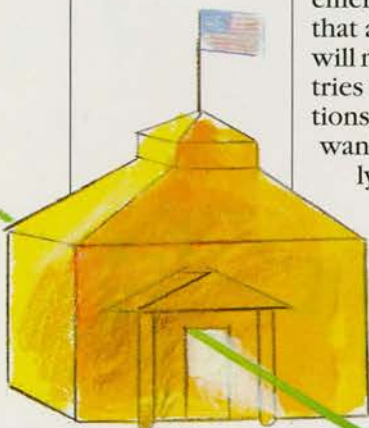
(NESIC) is charged with “certifying” standards that states submit to it in terms of criteria that it will develop. But this is strictly voluntary; no state has to submit its standards to NESIC for approval. NESIC also can “certify” national standards in each discipline. This, of course, will not mandate that any state adopt such standards, but—if done well—it will provide sort of a “Good Housekeeping Seal of Approval.” Both the criteria NESIC develops and the standards it ultimately certifies could serve as models for states.

A few years ago, before Goals 2000 became law, the U.S. Department of Education made grants available for teams of educators and scholars to develop national standards in each of the core academic subjects, and many have been closely watching the work of these various national standards projects. The goal was to bring some of the most knowledgeable and respected professionals in each discipline together to hammer out what is most important for students to learn, and for their work to be used or even adopted outright by states. Soon to be issued are standards for civics, geography, U.S. history, and world history. Standards for the arts and mathematics have already appeared. English, economics, foreign languages, and science are to follow in 1995 or 1996. It was never intended that these national standards would be mandated. The idea was that states would voluntarily use them because they would be of such high quality.

Early returns on how well these national standards groups have fulfilled their mandate are mixed. Some of them clearly tried to cover too much ground, and their work will have to be pared down, and, in some cases, substantially recast. That job might be done by the national standards groups themselves, as they reflect upon their work or as they respond to NESIC's initiatives, as described above. In the meantime, states or other groups might come up with something even better. No one at this point can say with any certainty exactly how this whole process will unfold or precisely what will be the interplay between state and national efforts.

States that do an excellent job in setting standards should be recognized for their work and held up as models for other states to follow. Parents—hearing about what students in other states are learning—can be a strong lobby for quality. Textbook and assessment publishers can play a role by basing their products on the best state standards and curriculum frameworks. Colleges and universities can also put pressure on states by raising and tightening their admissions standards to reflect the most demanding state standards. And businesses as well can lean on states to adopt stronger, clearer standards.

Whatever the dynamic, the great hope, of



course, is that for the first time in our history we eventually shall have *not* a national curriculum but wide, voluntary agreement across the country on the *essential* academic core that all children have the right to learn. So, what would a strong set of state—or national—standards look like? We would like to contribute to that discussion by proposing a list of what we consider to be ten essential criteria. We welcome your comments. We all have much to learn in this new—and long overdue—undertaking.

Criteria for High Quality Standards*

1) Standards must focus on academics.

This may seem obvious to many people, but it is the most important point we can make. The purpose of setting standards is to improve students' academic performance. This should be the central mission of all our educational arrangements. Forging agreement around the academic content of the curriculum and the expectations we have for our children is the essential first step. If we can agree on what all students deserve to learn, we can focus our energies and resources on giving all kids the opportunities they need to read and write better; reach greater heights in math and science; and learn more about history, geography, literature, and the arts. These are the things that will make a difference in students' lives, and they are what parents care most about.

But there are some who would rather have standards focus on social and behavioral issues than on academics. Across the country, we've watched debates and legislative battles unfold around proposed education standards or "outcomes" that stray from or avoid academics. These efforts, frequently referred to as "outcomes based education," or "OBE," are being challenged and defeated, and not only by religious fundamentalists but also by concerned parents, business people, educators, and other public school supporters who have raised serious questions about some of the standards that have been developed.

In several states the intense negative reaction to non-academic standards resulted in the substantial revision or defeat of the entire standards reform package. Here are a few examples from Virginia—where in 1992 Governor Douglas Wilder abandoned the complete draft set of "Common Core of Learning" standards; and from Pennsylvania—where strong oppo-

sition prompted the state to significantly amend its draft "Student Learning Outcomes":

All students understand and appreciate their worth as unique and capable individuals and exhibit self-esteem. (*Pennsylvania's Student Learning Outcomes, Draft 1991*)

All students demonstrate caregiving skills and evaluate, in all settings, appropriate child care practices necessary to nurture children based on child development theory. (*Pennsylvania's Student Learning Outcomes, Draft 1991*)

[A] student who is becoming a fulfilled individual uses the fundamental skills of thinking, problem solving, communicating, quantifying, and collaborating...to analyze personal strengths and limitations to improve behaviors, capabilities, and plans. (*Virginia's Common Core of Learning—Draft 1992*)

In contrast, the following excerpt from the National History Standards is clearly grounded in academic content and represents the type of information standards ought to convey:

Students would be able to demonstrate understanding of the causes of the American Revolution by:

- Comparing the arguments advanced by defenders and opponents of the new imperial policy on the traditional rights of English people and the legitimacy of asking the colonies to pay a share of the costs of empire.
- Reconstructing the chronology of the critical events leading to the outbreak of armed conflict between the American colonies and England.
- Analyzing the connection between political ideas and economic interests and comparing the ideas and interests of different groups.
- Reconstructing the arguments among patriots and loyalists about independence and drawing conclusions about how the decision to declare independence was reached.

(This is followed by examples of how the standard can be taught at different grade levels.)

As noted above, the program most responsible for giving standards a bad name is called "outcomes-based education" or OBE. Although it makes sense to organize our education system around the results—or outcomes—we hope it will produce, OBE's treatment of academic knowledge as a low priority doesn't sit well with most teachers and parents. OBE proponents have served as key consultants to several state education departments, and in each case the so called "reform" proposal that resulted was met with significant opposition largely because of the non-academic and controversial nature of the standards. Now, in a number of states, those opposed to any kind of standards development are trying to pin the "OBE" label on whatever effort is underway in an attempt to taint it. In reaction, states have begun to avoid using terms like "outcomes" and "OBE" to describe what they're doing. Terminology, however, is not at the heart of the matter. In the end, it's

Making Standards Good

*Some states may express their standards in separate standards documents that then must be translated into curriculum frameworks; others, like California, may incorporate their standards directly into year-by-year frameworks.

the content of the standards that must be kept center stage.

One final note: Schools certainly have a role to play in helping students develop those traits essential to good behavior and strong character, such as compassion, honesty, self-discipline, and perseverance. And the standards-setting process can contribute to that mission by ensuring that all students have access to a solid academic curriculum, because moral education is a natural by-product of a good curriculum. As students weigh the dilemmas and compromises of history, and learn about its heroes and villains; as they re-visit the great debates that have stirred mankind over the centuries; and as they confront the ethical issues that lie at the heart of so much of our great literature, their moral understandings will be greatly enriched. (See, for example, "Curriculum as a Moral Educator" in the Spring 1993 issue of *American Educator*; "The Moral Power of Good Stories" in the Summer 1993 issue; and Paul Gagnon's descriptions of curricula and lesson plans in World History and English that start on p. 15 of this issue.)

In addition, of course, schools can contribute to the moral education of the young in other ways—for example, through their discipline policies; through their decisions about what to award and recognize; and by the example they set as a community in which the virtues are both expected and honored. These are not matters, however, that lend themselves well to the standards-setting mechanism. They are best taken up by teachers, parents, and the

local or school community, coming together to find common ground in their hopes for their children.

2) Standards must be grounded in the core disciplines.

Some educators have thought it best to move away from traditional subject areas and create "interdisciplinary" expectations for students. "Human growth and development," "environmental stewardship," and "cultural and creative endeavors" are just some "subject areas" that have replaced math, science, history, and English. Proponents of this approach argue that solutions to "real world" problems and issues cannot be based on one or another discipline, so, therefore, neither should standards.

This argument belies the purpose of standards, which is to focus our educational systems on what is most essential for students to learn, not to prescribe how the material should be taught. At its best, interdisciplinary education can be an effective approach to teaching the knowledge and skills that arise from the disciplines. In the hands of imaginative and well-educated teachers, it can be useful and engaging. But its value depends on a firm grounding in the subjects themselves. Strong standards in each of the core disciplines will ensure that interdisciplinary approaches reflect the depth and integrity of the disciplines involved.

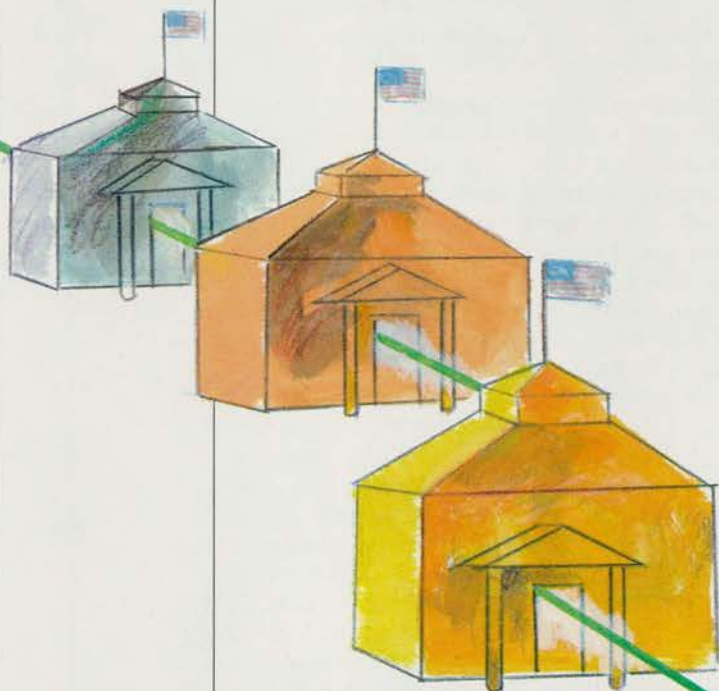
When standards-setters abandon the disciplines, content suffers. Standards become vaguely worded and loosely connected, making the job of curriculum designers, assessment developers, and teachers all but impossible.

3) Standards must be specific enough to assure the development of a common core curriculum.

We have already established that good standards are based in the academic disciplines, but being academic and subject-based is not enough. A good set of standards should also outline the essential knowledge and skills that all students should learn in each subject area.

Such standards would guarantee that all students, regardless of background or neighborhood, are exposed to a common core of learning. This means putting an end to the unequal, uninspiring curricula that many disadvantaged kids get locked into from an early age. A strong common core also would enable us to continue to forge a strong common culture, to preserve what unites us without diminishing the unique strength that flows from our diversity.

Requiring a common core would not, of course, limit students who chose to go beyond it to advanced-level high school courses in any of the academic subjects. Nor would it prevent a fruitful integration of the academic core



with vocational or technical education at the upper secondary level. But to the extent that a common core was established through most of the high school years—which is the practice abroad—we would ensure that *all* students are given a more equal chance to become well-educated citizens.

In addition, teachers would have a much clearer idea of what their students learned the year before, so they would not have to waste so much class time reteaching previously covered material. And it would make life much easier on students who move from one school to another and often find themselves either way ahead or way behind the rest of the class.

If standards are to set forth the content of a common core, and if they are to be used by teachers, curriculum and assessment developers, textbook publishers, and others, they must be specific enough to guide these people in their activities. With a common core in hand, we could—as other industrialized countries have done—end the need for every teacher to have to re-invent the wheel. Like other professions, we could begin to accrue a more focused body of knowledge, a portfolio of good practice, of materials and options that teachers and teacher educators could draw from, adapt, add to, polish, and refine. But this is only possible if there is broad agreement on what is most essential to learn.

Unfortunately, many states' standards seem to be falling short in this regard, offering the barest guidance as to what should be covered. For example, New York state, in a draft of its social studies standards, mentions that students should learn about the concept of "war and its many repercussions," but never specifies which wars are most important for them to learn about. Such a guideline could lead to textbooks that cover the U.S. Revolution and the Civil War, assessments that cover World War I and World War II, and professional development and teacher education that stress World War II, Korea, and Vietnam. Some of the standards we've seen fit entire subjects on a single page. Others don't make any distinctions between what elementary and secondary students should learn.

Though it has received a lot of attention for its many recent reform efforts, Kentucky is an example of a state whose standards are not specific enough to guide local districts toward a core curriculum and matching, content-based assessments. There are only 5-10 standards in each subject area, and many are vague and vacuous. Here, for example, is the complete list of Kentucky's social studies standards:

- 2.14 Students understand the democratic principles of justice, equality, responsibility, and freedom and apply them to real-life situations.
- 2.15 Students can accurately describe various forms of government and analyze issues

that relate to the rights and responsibilities of citizens in a democracy.

- 2.16 Students observe, analyze, and interpret human behaviors, social groupings, and institutions to better understand people and the relationships among individuals and among groups.
- 2.17 Students interact effectively and work cooperatively with the many ethnic and cultural groups of our nation and world.
- 2.18 Students understand economic principles and are able to make economic decisions that have consequences in daily living.
- 2.19 Students recognize and understand the relationship between people and geography and apply their knowledge in real-life situations.
- 2.20 Students understand, analyze, and interpret historical events, conditions, trends and issues to develop historical perspective.

In contrast, California provides its standards in terms of grade-by-grade curriculum frameworks, thus providing substantial, common, clear guidance to all the players in the educational system. Here, for example, is an excerpt from the California History/Social Science Framework describing what 11th graders should understand about the Great Depression:

Students should assess the likely causes of the Depression and examine its effects on ordinary people in different parts of the nation through use of historical materials. They should recognize the way in which natural drought combined with unwise agricultural practices to cause the Dust Bowl, a major factor in the economic and cultural chaos of the 1930s. They should see the linkage between severe economic distress and social turmoil. Photographs, films, newspaper accounts, interviews with persons who lived in the period, as well as paintings and novels (such as John Steinbeck's *Grapes of Wrath*) will help students understand this critical era.

The administration of Franklin D. Roosevelt and his New Deal should be studied as an example of the government's response to economic crisis. The efforts of the Roosevelt Administration to alleviate the crisis through the creation of social welfare programs, regulatory agencies, and economic planning bureaus should be carefully assessed.

How specific should standards be? There is no perfect formula. But it helps to keep in mind why we are setting standards in the first place and how they will be used. Here are some questions worth asking about the standards in your state: Are the standards organized by grade levels or age bands, or do they in some way clearly delineate the differences in expectations for students at different levels? If not, how could one use them to develop curricula or instructional materials for students of different ages or levels? Are the standards clear and specific enough to guide the development of curriculum frameworks that would

describe the core units to be covered in every grade? If a state were to adopt these standards but give districts the responsibility for fleshing them out into a curriculum, what are the chances that students across the state would be learning the same core curriculum? If a student moved from one district to another or from school to school within a district, would these standards ease the move to a new grade in a new school without putting him or her too far ahead or behind the other students? If a textbook publisher and an assessment developer were to use the standards in their work, is it likely that the text and the test would be well-aligned?

4) Standards must be manageable given the constraints of time.

Neither standards nor the resulting common core curriculum should try to cover everything to be taught. A core curriculum should probably constitute somewhere between 60 and 80 percent of the academic curriculum; the exact amount is open for discussion. The rest can be filled in by local districts, schools, and teachers.

It's important not to draw the wrong conclusion here. There is nothing sacred about the ways schools presently apportion their

time. According to *Prisoners of Time*, the 1994 report by the National Education Commission on Time and Learning, American schools spend about half as much time on academics as their counterparts overseas. The average U.S. high school graduate spends only 40 percent of his or her time studying core academic subjects in his school career. There is no reason why these figures should be so low, and standards are the first necessary step toward initiating some changes in school schedules.

Nevertheless, as states begin to adopt standards, there undoubtedly will be competing demands for time in the curriculum—both within and among the disciplines. Standards-setters will need to exhibit restraint in the face of these pressures. Their job is to determine what is *essential* for students to learn. A laundry list that satisfies everyone will be self-defeating, leaving teachers right back where they are now—facing the impossible task of trying to rush through overstuffed textbooks and ridiculously long sets of curriculum objectives.

5) Standards must be rigorous and world class.

When President Clinton signed Goals 2000

World-Class Resources

To help get more useful information into the hands of standards-setters, the AFT launched the *Defining World-Class Standards* series earlier this year. The first volume—*What College-Bound Students Abroad Are Expected To Know About Biology* (see abridged version in the Spring '94 issue of *American Educator*)—published translated biology exams taken by college-bound students in England and Wales, France, Germany, and Japan. Other useful translations of foreign curricula and exams have also been published and are available to those working on standards in this country. Following is a list of the materials we know exist today. Though it is a good start, we wish it were much, much longer, and we intend to help make it so.

Math

Translations of Japanese (grades 7-9) and Russian (grades 1-3) math textbooks, available from the University of Chicago Math and Science Project, Department of Education, University of Chicago, 5835 S. Kimbark Ave., Chicago, IL 60637; ph (312) 702-9770.

Japanese University Entrance Examination Problems in Mathematics, available from the Mathematical Association of America, 1529 18th St., NW, Washington, DC 20036; ph (202) 387-5200.

School Mathematics Expectations: A Comparison of Curricular Documents of Eight Countries with the NCTM Standards of the U.S., available from the

National Center for Mathematical Sciences Education, University of Wisconsin at Madison; ph (608) 263-4285.

Science

What College-Bound Students Abroad Are Expected To Know About Biology, Vol. I of the "Defining World Class Standards" series, available from the American Federation of Teachers, 555 New Jersey Ave., NW, Washington, DC 20001; ph (202) 879-4400.

Basic Biological Concepts: What Should the World's Children Know?, available from the National Association of Biology Teachers, 11250 Roger Bacon Drive, #19, Reston, VA 22090; ph (703) 471-1134.

History/Social Studies

National Tests: What Other Countries Expect Their Students to Know, National Endowment for the Humanities, Washington, DC 20506.

Multiple Subjects

The International Baccalaureate Program subject guides and examinations, International Baccalaureate of North America, 200 Madison Avenue, Suite 2007, New York, NY 10016; ph (212) 696-4464.

Secondary School Examinations: International Perspectives on Policies and Practice, by Harold Noah and Max Eckstein, Yale University Press, 92A Yale Station, New Haven, CT 06529.

into law, he was flanked by huge signs bearing the phrase "world-class standards." The national education goals call for American students to be first in the world in math and science by the turn of the century. And states and professional associations that are setting standards often repeat the mantra "world class," "rigorous," and "challenging" to describe what they are doing.

But what do these words really mean? When some people talk too easily about world-class standards, they seem to forget there *is* a real world out there. If standards truly are rigorous and world class, they should stand up to some tough but sensible questions. Do they reflect various levels of knowledge and skills comparable to what students in high-achieving countries are expected to master? Which countries did the standards-setters use as a basis for comparison, and what documents did they look at to determine their standards? Will the standards lead to a core curriculum for all students—those headed for college and those headed for work—as demanding as in France or Japan? Will they result in assessments for the college-bound as rigorous as the German *Abitur*, the French *baccalauréat* exams, the British A-levels, or the Japanese university entrance exams? Did the standards-setters refer to internationally benchmarked curricula and exams such as those of the International Baccalaureate program? What about the best programs and resources available in the U.S., such as the College Board's Advanced Placement exams and Achievement tests, or the curriculum frameworks used in California?

Everyone involved in developing standards, whether at the national, state, or local level, must take these questions seriously. Information on other countries is not easy to get hold of, but then nobody ever said setting standards would be easy. One thing is certain, though. Nothing will be accomplished by setting standards that are too low. And without honest international benchmarking, we will be captives of our own parochial notions of what students can accomplish, and low standards will be the result.

6) Standards must include "performance standards."

When polled earlier this year, most AFT teachers agreed that students across the board are capable of doing better work and mastering more demanding material than they currently are doing. Teachers also cited the lack of student motivation as one of the biggest problems they face in their classrooms. In any profession, specific standards are developed in order to motivate and measure performance. Whether you look at the medical boards that prospective doctors must pass, the bar exams for lawyers, or the time trials for drivers to qualify for the Indianapolis 500—

performance is never dealt with in the abstract. For example, Indy racers are not simply told that "very fast driving" will qualify them for the big race. They know exactly what times they need to beat, and they plan their strategies accordingly.

It should be the same for education standards. An influential report recently commissioned by the National Education Goals Panel* asserted that a complete set of standards should describe both what students should know and be able to do *and* how well they must know and do it. The report separated these functions into two distinct categories—content standards and performance standards. *Content standards* should define the knowledge (the most important and enduring ideas, concepts, issues, dilemmas, and information) and skills (the ways of thinking, working, communicating, reasoning, and investigating) essential to each discipline. *Performance standards* should specify "how good is good enough." They should indicate how competent a student demonstration must be to indicate attainment of the content standards.

It is safe to say that none of the standards documents we've seen—whether from the national standards groups, states, or other professional associations—fully incorporates performance standards as defined in the Goals Panel report. States will find this a particular problem when they try to develop assessments, because performance standards are essential to gauging whether the content standards are met.

A few states may be on the right track. Colorado, for example, has created a good set of content standards, better than most of the other state standards we've seen so far. And its next step will be to develop "performance levels" and assessments for each content standard. So, not only will Colorado have a history standard that requires fourth graders to "understand the difference between a democracy and an autocracy," but the state will follow that with a performance standard that establishes how *well* students must understand that difference and how they can demonstrate that understanding. This will probably require showing examples of student work that meets the various performance levels Colorado sets, or possibly creating sample assessment questions or exercises and the rubrics that would be used to grade them. It will be interesting to watch this work develop.

7) Standards must include multiple performance levels.

When we speak of our students all being

**Promises to Keep: Creating High Standards for American Students*, a report to the National Education Goals Panel by the Technical Planning Group on the Review of Education Standards, November 15, 1993.

held to world class standards, does that mean we should expect them all to achieve at the levels reached by the top students in other countries? Of course not. France and Germany have *high* standards for all their students, but they don't expect all to meet the *same* standard. Nor do all Japanese students go to Tokyo University. Some standards are for those who plan to attend universities; others are for those whose intentions are technical or vocational. It's just not realistic to expect the same from everyone. Some students are able to master more challenging material than others.

There is nothing wrong with admitting this, and students know it very well. We need multiple standards that set expectations to match different aspirations and achievements. A single standard would either have to be set low enough for most to pass, which does nothing to raise student achievement, or too high for many to reach, which only turns students off to the idea of hard work. The trick is to set standards that are within reach, but still require dedication and hard work—to stretch all kids to their maximum potential.

We can establish challenging standards without sacrificing rigor, by developing multiple performance standards, or multiple levels of achievement for each content standard. For example, students could work to reach "proficient," "advanced," or "expert" levels in a given standard, proficient being the minimum. This is how the National Assessment of Educational Progress (NAEP) reports its findings, and it is also how California's Golden State Exams are scored.

Another approach could be to require all students to meet a common standard before they can graduate from high school, but also to create higher standards for students to pursue if they attain that initial level earlier in their high school years or wish to qualify for more selective higher education. This is similar to the way the education systems in some foreign countries operate.

8) Standards must combine knowledge and skills, not pursue one at the expense of the other.

There is a terrible myth in education that has a tendency to confuse important decisions affecting curriculum and which is threatening to strangle the standards movement. The theory goes something like this: Knowledge is dynamic, transient, always changing, whereas the need to apply knowledge is constant. What is most important for students to learn are skills such as problem-solving, decision-making, and higher order thinking, so that they can react to any situation, gain and use whatever knowledge they need, and not waste their time learning facts and theories that may turn out to be irrelevant in their lives. Who can be sure of how much specific knowledge each

person will really need in the "real world" anyway?

Of course this is overstated, but not by much. At the root of this myth is a false dichotomy between knowledge and skills. And what it is leading to are standards that neglect the subject matter (the facts, ideas, concepts, issues, and information) of the traditional academic disciplines that is needed to develop the skills in the first place. Consider the following very general "skills" standards:

...A student will demonstrate the ability to think critically, creatively and reflectively in making decisions and solving problems. (*Oregon's Certificate of Initial Mastery, 1991*)

While performing individual and group tasks, students organize and intellectually process symbols, pictures, objects and information in a way which permits the mind to generate the reality of what is being represented. (*Florida's Blueprint 2000, 1992*)

[Students should] have skills that enhance their personal well-being [including] decision-making ability, interpersonal skills, critical thinking and problem-solving skills... (*Maine's Common Core of Learning, 1990*)

Students [should] make sense of the various messages to which they listen. (*Kentucky's Learning Outcomes, 1994*)

These examples may seem harmless enough, but they leave unanswered just what students are to solve, decide or think about. What is the subject? Where is reality? The unyielding facts and ideas? And how are students to learn how to learn without learning something concrete first? Let's turn the issue around: Is it possible to name a problem to be solved, a decision to be made, or a thing to be thought about that is not tied to subject matter?

And what kind of guidance do skills examples such as the ones cited above give to teachers and others in education? "Critical thinking" cannot be taught in the abstract. However, it *can* be developed, for example, by having students analyze the contradiction between the principle expressed in the Declaration of Independence that "all men are created equal" and the existence of slavery at the time. But a skill that is cut free from content and context is meaningless—and impossible to teach or assess.

Good standards will ensure that students develop the intellectual powers of observation, communication, reasoning, reflection, judgment, perspective, and synthesis that are often lumped under vague phrases like "higher order" or "critical thinking." But they must pursue these skills through the content of the subject areas.

An overemphasis on generic skills and processes seems to be a particular trend in states which allow local control of the *entire* curriculum. In essence, this is a way for states to

avoid making judgments about the core content of the curriculum. But as discussed earlier, vague, content-free standards accomplish nothing. They do not ensure that all kids are given a challenging curriculum, nor can they lead to assessments that reveal the depth and breadth of student knowledge.

9) Standards must not dictate how the material should be taught.

Good standards are designed to guide not to limit instruction. They are intended to communicate to teachers and other school staff what is most important for students to learn, but not how the ideas or information should be taught. If, for example, a set of standards includes teaching activities, they should be there for illustrative purposes only. It is important that standards not be allowed to infringe on teachers' professional responsibilities, their ability to choose their particular methods and to design their lessons and courses in ways that reflect the best available current research and that are best suited to their students' needs and to their own strengths and teaching styles.

For a more practical look at how standards can provide guidance for curriculum developers and classroom teachers, while giving teachers broad latitude to choose their materials and design their lessons, see Paul Gagnon's article on p. 15.

10) Standards must be written clearly enough for all stakeholders to understand.

Part of the challenge states will face with Goals 2000 and standards is how to generate broad public support. It is important, therefore, that standards not be written solely for an education audience. The standards must be written clearly enough for parents, students, and interested community members to understand—indeed, to be inspired by. Otherwise, they will risk alienating the very people whose trust and support they need.

We've already pointed out a number of ways that standards can go astray and cause friction. Non-academic or interdisciplinary standards aren't clear to the public and often engender mistrust. Vague standards do not communicate anything and usually raise more questions than they answer. Standards that emphasize skills at the expense of content knowledge are treated with deserved skepticism by parents. The list goes on. Sometimes, something as simple as a word or phrase that has no meaning to parents can cause a problem.

Our best advice to writers of standards is to consider what the language of each standard will mean to everyone who will be reading them, and avoid jargon. Are the standards clear enough for teachers to understand what is required of them and their students? For parents to understand what is expected of their children and to keep an eye on their progress?

Do the standards send a coherent message to employers and colleges as to what students will know and be able to do when they leave high school? What about the students themselves? Will they be able to read the standards and get a clear idea of what is expected of them?

If the answer to any of these questions is "no," your work is not done. If a standard seems confusing to lay people, it needs to be re-thought and re-written. Examples of what to avoid:

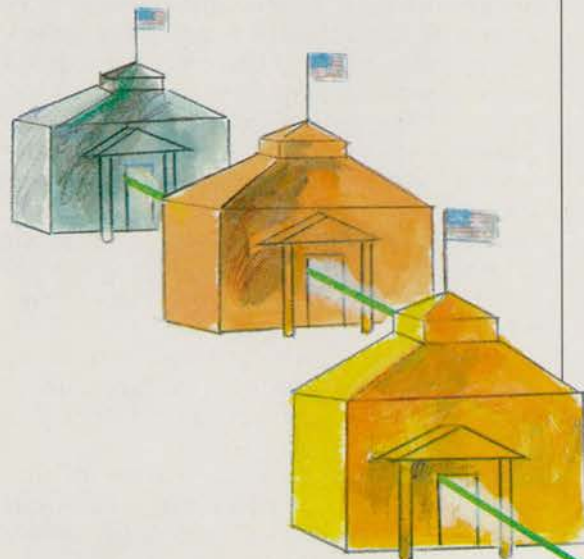
All students understand human development theories across the lifespan and value individual uniqueness in the context of family life. (*Pennsylvania's Student Learning Outcomes, Draft 1991*)

[A high school graduate] understands and describes ways that a specified culture shapes patterns of interaction of individuals and groups. (*Minnesota's High School Standards, Draft 1994*)

A student who is becoming a self-directed learner uses...information, organizations, and persons as learning resources. (*Virginia's Common Core of Learning—Draft 1992*)

Subject matter standards and a common core to the curriculum are new concepts in American education, and people—including many educators—are automatically skeptical of new ideas in the field. Considering the fads and failures of the past, this skepticism is certainly healthy. But the AFT and others believe that if we develop rigorous and useable standards and shape intelligent Goals 2000 plans, we have a real opportunity to turn things around in our schools. Such an effort is certainly a more palatable and responsible strategy than turning the schools over to the whim of the market. □

For more information or to comment on these criteria, contact Matt Gandall in the AFT Educational Issues Department.



And Bringing Them To the Classroom

(Continued from page 15)

rationale for its importance and will add vital topics, themes, and questions around which to teach it, at the grade level they choose.

Step Three is what to do with the standard on Monday morning—the teacher's own way of bringing students to understand not only the standard itself but why it is worth understanding.

Each step is indispensable to greater competence and equity, quality and equality, in American schools. Here is how the three steps might look, in hypothetical examples from World History and English:

Step One, a World History standard: 'Students Should Understand the Causes of World War I.'

In a history standards document, this "essential" would be linked to a wider goal: student understanding of historical cause in general, its complexity and unpredictability. The argument for this goal could appear in either the standards booklet or in the curriculum framework, or in both, as something like this:

What or who caused the fall of Rome? The Reformation? Revolutions, depressions, and wars? The citizen needs to observe, again and again, that single answers and quick blame are rarely justified, often cruel and dangerous, but usually popular. Why focus on the cause of war? Because its human consequences are beyond measure, which in turn proves the need for political history—the actions or inactions of the few (not always the "elite") that shape the social and economic conditions of the many, or determine whether they live or die.

Why stress World War I? Because genuine understanding of causes and consequences cannot be reached in the abstract. Honest stories of real wars reveal that each war is different, that seeing general "lessons" from any single outbreak is not sensible and has led to tragic mistakes in later years. World War I must be among several wars examined because it was a human catastrophe whose consequences shook all the earth and did more to shape our lives as Americans, for most of the 20th century, than any other event here at home or anywhere else in the world.

Either the standards document or the state curriculum framework, or both, may add specific "shoulds" around the causes of World War One:

Students should see many reasons for conflict among, and inside, the major European powers in the different spheres of human life

by summer 1914: the economic, the social, the intellectual, ideological, and political, the technological and the military, and—not least—in people's memories, resentments, hopes and fears.

Students should distinguish between long-range sources of hostility (as well as contrary forces that could have worked for peace) and the short-term actions following upon the assassination of the Austrian archduke in Sarajevo in June of 1914. They should grasp the relations between the long-range causes and the immediate events of July, the role of individuals, the effects of chance, accident, and misinformation. From the study of this standard, students should be ready to think critically about questions such as the war's "inevitability" or the warnings (as distinct from "lessons") we might heed from the outbreak of World War I.

Step Two, a state curriculum framework that incorporates the standard might read as follows:

1. World history will be the required course of study for all students in ninth- and tenth-grade Social Studies.

2. The tenth-grade course will address modern World History, from 1750 to the present, with the second semester devoted to the 20th century. Whenever possible, this course will be taught in tandem with the tenth-grade course in modern World Literature.

3. One major unit of the tenth-grade course will address the causes, course, and consequences of World War I. It will take up the following topics. Others may be added at the district and school levels.

- The Great War of 1914-18 and Its Human Costs
- Russia in Revolution
- Upheaval in China
- Japanese Power in the Pacific
- Colonial Rebellions
- The Problems of Peacemaking
- World War and the World Economy

4. Under "The Great War," students should first examine the reasons and responsibilities for the war's outbreak in 1914. They should be able to describe the long-developing sources of fear and tension commonly referred to by historians:

- a. national "justified" aims and interests, in conflict (map work is indispensable here);
- b. imperialism, its own causes and effects;
- c. commercial rivalry, economic nationalism;
- d. militarism and military planning;
- e. arms races, technology, munitions-makers;
- f. nationalism, ethnic hatred, Social Darwinism;

- g. the alliance system;
- h. Balkan nationalism vs. Austrian conservatism;
- i. human nature?

5. Students should see the connections between the long-range forces ready to explode and the short-term causes for the war's outbreak—the events and conditions in July 1914. For example:

- a. Why and how was the Austrian archduke assassinated?
- b. Why did the leaders and diplomats fail to keep one man's murder from turning into a general war?
- c. What forces were working on them, foiling their efforts to keep the peace?
- d. Did past actions, or inactions, limit their choices?
- e. What about public opinion, the popular press, the divided authority in key capitals, the cries of demagogues, the effects of earlier military plans, the illusions about war, the absence of excuses for delay, the feelings of inevitability, old resentments, and notions about war as the "way out" of domestic problems?

6. In sum, students should achieve a sophisticated grasp of the complexity of causes in 1914, the difficulty (although not the impossibility) of allocating blame to nations or leaders, and the danger of assuming that such things could not happen again, or that they would happen in the same way. Not least, students should see that only after the war was it clear how high the stakes had been in the summer of 1914 and take in the immense human tragedy that followed upon the failure of politics and diplomacy.

7. Further topics, themes, or questions may be added at the local district or school level.

In Step Three, teachers—perhaps working with other colleagues at the school or district level—will see and choose among many different ways to engage their students in the tragedy of 1914 and to think about causes and responsibilities for World War I. These are only a few:

1. For a first look at World War I, its origins, course, and effects, students will read Chapter X of textbook Y and prepare a single written paragraph for an opening class discussion of the question: "So what? What does it have to do with me? Why bother to study somebody else's war so long ago?"

2. After small-group review of these paragraphs, the class should see most of the following consequences of World War I for Americans until nearly the end of the 20th century:

- a. the changes it precipitated in American

social, economic, cultural, and political life through the 1920s, not least for women and African Americans;

- b. its large part in bringing on the Great Depression;
- c. in stirring the Communist revolution in Russia;
- d. in the rise of Fascism in Italy and Nazism in Germany;
- e. in Japan's surge of power in the Pacific;
- f. in the origins of World War II, and the losses, costs, and consequences of that war for us;
- g. in the forty-year struggle of the Cold War, forcing global American commitments in wealth and human lives, from NATO and the Marshall Plan in Europe to the Korean and Vietnam wars in Asia;
- h. and in the other domestic effects of the Depression, World War II, and the Cold War on our entire society, culture, and views of ourselves, good and bad. In 1914, the bell tolled for us.

3. In tandem with their World Literature course, students will read substantial portions of Erich Maria Remarque's *All Quiet on the Western Front*. They will focus on the soldiers' questions: Why? How could such horror come to be? Has the world gone mad?

Students will bear the responsibility of answering these boys, their peers, either in speech or in writing once they have finished their study of the war's outbreak.

4. Starting with the "spark" that sets off great explosions, and then looking back at the longer buildup of explosives, is more dramatic than memorizing lists of causes. In small-group projects, students (as "foreign correspondents," each with an assignment) will explore, and then put together in class, the haunting story of Franz Ferdinand's assassination on June 28, 1914, in Sarajevo: who, why, how, the plans, the errors, the role of chance, accident, coincidence, the passions and obsessions on all sides.

5. But did one man's murder have to push all Europe into war? Again in small teams, students will follow the day-by-day crisis of July. Each team will focus upon its chosen European political or military leader, his background and character, his actions during the fatal month, and ask:

How were his reactions and choices shaped by that familiar list of *long-range* forces? For examples, the alliance system or his military plans? Or by *short-term* pressures on him from family, friends, the press, public opinion? By his own country's inner problems? By his character and temperament? By accident or misinformation? Or by any other factors the students can think of?

This exercise should present the class with a tangle of forces that cut down the number of

*And
Bringing
Them
To the
Classroom*

acceptable options open to the actors and that tied the hands of even those statesmen most devoted to peace. Do students think other kinds of leaders might have done better in the "fog of crisis"? Would they themselves have done better? On the other hand, are they ready to let everybody off the hook of responsibility?

6. As exercises in critical thought, students could then look at some of the following questions, to prepare answers for debate:

Which country would you hold most responsible for war?

The next most responsible? And next?

Does the order change, depending upon whether you focus on the long- or short-range causes?

Which statesmen deserve the most blame? In what order?

Was the war inevitable?

Which of its causes—long-range and short-range—are now eliminated from the international arena, or less dangerous?

Which are still with us? Are any more dangerous now than in 1914?

What new possible causes for war, unknown or irrelevant in 1914, do we confront today?

7. The teacher may relate the study of cause to the study of peacemaking and have students work on the following questions:

Now that you know so much about causes, what do you think of Wilson's 14 Points as the "cures" for the dangerous forces at work? Did he cover them all? What would you add to the 14 Points?

What causes did the Paris conference address? Which not?

8. The teacher may wish to make a single unit of the two World Wars and offer exercises and questions such as these:

Which causes for World War II do you see as

consequences of World War I and the Versailles Treaty?

In the 1930s, what lessons did people think they had learned from what they thought had happened in 1914?

Which of these lessons fit the circumstances of the 1930s?

What was the same, and what was different, about the coming of the Second World War?

So, if history does not hand us foolproof lessons on how to avoid war, do we at least get warnings, or cautions? Name some.

* * *

Step One, an English standard: 'Students Should Understand How Language Can Hide or Falsify Reality.'

In an English standards document, this "essential" would be part of a wider goal: student mastery of written and spoken English. One aspect of mastery is a quick sensitivity to other people's abuse of language, to mislead or manipulate. So the rationale for this particular standard could run as follows:

We all know that language can be used to lie, to hide or falsify facts so that readers or listeners will be stirred to a particular emotion or action, to the profit of the liar. Against the outright lie, a democratic society has certain safeguards: freedom of information, laws on libel and slander, widespread general education, and the habit of publicly debating vital issues. In time, the direct lie can very often be detected, in public matters at least.

The indirect lie is harder to perceive and pin down. Here the writer/speaker uses language to soften or obscure reality that, if clearly pictured, could stir the reader/listener to some unwanted emotion or action. The words used are imprecise, fuzzy. The mind clouds over; reality fades from view. Against this abuse, well-informed citizens and alternate sources of fact once again may help. But we need something more that only a good education in language and literature can provide: a sharp eye and ear for the choice and use of words—a sensitivity that sets off warning signals at the sight or sound of the cloudy, the abstract, the windy, the jargon-stuffed.

To develop sensitivity, K-12 courses must be designed so that, at least most of the time, children and adolescents read, hear, write, and speak language free of vagueness and cant. The responsibility for choosing what is to be read in school (or heard, in this electronic age) rests with all teachers in every field, not only English. The goal is uninterrupted exposure to excellent literature and lean, clear, candid language in all other subjects.

There are no shortcuts, or theories to be memorized, that can take the place of successive years of reading outstanding authors, whatever their subjects or cultural roots.



Finally, good writers are more likely to recognize bad or dishonest writers. Most of us now agree that writing can be taught well only by the collaborative efforts of the whole teaching staff and that we must encourage creative self-expression by students. But the acute sensitivity to language that enables them to perceive its sloppy or abusive use by others requires still more than these familiar approaches. Teachers must help students acquire the power to write and speak effectively for audiences other than classmates, on topics not of their own choosing, and with limited time to get ready. They must grow confident in their ability to be understood and respected by educated people of all sorts and temperaments.

Step Two, a state curriculum framework that incorporates the standard might read as follows. Although a framework would say something for all grades, this example is for one grade only:

1. World Literature in Modern Times will be the required course in English for all students in the tenth grade. It will present works of excellence—essays, fiction, poetry, drama—produced since the mid-18th century. Selections will include writings by men and women from several major civilizations.

2. To provide a worldwide context for American students, works by American authors should be included, especially those lending themselves to international comparisons and showing the interplay of different societies and cultures.

3. Whenever feasible, entire works should be read, with particularly thoughtful or stylish passages often read aloud by students. Reading aloud, in class or alone, one's own work or others', develops an "ear" for language and good habits of speech.

4. Wherever possible, world literature should be taught in close relation with the times and themes treated in the tenth-grade world history course. For examples, Dickens' *Hard Times* with the early Industrial Revolution; Turgenev's *Fathers and Sons* with pre-revolutionary czarist Russia; Achebe's *Things Fall Apart* with European colonialism; Virginia Woolf's *A Room of One's Own* with 20th-century feminism.

5. Among the literary works assigned should be some that deal explicitly with how language is abused to control people's thought and action. Familiar examples are Aldous Huxley's *Brave New World*, George Orwell's novel *1984*, and his brief essay "Politics and the English Language." Less concerned with intentional abuse of the language, but excellent on

clarity and candor, is *The Elements of Style* by William Strunk, Jr. and E. B. White.

6. Whenever possible, students should be assigned to the same class groups for world literature and world history, whether each course has its own teacher or (highly recommended) one teacher is responsible for both courses. It is vital that school schedules allow for extended time—morning or afternoon—at least once a week for extensive discussion of ideas and their expression. Along with writing across the curriculum, it is equally important to carry on critical reading and listening across the curriculum, accompanied by effective speech. Longer periods are indispensable here.

7. Further topics, examples, and approaches may be added at the local district or school level.

In Step Three, English teachers will have numberless options—some perhaps suggested by their local district or by school colleagues—from which to choose their own materials and build their lessons. The following are only a few possible approaches:

1. Each student in tenth-grade history and literature classes may be given a copy of Strunk and White's *The Elements of Style*. From this inexpensive little book, many active learning exercises may be devised. For example, under the sections called "Elementary Rules of Usage" and "Principles of Composition," student teams may compete in thinking up the most horrible or hilarious examples of bad practice. Then the teams exchange their work, with each team responsible for composing correct, clear, and lively versions of the ideas struggling to be expressed.

2. Or, out of Strunk and White, students working in pairs may be asked to demonstrate, in paragraphs of their own devising, how to violate the following principles of composition in order to cloud over some unhappy fact they don't want readers to perceive:

#14 Use the active voice.

#15 Put statements in positive form.

#16 Use definite, specific, concrete language.

#17 Omit needless words.

Partners then exchange paragraphs and rewrite them in ways that honor these principles.

3. Students in groups may regularly be asked to apply Strunk's most-often-repeated law—*omit needless words*—to short pieces of their own writing, classmates' writings, and excerpts from whatever books they are reading at the time. To enliven the exercise, one student may act as the Rescuer of Words

Unjustly Banished, charged with finding instances when more *is* better.

4. Students may be asked to read George Orwell's essay "Politics and the English Language." If not already done as an exercise from Strunk and White, they will choose a paragraph from literature that is a special favorite of theirs, for its drama and clarity. They will then compose a paragraph showing just how dull and unclear the same passage could become when expressed in other words. They may look at Orwell's famous example, which starts with language from *Ecclesiastes*:

"I returned and saw under the sun, that the race is not to the swift, nor the battle to the strong, neither yet bread to the wise, nor yet riches to men of understanding, nor yet favour to men of skill; but time and chance happeneth to them all."

Orwell turns this into what he decries as "modern English":

"Objective consideration of contemporary phenomena compels the conclusion that success or failure in competitive activities exhibits no tendency to be commensurate with innate capacity, but that a considerable element of the unpredictable must invariably be taken into account."

5. Still on Orwell's essay, students may think about his verdict on public affairs of his time (the 1930s): "political speech and writing are largely the defence of the indefensible," and to consider his example:

"Consider, for instance, some comfortable English professor defending Russian totalitarianism. He cannot say outright, 'I believe in killing off your opponents when you can get good results by doing so.' Probably, therefore, he will say something like this:

"While freely conceding that the Soviet regime exhibits certain features which the humanitarian may be inclined to deplore, we must, I think, agree that a certain curtailment of the right to political opposition is an unavoidable concomitant of transitional periods, and that the rigours which the Russian people have been called upon to undergo have been amply justified in the sphere of concrete achievement."

Students then may compose similar pairs of clear and cloudy ways of describing events, whether current or historical.

6. Again from Orwell's essay, students may be asked to compose short speeches to deliver to their group, illustrating his remark that inflated style is itself a euphemism:

"A mass of Latin words falls upon the facts like soft snow, blurring the outlines and covering up all the details. The great enemy of clear language is insincerity. When there is a gap between one's real and one's declared aims, one turns as it were instinctively to long words and exhausted idioms, like a cuttlefish squirting out ink."

7. Students may be assigned several kinds of exercises to explore problems that arise not from the inflation of language but from its brevity. For example, history textbooks by their nature must compress their descriptions of people, ideas, events, and conditions into the fewest possible words. Authors are not usually intent on misleading the reader, but the words are often so few and abstract that the mind does not stop to picture the reality, much less to reflect upon it. Reading biographies, good journalism, or historical literature can offer the depth and immediacy missing in textbooks. There are numberless choices, from Anatole France's novel, *The Gods Are Thirsty*, about the reign of terror in the French Revolution; to Athol Fugard's play, "My Children! My Africa!" about apartheid in South Africa. There is Wiesel's *Night*, about the Holocaust; Ellison's *Invisible Man*, about race in America; Hersey's *Hiroshima*, on the atomic bomb; Silone's *Bread and Wine*, on Fascism; Koestler's *Darkness at Noon*, about Stalinism.

8. In each case above, the account in the textbooks should be compared with the students' deeper impressions received from other readings, and relevant questions discussed, in writing or seminar:

What did you learn, beyond the text's account?

Would you say the text was wrong? Or misleading? How?

Is there anything in the text that suggests that the other, longer account was wrong or misleading? How?

If they seem to contradict each other, on what basis would you decide to trust one more than the other?

If they are not in conflict, how would you improve on the text's language to a.) preserve its integrity, but b.) present a clearer, more gripping story—in the same number of words?

* * *

Three steps like these, from content standards to the classroom, are at the heart of what is called "systemic" school reform. This is not a mysterious process. Each step can be very well crafted by seasoned subject-matter teachers and scholars who are ready to work together because they find joy in teaching each other and teaching their students—kindergarten through college—about the subjects they love. □

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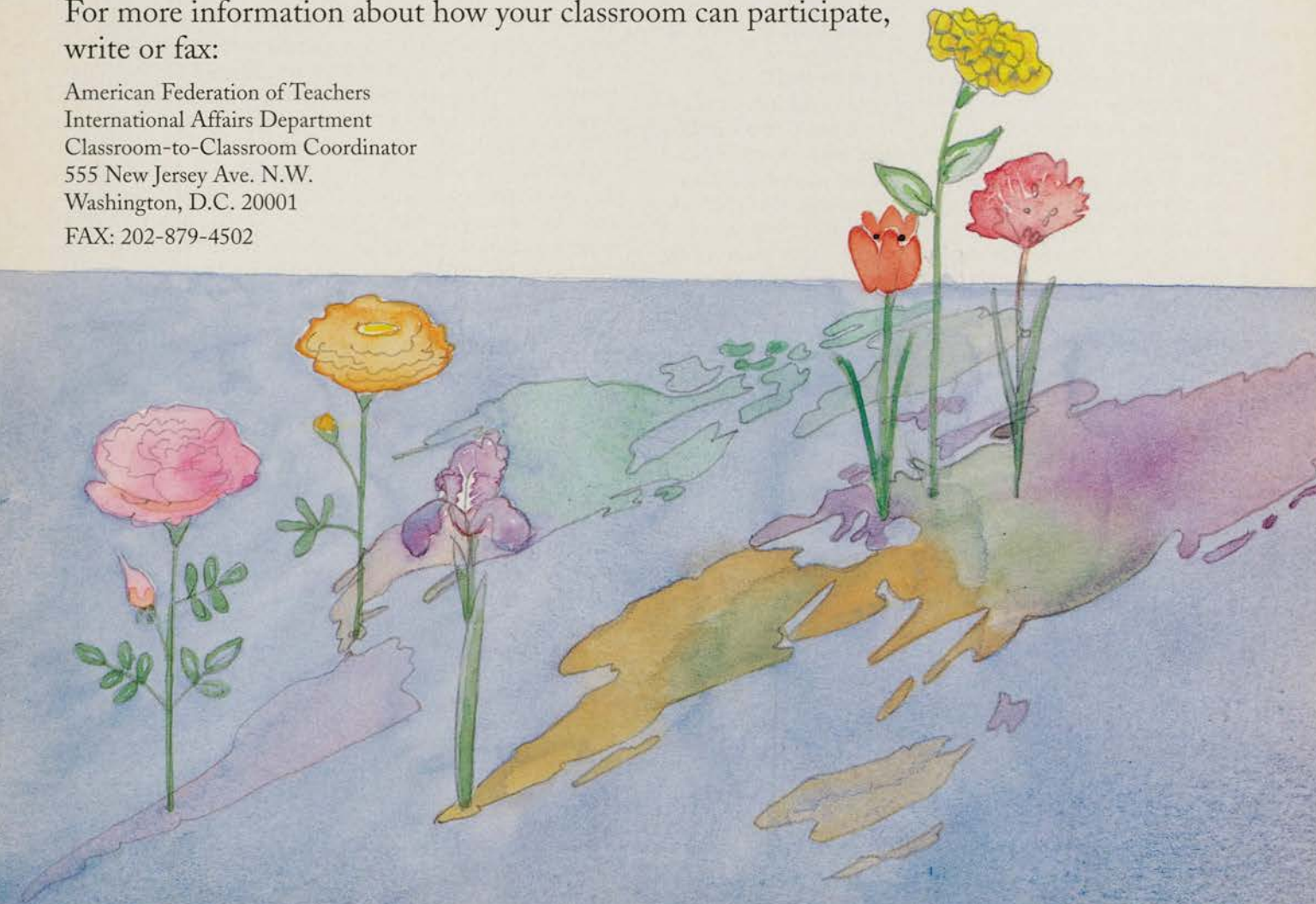
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LEARNING BY DOING *WHAT?*

BY DREW H. GITOMER

AS A SCHOOL board member, frequently I am questioned by concerned parents about their children's education. "My kid seems to be having fun in English, but I'm not sure what he's learning." "Why doesn't she have to learn the math basics anymore? We sure did." "I don't see how this stuff will help them when they go off to college." As someone who is concerned about, and active in, educational reform, I try to assuage their concerns. I tell them that educators now know more about how people learn in various fields, how it is important that students get to use their knowledge in authentic contexts, that we're trying to develop abilities that will help students learn throughout their lives because they are going to confront a world that changes more rapidly than anything we've ever experienced. I try to convince parents that students learn best when they build from what they already know, so it is important to consider what the student brings to a learning situation. Although what their children are doing might seem alien to parents, I assure them that classroom practice must change to keep up with the rest of the changes in all of our lives. In short, I think I have the reform rap down pretty well.

But while the parents might feel better, I leave our conversation feeling more than a bit uneasy. I feel uncomfortable because, as I have opportunities to observe practice in all types of schools around the country, I know that we have a long way to go before this kind of rhetoric is realized. While the surface of educational practice is changing dramatically and obviously, the underlying structures of practice are much more resistant to reform.

One consistent theme of educational reform is the re-emergence of John Dewey's philosophy. Perhaps the most influential of Dewey's ideas is "learning through experience." The notion that students learn best when they are immersed in meaningful activities resounds in current practice. Hands-on science, manipulatives in mathematics, writing workshop, and an emphasis on production in the arts curricula are but some of the most obvious changes that attempt to have students experience the discipline in ways that are not possible through textbooks, drill, and didactic teaching.

In more and more schools, experiential curricula represent the mainstream of educational practice, and to deny them to students is almost blasphemy. We have overcome one hurdle: Classrooms are no longer bound by the textbook and the short-answer test. An even greater challenge looms, however—the threat of reducing experience to its caricature. When experience is car-

icatured, the student engages in an activity that is reminiscent of the genuine activity but actually only highlights its most obvious and superficial aspects. These caricatures are all too frequent in education.

Hands-on curricula are *de rigueur* in science education, most especially in elementary school science. Students have opportunities, for example, to observe intriguing phenomena, use scientific apparatus, take measurements, and record data. These activities all have the feel and look of science. Yet, if students are only participating in exciting investigations and demonstrations, they are not experiencing the science of scientists. Scientists undertake investigations because they have a problem to solve, a question to address. The problem can be theoretical or applied. Scientists do investigations to gather evidence that can assist in evaluating competing theories. They evaluate the adequacy of a theory in terms of its ability to accommodate existing data. There is a great deal of understanding and reasoning that precedes, motivates, and follows investigations. When students only do disconnected investigations because they are "neat," when they engage in the procedures of science labs but not the processes of scientific reasoning, we are denying them the opportunity to experience science.

Writing instruction is often a caricature of the writing experience as well. It is not uncommon for students to be given continuous writing opportunities in which they are asked to express themselves through such varied literary forms as short stories, poems, and persuasive writing. However, this is only one aspect of how one learns to write well. Students should also study how other writers have used a form and use that knowledge to help shape their writing decisions and to reflect on the quality of their own work. Only then are they engaging in experiences that real writers go through. There isn't a writer I've met yet who isn't also a voracious reader and willing critic. Writers develop their ideas by reading and considering other writers' ideas, styles, and techniques. The power of language and ideas needs to be experienced from the perspective of reader and writer. The writing experience is caricatured when student writers do not regularly experience other texts, but only "express themselves."

Ironically, the caricaturing may be most severe in the arts—disciplines in which experiential learning has always been the norm. Obviously artists make art, music, dance, and theater. But they succeed as makers of art because they have worked hard to master their art form. Not only have they developed technique, but they have learned different styles and experienced the work of others. They have become familiar with the vocabulary of the discipline and have reflected upon the criteria that distinguish the mediocre from the excellent. Their work

Drew H. Gitomer is senior research scientist at the Center for Performance Assessment of the Educational Testing Service, Princeton, New Jersey.



ing needs to move from managing activities to managing ideas.

DISCIPLINES POSE different questions, engage different processes, have different rules of evidence, and varying forms of communication. Imagine two individuals, one a materials scientist, the other an artist. Both are interested in cardboard, the scientist for its potential as a container material, the artist for a collage. Both of these individuals will “observe” the cardboard. Yet the questions the scientist will ask about the material are different from those of the artist, and their questions will lead to wholly different interpretations. The scientist is likely to be most interested in tensile strength, the artist in texture. The artist will observe from an aesthetic perspective, the scientist from a functional one. Thus, the same process of “observation” turns out to be a very different cognitive task based on the disciplinary understandings and questions someone brings to a learning situation.

One of the reasons that learning by doing has remained at a superficial level is related to the way most educators have themselves been trained. The overt activities of a scientist and artist are much easier to characterize and emulate than is their reasoning or understanding of science and art, respectively. Unfortunately, many teachers have not had an opportunity to experience the disciplines they teach in a full sense that goes beyond its surface activities. Creating opportunities for the current and future teaching population to experience the full activity of their disciplines is critical to successful educational reform. Schools will need to recognize and value teacher expertise that comes from such experiences, and eliminate practices, such as the frequent switching of teaching assignments, that perpetuate myths that good teaching is a generic skill unaffected by disciplinary knowledge.

Although this challenge is daunting, it is by no means impossible. I have had the good fortune to work with and visit teachers and schools in which students get far past the caricature and into the essence of the learning experience. Although difficult to generalize, there are some commonalities that bind these exemplars of practice. First, while the activities are exciting, they are but a tool to achieve deeper, cognitive objectives. The activity is not an end in and of itself. Second, there is a deep respect for the challenge of the discipline. Whether in writing, art, or science, these teachers and schools acknowledge that success requires hard work, complex decision making, and an understanding of the concepts and principles on which the discipline is built. Learning in these classrooms may not always be fun, but almost always, it is motivating and rewarding. □

has been judged by peers, teachers, and critics. They have learned how to communicate through and about art. All the experience that underlies art is caricatured if art is limited to making a mask, throwing a pot, or learning a couple of songs for the spring concert.

So, art students are busy making art, and writing students are busy writing, even rewriting. More elusive, however, are the experiences of communicating and reasoning within disciplines and the sustained consideration of the ideas and work of others. It is this deeper, more complete context that we must now focus on if classroom practice is to have any hope of real reformation. We must go beyond the surface activities of doing manipulatives, hands-on science, or writing process and toward the cognitive goals of developing the knowledge, skills, and understandings that permit students to reason and communicate within and across disciplines. Teach-

THE SOUTH AFRICAN ELECTION: MAKING DEMOCRACY VISIBLE

BY FOSTER STRINGER



WHEN I arrived in Johannesburg last April 21 to be an observer of South Africa's first multiracial election, it seemed likely that the election would be disrupted, and perhaps even destroyed, by violence.

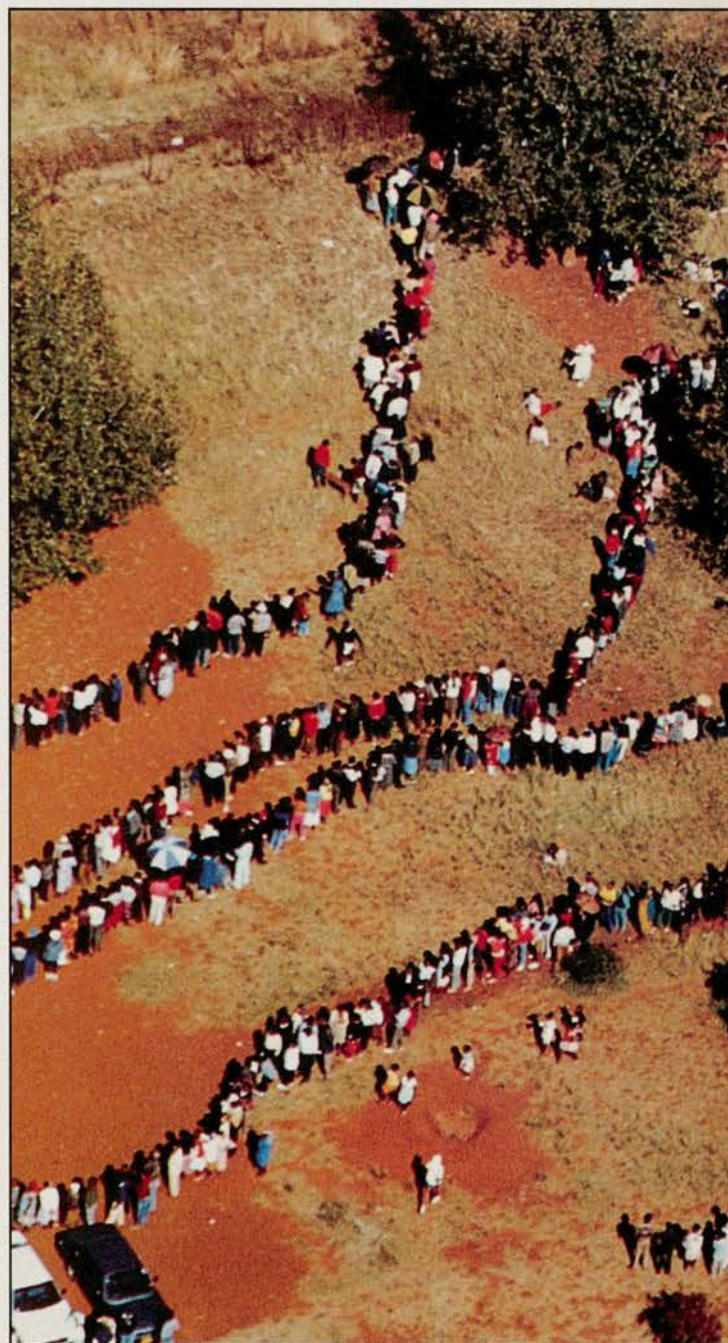
Political violence had been escalating throughout the '90s, and at least 111 people had been killed and 402 injured in election-related bloodshed during the last ten days of March. A few days before our arrival, tensions were eased somewhat when Zulu chief Mangosuthu Buthelezi, whose Inkatha Freedom Party (IFP) had been boycotting the elections, announced that his party would take part after all. But this announcement brought its own set of problems and opportunities for violence since the election ballots were already printed, and there would be the problem of getting the IFP on the ballot.

Knowing all this, I was not surprised, when I got off the plane with the other members of the AFL-CIO delegation, that we were immediately ushered into an orientation session on safety and security or that one of the speakers, a man who had just come from Beirut, Lebanon, would announce that Johannesburg was "the most dangerous city in the world" and urge us always to travel in pairs and avoid going into the townships altogether.

What was surprising to those of us who observed the election, and to the world at large, was how peaceful it turned out to be. I was leader of an eight-member team from the AFL-CIO delegation assigned to Vereeniging, an industrial city of about 60,000 people, 30 miles southeast of Johannesburg. This was a so-called hotspot, and we got the assignment because, as union members, we had all had experience dealing with groups of people in tense and potentially violent situations.

We understood why Vereeniging was a hotspot when we learned that one of its townships was Sharpeville, the scene of the 1960 passbook protest in which sixty-nine

Foster Stringer is associate director in the AFT Committee on Political Education (COPE) department.



(At left) The colors of the new South African flag and the flag itself were everywhere, and reports of voters draped in the new flag were numerous. (Below) This aerial view of Soweto shows a snaking line of voters waiting to cast their ballots. Sights such as this were not uncommon in cities and townships throughout South Africa, where the wait to vote was sometimes seven to eight hours.

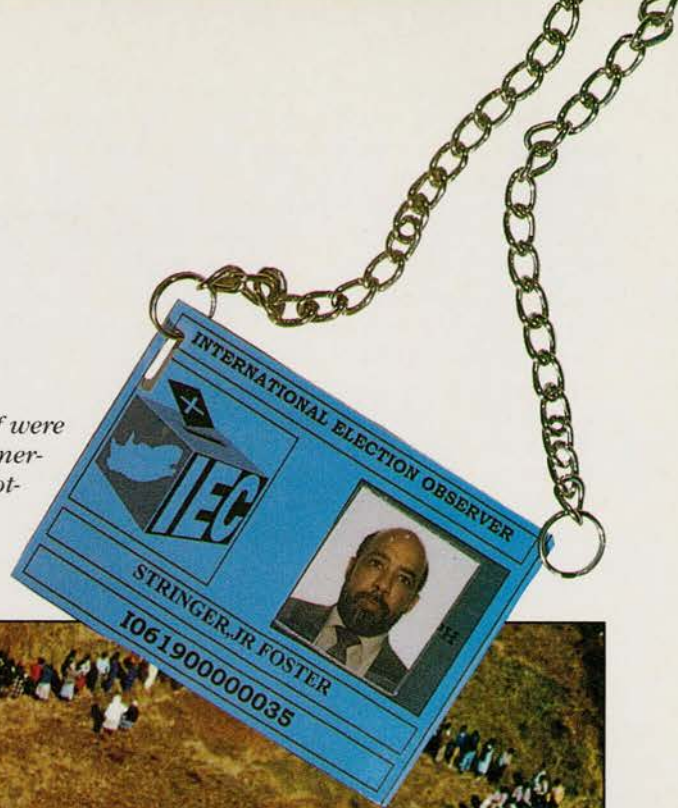


PHOTO OF VOTERS IN LINE: GORDON HODGE/SYGMA; PHOTO OF FLAGS: BROOKS KRAFT/SYGMA; PHOTO OF BADGE: MICHAEL C. CAMPBELL

Africans were killed by South African police and 178 were wounded. And another was Boipatong, where a massacre of forty people put an end to the first multi-party negotiations in 1992.

So it seemed miraculous that there was little disruption in our voting area—or in any of the others. There were places where they ran out of ballots or where the stickers that would allow people to vote for the IFP did not arrive and people waited long hours and then had to go away without having voted. Bullying of voters was reported in some places—I saw none in any of the voting stations I visited—and there was minor violence. But the enormous enterprise came off: a free and fair election in a country that had seen very little of freedom or fairness.

Our job as observers was as much to be seen as to observe. So we went, in pairs, with local union members who acted as our guides and drivers, to as many of the voting places as we could. My overwhelming impression as we went from place to place was of the patience of people who waited in the hot sun for as long as seven or eight hours before they finally cast their votes as citizens—and of their elation. I saw some of them come back after voting just to watch other people standing in line. It was as though they couldn't believe what was happening and wanted to see it repeated again and again.

Those who couldn't walk came to vote in carts and on crutches. I saw one man bring his elderly mother in a wheelbarrow and then transfer her to a chair so she could be carried from place to place in the voting station. She was illiterate, too, but presiding officers were allowed to explain the procedure, in the presence of a monitor, so people who couldn't read could still vote. (The ballot

was also designed to make this easier. It had a picture of each candidate and the party logo as well as the name of the party.)

The whole election seemed like a miracle. Twenty million people came to nine thousand voting places during the three days of voting—out of a population of 22 million. I'm told that's the best turnout for any free democratic election ever held. Though the great majority of these people had never voted before, and many could not read or were barely literate, very few ballots were spoiled. And all this happened peacefully, with Africans and coloreds and Asians and whites often standing together in line to cast their votes. The unbelievable change that the election represented was captured for me by the sight of the new South African flag, with its striking black triangle and bands of red, white, green, blue and gold, flying over the police station in Sharpeville.

BUT ANOTHER thing that struck me about the election was the "transparency" of the process. The most inexperienced, the most naive person could understand how the voting worked and see that it was being carried out scrupulously and honestly. The process itself was a kind of education in democracy. I don't know that the Independent Electoral Commission (IEC), the group of South African and international commissioners established by the 1993 IEC Act to administer and monitor the election, thought of what they wanted in exactly those terms, but that was the effect.

The whole election was put together in less than a year. The IEC was not even constituted until December 1993, fewer than six months before the election was to take place, although some of its members had been thinking

A PROMISE KEPT

THE FIRST time Foster Stringer went to South Africa, in 1979, he didn't get any farther than the airport. Stringer had been in Rhodesia (now Zimbabwe) with the U.S. Youth Council. The group decided to go home via South Africa and spend a day there looking around. Instead, they spent thirteen hours looking at the international lounge of the Jan Smuts Airport while they waited for their visas to materialize.

Stringer thinks they got stuck there because of their conversation with the passport control officer: "What do you want to see?" "Soweto." "We'll get back to you." And of course, no one ever did. But Stringer remembers saying to himself, "One day I'm coming back here."

That he did in November 1991, when he spent six months working on the African-American Labor Cen-

ter's Trade Union Civics Education Project, a long name, Stringer says, for an effort to educate black South African trade unionists about the function of a free and independent labor movement in a democratic society.

At the time, the black South African trade unions were the only black organizations that had actual experience negotiating with the government. As a result, they had considerable political power, and they were very closely identified with the African National Congress and the PanAfrican Congress. What would happen when the black majority finally gained political power? Would the trade unions wither away? Would they become adjuncts to political parties? The point of the project was to help trade unionists see why a free society would need both trade unions and political parties.

Stringer remembers one trade unionist, a young man of twenty-three or so, announcing, "When Mr. Mandela becomes president, there will be no need for trade unions because he will take care of us." "I knew then," Stringer says, "that we had work to do."

When he returned to the U.S. in April 1992, Stringer felt good about the progress of his project, but he was gloomy about the political situation in South Africa generally: "I had a deep belief that the whole country would blow up—that there would be all-out war—because I didn't see any way that DeKlerk could drag the entire parliament into accepting multiracial elections. But, Stringer says, as he took that fourteen-hour plane ride to Johannesburg two years later, he thought about how pleased he was to have been proved wrong.







































—MARCIA REECER

BALLOT PAPER

SAMPLE ONLY

Place your mark next to the party you choose.
 Khatshwa paha mofangiso oo o o kgechano.
 Nta luphawu ecaleni kwelicumbu lolikhetheko.
 Nda mfungho ecaleni ka vanda leni u ri Ntwalaka.
 Nya letshwa go lebaganu la laleko la gago.
 Tenta uphawu lakho eduze nahlangano oyikhetsho.

Place a mark next to the party you choose.
 Diris letshwa la gago go lebana la phashi yeo o o kgechano.
 Kha vha ite luwalyo phanda ha dzangano line vha khetha.
 Tenta uphawu lwakho ecaleni kwegato alo ulikhetsho.
 Dweba uphawu esikhaleni esiseduze kvenhlangano oyikhetsho.

PAN AFRICANIST CONGRESS OF AZANIA		PAC	
SPORTS ORGANISATION FOR COLLECTIVE CONTRIBUTIONS AND EQUAL RIGHTS		SOCCER	
THE KEEP IT STRAIGHT AND SIMPLE PARTY		KISS	
VRYHEIDSFREONT - FREEDOM FRONT		VF-FF	
WOMEN'S RIGHTS PEACE PARTY		WRPP	
WORKERS' LIST PARTY		WLP	
XIMOKO PROGRESSIVE PARTY		XPP	
AFRICA MUSLIM PARTY		AMP	
AFRICAN CHRISTIAN DEMOCRATIC PARTY		ACDP	
AFRICAN DEMOCRATIC MOVEMENT		ADM	
AFRICAN MODERATES CONGRESS PARTY		AMCP	
AFRICAN NATIONAL CONGRESS		ANC	
DEMOCRATIC PARTY - DEMOKRATIESE PARTY		DP	
DIKWANKWETLA PARTY OF SOUTH AFRICA		DPSA	
FEDERAL PARTY		FP	
LUSO - SOUTH AFRICAN PARTY		LUSAP	
MINORITY FRONT		MF	
NATIONAL PARTY - NASIONALE PARTY		NP	
INKATHA FREEDOM PARTY - IQEMBU LENKATHA YENKULULEKO		IFP	

Presented by the Voter Education Programme of the Independent Electoral Commission.

Ballots for the South African election featured pictures of party leaders along with names and party insignia so as to help voters identify choices.

about how a South African election should be run for a good deal longer than that. They obviously needed procedures that would encourage and allow the maximum number of people to vote and whose fairness would be obvious and easily seen by the voters. But they couldn't simply pick up election procedures from some established democracy. Their challenge was to devise procedures that would work for South Africa's particular situation.

I knew something about the problems they faced because I was attending a conference in South Africa on conducting and observing elections when the election was announced in April 1993. Some people who later became members of the IEC were participating in the conference. When we asked them how, for example, voting rolls could possibly be set up in such a short time, their answer was, "Why have them?" They already knew that getting full and accurate lists of voters would be an impossible task, and they would simply do without something that Americans consider an essential part of a fair and honest election.

The solution to the problem of verifying voters that the IEC came up with was to let people vote wherever they chose, provided they could identify themselves as South African citizens over eighteen years of age using one of several specified pieces of identification. I got to appreciate some of their other solutions as I observed Vereeniging's voting and counting stations (not "polling stations" because, as the IEC realized, this sounded too much like "police stations" for many Africans to be comfortable).

The voting process had been planned so that it was easy to monitor. Voters were admitted one at a time, and the only other people present in the voting station were voting officers, who were employed by the IEC, observers like ourselves and officials of the political parties represented on the ballot. The person in charge of the voting station was the "presiding officer," a community leader—a school principal, village headman or church deacon—who had been nominated by the community. As a voter entered, voting officers made sure he had one of the acceptable forms of ID. Then his hands were checked under ultraviolet light to see if there was any sign of the special paint with which peoples' hands were painted before they voted. If there was none, the voter's hands were painted and checked again. Then, a ballot was torn out of the ballot book, stamped and given to the voter, who went to a voting booth, marked it, and put it into a ballot box. If everything went without a hitch, the whole process took about one minute. The "transparency" here was more for the observers and party officials, who could easily see if anything dishonest was going on, than for the individual voters. However, the fact that the presiding officer was a respected local leader was designed to assure people that the voting was on the level and not being manipulated by powers in Pretoria.

The counting process was more complicated and laborious, and, frankly, it drove me crazy to watch. But it was here that the "transparency" was most striking. The



WEST END VIDEO

Foster Stringer in South Africa, finally: "I always knew I would come back."

boxes, which had been kept in the local jail between the time they were filled and sealed (another elaborate process), were brought to the counting places by the presiding officer of each voting place. First, all the boxes were examined to see that the seals were still intact. Then, the "reconciliation" process started. A counting place official came over, broke seals and dumped the ballots on the table. Enumerators unfolded them, face down, and counted them out: packets of twenty (paper clip); five packets (rubber band). After the total number of ballots in the box was entered on a form, the ballots and the form were returned to the box, which was sealed again.

Once all the boxes had been checked, the final counting process began. In the counting place where I observed, counting was carried out at stations of four facing tables. Enumerators at the first table separated the ballots into a pile for each political party. At the next two tables, the ballots were counted. And at the fourth, the results were tabulated. Then, the ballots were returned to the box with a sheet recording the count, and the box was sealed. At the end of the day, the counting official would turn over the boxes to the IEC, which was responsible for the final tally.

Watching the counting process and tallying in a counting place was the farthest thing imaginable from seeing the results of a U.S. election unfold on television. The counting station in Vereeniging had no electronic scoreboards that tallied the vote as it came in and projected the final results. Watching the process, box by box, you'd have no idea of the overall count. What you were aware of was the painstaking process in a room crowded with observers and monitors and the constant challenges—"I want to be able to count those ballots!" "So do I!"—often followed by recounts.

That was the genius of this election process. So many South Africans saw and touched the ballots and watched the process. People in the counting stations were living and dying with each ballot box: "Did you see the stack of ballots for ANC?" (or "for IFP?" or, with a sinking voice, "For the Freedom Front," an extreme right-wing party). In my station, at least two hundred people per shift watched or participated in the process. And this was happening in a thousand counting stations around the country.

We even had a judge come in at 3 A.M. to resolve a problem with one questionable ballot box. Every time a new ballot box was going to be opened, there would be a shout, the counting would stop at the other stations, and people would come over to watch and verify the process. It was slow and painful—but it was wonderful. Every box was treated as though it was the last, the decisive one. If a ballot fell on the floor, it was "Wait a minute! Stop!" And the counting officer or his deputy would come over, pick it up and hand it to an enumerator. It took about twenty-seven minutes to do a box with four hundred, and if numbers didn't match the original count, the enumerators had to start all over again.

No one was prepared for how long the counting process would take. It was supposed to be finished by Monday, the day I was scheduled to leave, and they were only halfway done. But I believed that whatever the final outcome, it would have been accepted by the people because *they* had done it. The IEC could have set up a high-tech process, with machines that tallied the votes electronically—I understand such machines had already been used in previous elections. This would have made the process a lot smoother and neater, but something crucial would have been lost if South Africans had just stepped up to a machine, pressed a couple of buttons, and consigned their choices to cyberspace. This election process allowed them to see and verify how democracy works and begin to feel some trust in it. And though the identity of the new president and other elected officials was of critical importance to the new multiracial government, the most important result of the election was, perhaps, the education in democracy it gave the people of South Africa.

I'll never see anything like the election in South Africa again. There is not another place on the planet with that kind of potential—where such an enormous percentage of the population are longing for the vote and have been denied it. Poland and Nicaragua and Chile now have democratic elections. The people in the Brazilian rain forest just wish we would let them alone. China? The idea of a free election in China just blows my mind! Now, there's another one I'd like to go to! □

A TEACHER AND HIS CREATURES

BY JOSEPH BERGER

RICHARD PLASS of Stuyvesant High School in Manhattan has never done research more sophisticated than raising guppies with his sons. Yet he has turned out 202 Westinghouse semifinalists, nurturing more successful research projects than probably any other teacher in the United States.

It is not a mastery of biology that accounts for this extraordinary record. Even his comments on papers that are being readied for the Westinghouse betray a lack of any exceptional expertise. "Go, go, go," says the spidery scrawl on the title page of one paper. "I couldn't find anything to critique," says another.

"The kids in Stuyvesant are beyond me," he confesses. "I'm a biology teacher, not a biologist."

Plass's secret is an age-old one. He simply loves teaching, loves working with kids. "I'm a plain old guy," he told me, as we spoke in his crowded cubby of an office in the winter of 1992 while he munched on an apple—his lunch for that day. "I like being with lots of kids, doing lots of different things. All a kid has to say is, 'I want to do research,' period. We don't ask them what their grades are, what their backgrounds are. You want to do it, you got it."

Plass is both an impassioned teacher and something of a salesman, a Willy Loman who pitches salvation through science projects on a smile and a shoeshine. The more customers he can win over, the merrier he is. While other teachers will take a handful of projects or even a dozen, Plass will take sixty, seventy, eighty. He can't say no, and whenever a student will come asking to do a project he will agree to play the angel, no matter how late in the



game. Then, once the projects get off the ground, Plass makes himself available to a seemingly inexhaustible stream of students who come knocking at his office door, asking factual questions, requesting the use of his phone, offering him drafts to read, pleading that he intervene with a parent upset over late nights at the lab.

In a selective school like Stuyvesant—9,445 students took an admission test for 501 places in the September 1993 freshman class—Plass's obsession can translate into a trove of prizes. And Plass is not the only ardent promoter of science research at Stuyvesant. Arnold Bellush and Albert Tarendash in the physical sciences and Richard Rothenberg in mathematics,

along with an inspirational principal, Abraham Baumel, all help explain why Stuyvesant had four of the nation's forty winners in the 1992 Westinghouse and similar showings in many of the years prior.

PLASS IS a gray-haired man of forty-eight with glasses, a small Chaplinesque mustache, and a physique that shows no evidence of exercise. He is homespun enough to have chosen Queens College for a graduate degree so he could have dinner with his mother. He talks in a rapid-fire staccato that allows his listeners few opportunities for distraction. Describing him as busy is like describing Everest as tall.

Plass is not only a biology teacher, an assistant principal who chairs the biology department, a shepherd of three dozen or more Westinghouse submissions in any given year, but also periodically an executive of the New York City Biology Teachers Association. And he runs a summer camp for gifted students on Long Island, heads a summer research program for high school students in Pennsylvania, runs a business that sends American teachers to study and live in Russia, is a vice president of the Long Island University Alumni Association, and is the father of two sons. And in his spare time he just completed a doctorate in educational administration and supervision at St. John's University. His thesis: the role of

Joseph Berger, who for six years reported on education for The New York Times, is now that paper's bureau chief for Westchester County, N. Y. This article is reprinted from The Young Scientists: America's Future and the Winning of the Westinghouse by Joseph Berger. Copyright ©1994 by Joseph Berger. By permission of Addison-Wesley Publishing Company.

the department chairman as the functional leader in a school.

He is thus an uncommon role model for students who seem to thrive on work the way normal human beings thrive on oxygen. His example as a maelstrom of energy may partially explain why students such as Valerie Liu, a 1992 Westinghouse winner, have interests ranging from ice skating to piano playing and do them all so well.

"Powerful people do lots and lots of things," Plass says.

Plass's assignment to Stuyvesant is no small factor in his achievement. The school has the cream of New York City's 270,000 public high school students; many educators contend that its student body is now superior to that of Bronx Science. That may be because Stuyvesant, in lower Manhattan, is more accessible to students in Brooklyn and Queens than Bronx Science, on the northern edge of the Bronx. The Bronx, poorer and more run-down than it was twenty years ago, with far more poor blacks and Hispanic immigrants, does not have the wealth of academically minded students it once had. Of course, Stuyvesant has had its own shortcomings. Until recently, when it acquired a new building in Manhattan's Battery Park City, Stuyvesant was housed in a modern Victorian fortress that had only one working biology laboratory. Its oak desks and storage cabinets were an antique collector's dream, but it had no sophisticated equipment of any kind other than a dusty autoclave for sterilizing test tubes and an aged incubator that was used mostly for warming bagels.

But what Stuyvesant has always had is its proximity to two dozen of the nation's finest scientific and medical research centers and access to a subway system that can easily transport students to those labs daily.

"Think of kids from L.A. going from School A to Lab B," principal Baumel said. "It's impossible within one day."

More important, Stuyvesant has an ambiance that treasures academic prowess. John Abraham, a 1992 winner, says the "mentality at other schools is to do average." At Stuyvesant, 60 percent of the students have more than a 90 academic average.

"At other schools you get classified as a geek or a nerd," said Zachary Gozali, a 1992 winner who transferred from private and prestigious Fieldston School to attend Stuyvesant. "Stuyvesant saved my life. It turned me into what I am today."

STILL, UNTIL Plass came, Stuyvesant was a perennial silver medalist in the Westinghouse to Bronx Science's gold. Plass gave Stuyvesant a shot in the arm: He imported an award-winning system from another New York public high school, Grover Cleveland High School in Queens, where as a science teacher he had also churned out Westinghouse semifinalists. The simple secret of the system is immersion of students in research at a tender age. And the form it takes is a gimmick called "Creature Features."

Seventy students in two classes of freshman research biology take four periods of research lab a week in addition to the normal complement of six classes of biology (two of which also bring students into a lab). Creature Features gives them some experiments to play with through the beginning of the year and some ideas for the year's dominant project.

Plass's objective is to show students how simple, inventive, and serendipitous research can be. Students start the year tinkering with a number of "creatures" from a list he has compiled of harmless and easily cultivated living things: paramecia, brine shrimp, the cyclops crustaceans, drosophila (fruit flies), *Tenebrio molitor* (meal worms), planaria (flat worms), slime molds, the easily observable red bacteria known as *Serratia marcescens*, beans, and pixie tomatoes. Students learn about these organisms and their life cycles, they watch the creatures grow and, in some cases, metamorphosize, and they perform some simple experiments. Then toward the middle of the year they pick a feature whose effects on the organism they will test. The feature can be a substance such as vitamin C, vitamin B₁₂, saccharin, caffeine, sugar, amino acids, aspirin, mono-sodium glutamate, acetaminophen, or antibiotics. Or it can be a physical phenomenon such as temperature, light, ultraviolet radiation, magnetism, spin, pH, or electricity. The students design an experiment testing the effect of almost any substance or physical phenomenon on the list on almost any of the organisms. In principle, it's no more difficult than mix and match, as this list of projects indicates:

- The Effect of Insecticide on the Reproduction Rate of Cyclops
- The Effect of Acid Rain on the Reproduction of *Paramecium bursaria*
- The Effect of Iodine on the Metamorphosis of the *Drosophila melanogaster*
- The Effects of Caffeine on the *Tenebrio molitor*
- The Effect of Saccharin on *Paramecium bursaria*
- The Effect of Penicillin on *Drosophila melanogaster*
- The Effect of Ultraviolet Light on the Growth of the Slime Mold

Over the years, Plass has determined which experiments will produce engaging results. That is why he likes the red bacteria *Serratia marcescens*. "Because it's red, you can follow it and see what it does," he said. "It turns white if you do this to it. It turns pink if you do that to it. It turns redder if you do that to it. You could put in a chemical. You put it into hot or cold. Anything you want to it. And it does something when you do something to it. So it's a nice tool for experimentation."

Fairly soon, the students in the research class are working on lengthy and distinctive experiments, studies in genetics or bacteriology for which regular biology students simply do not have time. Students must follow classic scientific form. There has to be a control group and a well-formed hypothesis. "We don't just want to throw in a chemical in a shotgun approach and see what can happen," he said. "You need to have a rationale. Because scientists have a rationale for what they do. They don't just do experiments. There are reasons why they do experiments."

The students do not work on their experiments entirely in isolation. The program Plass has designed and that other teachers also endorse immerses students in com-



mittees—paramecia committees, drosophila committees, psychology committees—where students trade their laboratory experiences.

All of this Plass does with a cheery enthusiasm that might fatigue more tranquil temperaments. Plass has a deep, if visceral, understanding of the allure and pleasures of research. In a booklet, predictably called "Creature Features," that he published in 1980 that has been bought by science teachers around the country, he offers one of the most succinct descriptions of why research classes and programs such as the Westinghouse are so seductive to students:

You will find variations in reproductive patterns, mutations, growth, and many times life and death itself. You will witness binary fission, color changes, bursting cell membranes, conjugations, mitosis, ameboid movement, colony formation, root hair growth, mating fruit flies, two-headed worms, size and shape abnormalities, metamorphosis, antibiosis, and other serendipities beyond your imagination.

You will learn how to make solutions; culture and feed many diverse creatures; use dozens of laboratory devices; do statistical analysis; gain access to large research libraries; write to and speak to famous research scientists; attend meetings and lectures at colleges; organize term papers; and present yourself and your project to peers and adults.

You will be the mother and father to organisms that might depend upon you and only you for their very lives. That is an awesome responsibility even though they might be very small and not very consequential in the greater scheme of things.

You will learn about yourself and your ability to do independent work out of the classroom. You will get sudden flashes of insight, invent shortcuts, design new techniques, and most exciting of all, perhaps be the only person in the entire world to ever observe some peculiar event happening on your microscope slide. This always happens, by the way, when the lab is empty and there is no one about to share the experience with. It will be the most brilliant, self-satisfying, and mature experience that will ever happen to you. You will walk through your school proud of yourself, with a secret you cannot explain to "ordinary" students because you are not sure they could really understand or appreciate the extraordinary concentration, dedication, and determination you have undergone.

Your students' science research instructor, though, will break out into a gigantic Cheshire cat grin, and simply say, "Where do we go from here?"

Following Plass's blueprint, students finish off the second term by composing a report on their experiments, complete with an abstract, a review of the prior literature, a hypothesis, results, graphs and photographs, and conclusions. Students also give oral presentations of five to six minutes, combined with a graphic or a slide show. These techniques prepare students for the presentations they will have to make in the Westinghouse and, for those contemplating professional careers, at scientific conferences.

Because psychology experiments have become increasingly popular at science fairs—and with the Westinghouse—Plass also has students in the spring work on a host of experiments involving relatively simple matters such as facial expressions, eye contact, and word memorization.

The sophomore year offers a similar honors research program in chemistry. Then in the junior year, students choose a "Junior Research Class," sometimes called the Westinghouse class, which pairs them with professional scientists in working laboratories. Plass offers a class in biology, and there are also junior research classes in physics and chemistry, mathematics and psychology. Not surprisingly, there is a lively competition by teachers for the best students.

AS AT Bronx Science, students under Plass's guidance are asked, as a test of their maturity, to find their own mentors in the host of hospitals and universities with which New York City is blessed—at labs in Mt. Sinai Medical Center, Sloan Kettering Institute for Cancer Research, Cornell Medical Center, New York University Medical Center, Rockefeller University, Beth Israel Medical Center, the Public Health Research Institute, St. John's University, and others. Plass advises the students only on how to start the process rolling, how to dress for the initial interview, how to bypass a departmental secretary. (The solution to the last challenge: Call the school's graduate admission office and, without explicitly posing as an applicant, ask for names and personal telephone numbers of professors working in an area of interest.) The name Stuyvesant opens up a lot of doors, and many institutions welcome the chance to cultivate future scientists who may end up one day coming to work for them. A recent Rockefeller University publication contained a feature on the high school students it guided that was entitled "Combatting the Scientific Brain Drain," and offered this rationale for the program:

Attracting the best and the brightest youngsters into careers in science has become a priority for the nation, faced with declining numbers of scientists graduating from our universities. It is also a concern for many universities, confronted by rising numbers of faculty vacancies created by retirements and the "brain drain" of scientists flocking to more lucrative industry jobs.

Some schools in New York, however, are notorious for not welcoming high school students, and Plass discourages students from even knocking on their doors. "The reputation of the school is dependent on how they treat people who walk into it," he says. "If you don't treat someone nice when they walk in, then they walk out saying that place is not nice.... Kids are wonderful that way. Kids read your face as you mechanically move your lips and read every emotion you have as an adult. If you give them a crinkly eye or a sigh, they know you're in trouble. I have moods. And the kids, since they know me so well they can tell when I'm uptight or busy in my head or something's bothering me ... so when they walk into a university, they know if they're not being treated nicely."

Plass will break his rule and make a connection for those who after six weeks fail to hook up with a laboratory. He has compiled a notebook of personal telephone

extensions of helpful professors, just in case. He also tries to make sure students end up working on topics they enjoy, not just ones for which a researcher is available. He urges students to focus on a broad topic area that engages them—genetics, AIDS, molecular chemistry—and tells them to leave the narrow research topic to the mentor. “I don’t want someone to do chemistry for two years and not like chemistry,” he says.

The junior research classes are open to anyone, even students who were not trained in research as freshmen. “I take on as many kids as I can handle,” Plass says. “Sometimes it gets overwhelming. But I can’t say no to a kid. I feel it has to be done.”

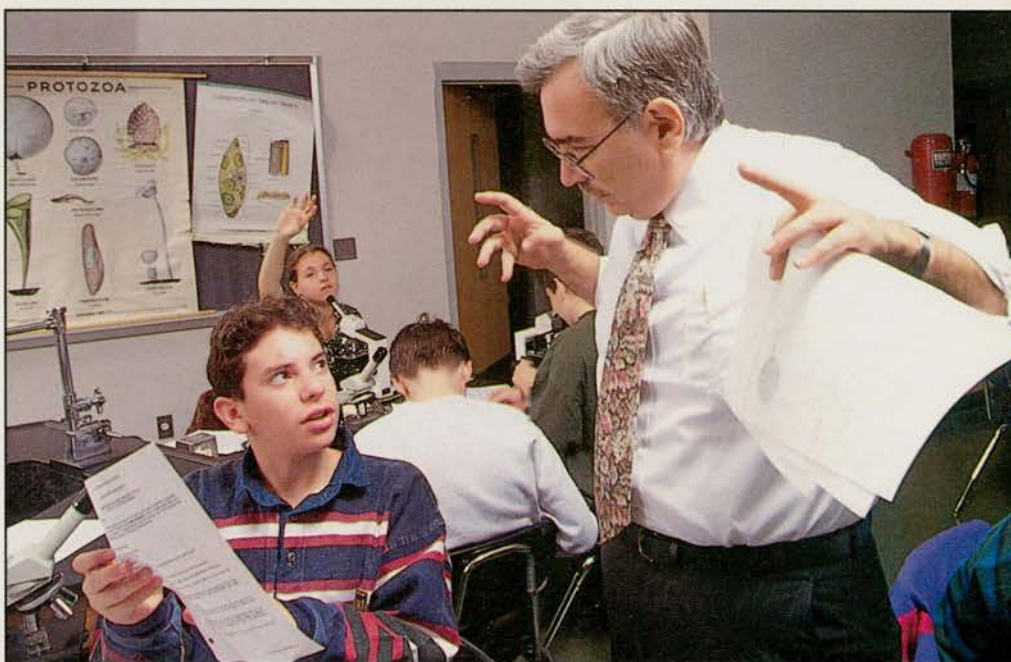
In 1992, Plass started out with sixty students, but the publicity about the four Stuyvesant winners led thirty more students to plead with him to take them on as well. And he did. He cannot say no, particularly to those who started with him in freshman biology, the ones he calls his “babies.” He also handles an additional sixty seniors who are finishing up their Westinghouses and writing papers. And he continues to teach a single section of research biology. “I need to be with children in a classroom setting,” he said. “That’s my personal need to be a teacher.” His total load, he says, is typical of teachers like Bellush, Rothenberg, and Tarendash. All, Plass says, are regularly at school by 7 A.M.

The junior research class meets formally only once a week, as a seminar. But soon students are spending roughly six hours a week at hospital and university laboratories. Plass makes it seem that the secret to Stuyvesant’s success is really the much-maligned New York City subway.

“We’re in a unique situation,” Plass said. “A kid in Huntington [on Long Island] who wants to go out to Brookhaven [National Laboratory] or Cold Spring Harbor [the famed genetics laboratory] or Adelphi or Hofstra—you can’t get there without a car, without someone in the afternoon driving.”

FOR FOUR periods a week, Plass sits in his office waiting for students to ask him questions. “And they show up,” he said, a statement proven by the dozen or so students who knock at his door during our two-hour interview. “They come in, use the phone, call the professor, read my paper, *do-da-da-da*, all day long.”

Plass tells his students at the start that no one can fail, but if they want a grade in the course, they must submit not only a final Westinghouse paper, but a progress report in the fall and a more thorough one in the spring, which he will read during the summer and mail back. Three-quarters of the students who start the program in September will start work toward their Westinghouse paper by January. Others manage to start as late as the spring, but about an eighth, he says, “realize they can’t do it.”



“They must spend two or three days after school, that’s six hours a week. That keeps them away from their homework. If they’re at Mt. Sinai [in upper Manhattan] and they live in Queens, it’s tough. They get home in the dark, late at night. They can’t join some of the clubs. They’re really dedicating a lot of time and effort on one project.”

Those who persist into the senior year spend one afternoon a week after school meeting with Plass and honing the paper. “I don’t teach kids how to do research,” he says. “I teach them how to write a paper. I’m as anal as I could possibly be on paper writing. I want an absolutely perfect paper.” While he may not fully comprehend the arcane area under investigation, he can, he says, “speak the language.”

“I can tell by looking at the *gestalt* if a kid is heading in the right direction,” he says.

Along the way he gets to know the students “very, very personally. It would be rare that I didn’t know a kid and their parents and what they do and their parents do. This kid Jerry brings me Chinese food ’cause his father owns a restaurant in Long Island. This girl Wendy lives on Staten Island and travels for an hour by ferryboat. I just get to know the kids. I’m here at 6:30 in the morning.”

While the Westinghouse competition is intimately woven into the fabric of the Stuyvesant research program—the warp to its woof—the program’s purpose is not to win Westinghouses. Plass speaks with great fervor about why more of America’s high schools must start programs like the research classes at Stuyvesant. “These kids are learning how to work at a world-class facility,” Plass says. “These are scientists. These are kids who want science as a career. Chalk-and-talk is no good. Go out and do what science is. Science is doing things in an experimental form. We can’t do that here. So we put them out there to do it instead. They are learning how to be a young adult. Being mature, being responsible, dealing with brilliant adults. Keeping things alive. Using thousands of dollars of equipment and being responsible for that. Learning library skills. Writing skills. Kids whose goal is to be a scientist, they’re writing scientific papers

right now, at seventeen years old. They have a skill built in as an ability that you'd have to wait until graduate school to be taught."

Still, Plass says, it's important for students to enter contests like the Westinghouse because competition is an inherent part of science. Scientists compete for publication in academic journals, Plass points out. "They don't get published, they might lose a job, they might not get promoted, they might not get recognition, they won't have a following either in the literature or in the university. Those things are hard for scientists to have, very very difficult in any financial climate. So these kids are entering their papers in contests, looking for recognition themselves."

IF PLASS intuitively appreciates the desire of New York City children for recognition, for something that will distinguish them from the swarms of other urbanized children around them, it is perhaps because he lived a rather unremarkable New York City childhood. Plass was born in 1944 in the southeast Bronx, a few blocks from the Hunts Point market. His father was a quality-control engineer in the electrical industry, and his mother an administrator at Metropolitan Life Insurance. When he was eight years old, Plass and his family moved to the then-somewhat more rustic spaces of Flushing, settling into the Electchester Houses in Queens, a high-rise development sponsored by the electrical unions. Young Plass went to the public schools there.

Although he passed the test for Brooklyn Technical High School, one of the three selective science-oriented public high schools in New York City, he decided to attend Jamaica High School in his Queens neighborhood.

"I had a girlfriend whom I met at Campbell Junior High School who was also interested in science and we became very fast friends and leaving her was a situation that even as a ninth-grader I could not tolerate. And that's what happened. I didn't go to Tech. I went to Jamaica. Then that year Jamaica was very crowded and they split the boys off from the girls and put us in Thomas Edison High School for a year. So I didn't get to see her at all. We met like on a bus. That's cruel and unusual punishment to do to a boy who made Brooklyn Tech. We dated for a long, long time. We didn't marry, but we dated for seven years or so. We went to college and I met my wife on the boardwalk at Rockaway one summer. We fell in love, and we've been married twenty-six years, but that's a whole other story."

His wife, Mickey, is a math teacher at Louis Armstrong Intermediate School, also known as I.S. 227, a school in Queens under the direct jurisdiction of the citywide schools chancellor rather than one of the thirty-two community school boards, and one where teachers receive training from professors at Queens College. "A lot of her students wind up coming to me," Plass says. "We went to a dermatologist a few weeks ago on Bell Boulevard.



There's a young lady behind the nursing tables and she says, 'Hi, Mr. and Mrs. Plass.' The girl, Mindy, had my wife for math and me for bio here." The Plasses have two sons: David, a graduate of MIT, who in 1993, at age twenty-four, was a computer science engineer; and Robert, who at twenty-two was studying for two doctorates at the New York College of Optometry.

Plass knew in the eighth grade at Junior High School 219 that he wanted to be a teacher. "I had a couple of really truly inspiring science teachers," he said. "They were wonderful, warm, time-giving teachers that were role models for me. I wanted to be a person like that. I wanted to be a teacher. So it was easy for me. Once you know you want to be a teacher, that's your goal and you don't have to worry about other things that bother you in life. I never changed my mind. I never regretted it, not a day of it."

After graduating from Long Island University's Brooklyn campus and receiving a master's degree in science education at City College—his wife was there getting her degree—he found a job in 1966 at Grover Cleveland High School. He taught at the school, which is in a working-class section of Queens known as Ridgewood, for sixteen years. For most of that time his was more the career of a restless pedagogue than a man destined to be a mentor of scientists. He taught chemistry for nine years, biology for four years, and worked as the school's dean for discipline, supervising the teachers patrolling the halls between classes and tracking and penalizing students who cut classes. "I get bored real quick doing things for a long time," he says.

He was even asked to coordinate the program for gifted students. "'Your job,'" he remembers principal Myron Liebrader telling him, "'is to prevent kids from going to Stuyvesant High School.' And I did that for a long time."

In 1976, a new biology chairman came in with some experience in teaching research, and he and Plass discussed the idea of starting an honors biology program for

ninth- and tenth-graders where students would get double periods of science to work on laboratory experiments. "The rationale was the school had some gifted kids whose parents didn't want them to travel outside the Ridgewood area to Manhattan, and we were losing kids to parochial schools," Plass said. The principal leapt at the idea as a way of getting the school some limelight.

"You could enter kids into poetry contests, no one cares," Plass says. "A speech contest, no one cares. But put them in a science fair, people like it. The *New York Times* shows up. I don't know why that is. But if you're doing science you're doing the top stuff. It may not be true but everyone perceives it that way."

Plass carefully selected the best junior high school students entering Grover Cleveland and assembled a group of comparatively easy experiments they could start on. Later, students began working on their own experiments—all inside the school's labs. One year, he asked the seniors to write papers on how they went about doing research in their particular areas. Using some of their ideas and experiments, he composed "Creature Features" over a summer. He also started an in-school science fair that got students' competitive feet wet. Once the research freshmen moved into the senior year, they began entering the Westinghouse. In his last four years at Cleveland, Plass's fledgling research program produced twenty Westinghouse semifinalists and a finalist.

PLASS'S IMPACT at Grover Cleveland was sweetly captured in a letter he received in 1990 from Joanne Neglia, a student of his between 1979 and 1982 who had read a wire-service article about him, complete with a photograph, in the *Orlando Sentinel* in Florida. At Cleveland, she had done a project on the impact of acid rain on euglena, a green protozoan with a characteristic red pigment spot. It qualified her as a semifinalist. She was now, she told him in her letter, an assistant to the manager of a Paine Webber branch in Orlando and was working on a novel. She enclosed a wedding picture of herself and her husband in the back seat of a limousine.

"Who would ever think that this Sunday's *Orlando Sentinel* would have an article that would take me back to the fondest memories of high school?" she wrote. "Mr. Plass, Westinghouse, our research papers and all of it. (By the way, you look wonderful.) I'm glad to see you're still inspiring others! Since students are too young to realize this, I'll tell you nine years later: Thank you for making us compete, thank you for all the extra hours we needed to spend in the lab. It taught me that nothing is impossible, that we're all creative and commitment + sacrifice = productive successful results!"

Although he revolutionized Cleveland's science program, the restless Plass says he realized he "wasn't doing enough for kids" as a plain teacher and so got a two-year degree in administration at night at Queens College, which then cost only \$75 a credit. Armed with the administration degree, he looked around for a job as an assistant principal. There just happened to be a rare opening at Stuyvesant, and Plass had the right credentials.

"I got real lucky, quite frankly, when this came up," he said. "I was the right age, and the right experience and the right time and the right background and the right publications."

He was hired by then-principal Gaspar Fabricante,

specifically to invigorate the school's effort in research. "I was charged to do that. 'When you come here, I want you to start a research program. I want to see awards. I want to see recognition.' He told me that privately and personally in his office after I was appointed here. Bronx Science was flying, and we were doing nothing here. So when I got that charge it was wonderful. I was like a pig in mud."

He began the biology research program with eleven kids in 1982. Now he is up to ninety, and the whole school has caught research fever. In the 1992 Westinghouse competition, Stuyvesant's students submitted 170 entries, a figure that was sure to net some winners. Indeed, twenty-nine semifinalists and four winners were caught. (That was not as good as 1991, when Stuyvesant had six winners, but it proved better than 1993, when Stuyvesant's trove was to dip to two.) As a result, the school's fame has spread far beyond the city. Mikhail Leyb Sunitzky, who as a recent immigrant from Russia was a 1992 winner for a mathematics project, recalled that his mother heard about Stuyvesant in the Soviet Union. She made sure her son applied for Stuyvesant as soon as they reached these shores. Once ensconced in Stuyvesant in 1991, Mikhail led a U.S. team competing in the International Olympiad in Mathematics in Sweden. It turned out to be something of a reunion for him. "Most of the people on the Soviet team were my old friends," he said.

Such tales, and the yearly tide of students lapping at Stuyvesant's shores, have made Baumel, the school's principal, and teachers at the school against-the-grain optimists about the future of science in America. Baumel feels that the United States is still preeminent in science research. That is why students from across the world still come here to do research, he says. America has an open system that prizes intellectual inquiry and confrontation while systems such as Japan's tend to be more rigid and narrow. Baumel caps his argument by pointing out that much-vaunted Japan has won only a handful of Nobel's. Yet he and some teachers also despair that Americans still prize football heroics over scientific strides. "The United States has been very uncomfortable with intellectual achievement," said Albert Tarendash, a physics teacher who is a Stuyvesant graduate himself. "People are coming to the realization that it's a necessity to have this kind of school."

Plass has no time for this debate. Like a beaver setting up a home for his young, he keeps piling up logs and branches and twigs so his students, his babies, can do their scientific projects. He works every spare moment at school tracking the progress of each project on a computer disk, then moves his disk to an identical computer at home and works every spare moment there. His triumphs are mostly vicarious ones. "These kids are doing biology with me as if I was with them in the lab," he says. But he savors it nonetheless. "It's a lot of time and a lot of patience. A lot of things happening at the same time. I like a lot of things happening at the same time. I'm a kid myself."

"This is the best job in the country," he says. "I'm really doing what I want to do. They always say that in a teacher's lifetime if you reach one kid, that's good. That's baloney. I want to reach hundreds and hundreds of kids. I've got hundreds and hundreds of the best kids in the country." □

LETTERS

(Continued from page 8)

teenage pregnancy and STD's, not to mention the emotional distress that comes from premature sexual contact.

Lickona is correct in saying that the emotional dimension of sex is what makes it distinctively human. In school health education courses, sometimes we treat students as though sexual encounter at their age is inevitable. If we are to educate for health and responsibility, then we should teach students to abstain until they are ready for a life-long commitment to a partner and to what may come—a baby.

—SUSAN TAI
SAN FRANCISCO

TEACHING ANCIENT HISTORY

Frank Yurco's statement that racial terms like black and white are "chimera—cultural baggage from our own society that can only be imposed artificially on ancient Egyptian society" sidesteps the issue that Egyptology, from its inception, has been steeped in that same cultural

baggage. Where were the mainstream condemnations of curricula that asserted the ancient Egyptians were white or Hamites? Now that African Americans present evidence that dynastic Egypt was predominantly black, Yurco, the AFT, and company declare war, insisting that attempts to force Egyptians into a "black" category have no biological justification.

In this semantic sleight of hand, critics of Afrocentrism accept a definition of black as applied to African Americans that includes a wide range of physical types, but use totally different criteria of classification for Egyptians. Choosing terms like "multicultural," "multiracial," and "mixed" merely obscures the point. We must deal with the hypocrisy and inconsistency in how the label "black" is applied. Then, we can discuss the rest of the Portland Baseline Essays and other Afrocentric curricula.

—SANDRA-AYANA MADDEN
LOS ANGELES, CA

As always, I enjoyed reading *American Educator*. In the Spring 1994 issue I read an article on a subject that

is very important for teachers today. The article was Frank J. Yurco's "How To Teach Ancient History: A Multicultural Model." I agree that teacher education programs do not give student teachers enough current information on other cultures. As a college senior, I know this firsthand. I hope that all teachers, old and new, take the time to examine their history curricula. They could determine if they have fallen victim to this lack of information. I was also very glad that Yurco offered ideas on how to supplement these curricula, which may be failing. Yurco's article encouraged me to keep going and not be discouraged by thinking I would not be prepared with information to fully inform my students.

—ROB NOSBUSH

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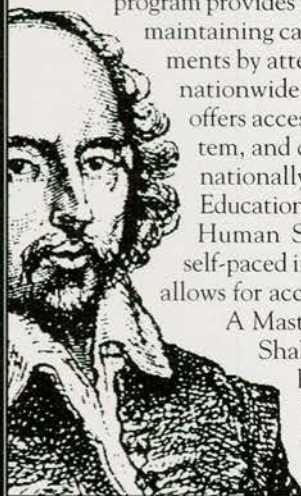
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