

Teaching in New Haven:

The Common Challenge

**A Report of the
Yale-New Haven
Teachers
Institute**



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New Haven, 1991

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Preface

James R. Vivian

In 1982 Fred M. Hechinger wrote his first of several columns in *The New York Times* on the Yale-New Haven Teachers Institute. He described the Institute's establishment in 1978 as signaling a "reversal of the twenty-year breach between universities and schools."¹ The next year the late Yale President A. Bartlett Giamatti and Ernest L. Boyer, President of the Carnegie Foundation for the Advancement of Teaching, convened a national conference of Chief State School Officers and college and university presidents, which the Institute organized at Yale. At the meeting, attended by representatives of thirty-eight states, the Institute was presented as an example of how universities can and must assist in strengthening teaching in the nation's schools. In 1986, when the Institute held a conference on "Strengthening Teaching Through Collaboration," Mr. Hechinger said that "the list of participants in the conference showed collaboration's rapid spread."² In 1990 he wrote in *The New York Times* that the endowment of the Yale-New Haven Teachers Institute—the result of a highly creative \$2 million challenge grant by the DeWitt Wallace-Reader's Digest Fund, which made the Institute the first collaborative program of its type to be permanently established—marked the beginning of a "new era" in university-school relationships.³

During the 1980s there was, as Mr. Hechinger's columns indicate, a gratifying amount of attention to the Institute's work in New Haven and to the growing movement for university-school collaboration, as well as the opportunity for the Institute to assist other universities and schools in the development of similar programs. Representatives of the Institute were often asked to explain how school teachers could take from an Institute seminar with a Yale faculty member something practical to use in their own classrooms. The purpose of the present volume, then, is to provide concrete examples of how several teachers of diverse subjects and grade levels have used Institute seminars to develop materials for their own teaching.

Background

In 1980 two national panels issued their findings on the state of student learning in the humanities and the sciences: a joint National Science Foundation Department of Education study spoke of “a trend toward virtual scientific and technological illiteracy” and the Commission on the Humanities concluded that “a dramatic improvement in the quality of education in our elementary and secondary schools is the highest educational priority in the 1980s.”⁴ The commission called for curricula to teach children to read well, to write clearly, and to think critically. They also found that “the need to interrelate the humanities, social sciences, science and technology has probably never been greater than today.”⁵ These national problems in public education, further described in scores of subsequent studies and reports, are of concern to Yale as to universities generally, and Yale’s reasons for becoming involved in seeking solutions therefore transcended its sense of responsibility to the New Haven community. As President Giamatti pointed out in an interview on the David Susskind television program on December 7, 1980, “it is profoundly in our self-interest to have coherent, well-taught, well-thought-out curricula” in our local schools and in secondary schools throughout the country.

Yale had acted on such a view as early as 1970, when the History Department began the History Education Project (HEP), which assisted a number of New Haven social studies teachers in developing improved curricula for courses in American history, world area studies, and urban studies. Although involving fewer than twenty teachers each year, the History Education Project enjoyed a good reputation among school teachers and with the administrations of the University and the Schools. In 1977 the Secretary of the University, Henry Chauncey, Jr., then responsible for Yale’s community relations, called HEP “the most solid, the most vital” educational link between Yale and New Haven. It provided, in fact, one of the few occasions for the University and School administrations to meet about a joint endeavor. HEP had been undertaken with a grant from the American Historical Association (AHA), which until 1973 funded a number of such projects across the country. The New Haven project was later continued with local and state support; and by 1977 it was the only project the AHA had helped to establish that was still in existence, its \$10,000 annual budget provided in equal shares by the University, the Schools, and New Haven’s community foundation. There was, thus, an eight-year record of a well-regarded relationship among university faculty members and school teachers to which both institutions had a financial commitment, albeit small.

Perhaps most important, the participating school teachers and members of the Yale History Department had discovered what they stood to gain from working with each other. They became the nucleus of the groups that planned the present Institute. They were persuasive, within the University and the Schools, in enlisting administrative support. They also solicited the interest of their colleagues in their own and other University and School departments. Because of their previous collaborative experience and their standing in their respective institutions, they were able to convince their administrations and their teaching colleagues that such an undertaking would be worthwhile and mutually advantageous.

History

In these ways the success of HEP created favorable conditions for planning a more ambitious and demanding program that would include additional disciplines. For the administrations of Yale and the Schools, the earliest discussions in 1977 focused on which of the Schools' many needs might be most usefully addressed by the University's resources. In what areas did the Schools have significant needs and the University complementary strengths? What was central enough to the mission of both institutions to enable us to construct a real partnership of allies in league to improve our community's public schools? Which problems of the Schools were recurring, and which University resources enduring, so that the program might be of benefit to the Schools over the longer term? These questions were addressed at a time of enormous pressures on the budgets of Yale, the City, and the Schools. Even in better times, financial resources would never fully match our ambition to construct a highly productive partnership. The overriding question was how we might together apply limited resources in an intensive way where the need was greatest.

We explored these questions in the context of developing a proposal to the National Endowment for the Humanities (NEH) to expand the history project, to include additional disciplines in the humanities, to increase the number of teachers involved, and to make the new program more rigorous. Since 1978 the NEH has provided indispensable support for the Institute. The development of proposals to the NEH and others, in fact, has demonstrated that proposal writing itself has certain beneficial results: it establishes a need to clarify and obtain agreement on objectives, and it imposes a deadline for making decisions.

Teachers and administrators from the University and the Schools soon reached a consensus: the relationship between the University and the Schools must be both

prominent and permanent within any viable larger relationship between Yale and New Haven, and of the many ways Yale might aid New Haven none is more natural than a program that shares Yale's educational resources with the Schools. Because student needs change, scholarship develops, and new educational policies are established by the school system and each level of government, school curricula undergo frequent revision and teachers are reassigned to teach subjects they have not taught recently, or ever before. Because of Yale's strength in the academic disciplines, all agreed that the University could most readily aid the Schools by assisting in the further preparation of curricula and teachers in the subjects they teach, and by helping teachers to keep abreast of new developments in their fields.

Our intent was therefore not to create new resources at Yale; rather, it was to expand and institutionalize the work of University faculty members with their colleagues in the Schools. Even at this early stage, both Yale and the Schools sought a course of action that might have a substantial impact. The Superintendent of Schools, Gerald N. Tirozzi, and the Board of Education asked that the expansion of the program begin with the addition of seminars in English, the subject in which they saw the greatest need. The objective was eventually to involve as many teachers as possible and to include a range of subjects that would span the humanities and the sciences, so that the program might address school curricula, and thus students' education, broadly.

In 1978, then, the Yale-New Haven Teachers Institute was established as a joint program of Yale University and the New Haven Public Schools, designed to strengthen teaching and thereby to improve student learning in the humanities and the sciences in our community's middle and high schools. That year, the President of Yale, the Superintendent of Schools, the Mayor of New Haven, and the Institute Director held a news conference on the program. This was the first news conference held by a Yale President and a New Haven Mayor in over a decade, and the only one in memory that concerned public education in New Haven. At that time Mayor Frank Logue commented that the Institute represents "a combined activity that is in the mainstream of both our enterprises," not something made "out of whole cloth."

Since 1978 the Institute has benefited from a time of unusual harmony and good will between the University and the Public Schools and the City administration. Moreover, because it was founded well before the widespread public attention that since 1983 has been paid to our nation's public schools, it was not subjected to intense scrutiny before it could begin to have sound evidence of the results of its program. Indeed, our problem in the earliest years was in obtaining any public recognition at all for teachers' work in the Institute.

In September 1986, the new President of Yale, the new Mayor of New Haven, the new Superintendent of Schools, and the Institute Director held a news conference to accept the Teachers Institute's third grant from the National Endowment for the Humanities. The announcement provided an occasion, similar to the news conference in 1978, for President Benno C. Schmidt, Jr., three days after his inaugural, to hold his first news conference together with Mayor Biagio DiLieto and Superintendent of Schools Dr. John Dow, Jr. Mayor DiLieto said then the Institute "is an excellent illustration of the kind of cooperation that exists between the City administration and Yale University, and it speaks well for our efforts to maintain that relationship at a very high level." Superintendent Dow said that "the improvement of our school system can be directly related to the kind of involvement that we have here." President Schmidt said that "among the many ways in which Yale University seeks to be a good and active citizen of New Haven, the Yale-New Haven Teachers Institute is one of our great successes."

These are among the reasons why Yale announced in 1990 a plan to build an adequate endowment for the Yale-New Haven Teachers Institute. By endowing the Institute, we want to transform it into a permanent and central function of a university which is committed to collaborating with school teachers and to strengthening teaching and learning in local schools and in schools across the country. We also want to affirm that Yale believes that such collaboration is directly in its own self-interest. We hope that this may be influential with other institutions and schools. At a time when universities across the country need to be more deeply involved in strengthening teaching in schools, endowing the Institute demonstrates one way for a faculty of arts and sciences to contribute effectively to teachers' continuing education. We therefore intend to encourage the permanent establishment of similar institutes at other colleges and universities across the country.

Since its founding in 1978 the Teachers Institute has become by far the most comprehensive, intensive, and sustained collaboration of Yale faculty members with public school teachers. Between 1978 and 1991 the Institute has offered 88 different seminars in the arts and humanities, the social sciences, mathematics, and the physical and life sciences. Seventy-three Yale faculty members have given Institute talks and led one or more seminars. More than 300 individual school teachers have completed the program successfully from one to fourteen times. Through the program, Fellows have developed 708 individual curriculum units which are taught widely in school courses.

The Annual Program

Teachers play a leading role in determining how the Institute can help them meet the needs of all their students, not only those who later will enter college. Each year as many as eighty New Haven school teachers of English, history, foreign language, art, math, and science become Fellows of the Institute to work with Yale faculty members on topics the teachers themselves identify. The Institute does not involve a special group of teachers who teach a special group of students; rather, it seeks to involve all teachers, grades 3 through 12, who can demonstrate the relationship of their proposed Institute work to school courses they teach.

Culminating with the Fellows' preparation of new materials that they and other teachers will use in the coming school year, the Institute's annual program lasts almost five months and includes talks, workshops, and seminars. The talks are intended to stimulate thinking and discussion and to point up interdisciplinary relationships in scholarship and teaching. Presenting Institute guidelines for curriculum units, the workshops explore the Fellows' own approaches to writing a curriculum unit and stress the main audience for whom Fellows are writing: other teachers. The Institute encourages Fellows to write their units in first person—in the voice of an experienced classroom teacher—addressing other teachers in and beyond the seminar. This extends the operation of collegiality within the seminar to encompass other colleagues in the schools who might adapt the units to their own teaching.

As Thomas R. Whitaker describes in his introduction to the present volume, the leader and Fellows in each seminar must face together the challenge of balancing the teachers' further preparation in the seminar subject with their development of teaching materials for school courses. Thus, each seminar addresses the fundamental educational issue of the connection between the teacher's preparation and students' learning. Our experience with HEP taught us that this was something too vital to be left to chance. We cannot simply assume that the teacher's new knowledge will be conveyed to students. By requiring the writing of a curriculum unit, we insist that teachers and their seminar leader examine together how that knowledge can be effectively introduced to students in the schools. The units themselves therefore mirror the collaborative nature of the Institute, combining as they do both current knowledge of a field and classroom experience. The Institute does not accept "auditors" or teachers who are unwilling to write a curriculum unit. The teachers who serve as Coordinators within each of the seminars follow the progress of other Fellows in developing their

units and meeting due dates; and any Fellow who does not submit a finished curriculum unit is considered not to have completed the program successfully.

The materials that the Fellows write are compiled into a volume for each seminar and deposited in school libraries throughout New Haven. As compared with the loose-leaf files in which only one set of all materials developed in the HEP were kept, Institute units contain an organized approach to teaching a specific topic, bound with related essays, and circulated widely to other teachers. Thus teachers' work is documented and made available to many more teachers throughout the school system over an extended period of time. The Institute in effect publishes the units, providing all Fellows a type of professional opportunity not ordinarily available to them. Seminar members and the teachers who serve during nine months of the year as Representatives of the Institute for all New Haven schools promote widespread use of these materials by their colleagues.

Results for Teachers and Students

Many evaluations have documented the efficacy of the Institute's approach in increasing teachers' knowledge of their disciplines, enhancing their professional morale and confidence in teaching the subjects they study and the curricular material they prepare in the Institute, heightening their own self-fulfilling expectations of students' capacity to learn this material, and encouraging them to remain in teaching in New Haven.⁶ The curriculum units Institute Fellows write are used widely and effectively by themselves and many other teachers, and students' attention, motivation, and mastery are improved as a result.

In fact, seventy percent of all teachers who have been Institute Fellows are currently in teaching or administrative positions in the New Haven Public Schools. Between 1986 and 1990, from forty-four to forty-eight percent of Fellows each year said that the opportunity to participate in the Institute had influenced their decision to remain in teaching in our local public school system.

Acknowledgments

We are grateful to numerous individuals and organizations who have made possible the present volume. More than seventy-six local and national foundations and corporations have provided gifts and grants which—together with funding

from Yale University and the New Haven Public Schools—supported the Institute seminars offered since 1978 through which teachers wrote the original versions of the curriculum units which are included here. Although a complete listing of these sponsors appears in the appendix, I should credit in particular the invaluable support which has been provided since 1978 by the National Endowment for the Humanities for our work in the humanities, and since 1985 by the Carnegie Corporation of New York for our work in the sciences. In addition, I especially want to acknowledge the role of the Carnegie Corporation of New York in encouraging the Institute to undertake the preparation of the present volume and in supporting its editing, revision, and production. This volume was first released for discussion at the December 1991 Yale Conference on “University-School Collaboration: Preparing Teachers and Curricula for Public Schools,” a meeting of teachers and administrators from across the country made possible by major support from the DeWitt Wallace-Reader’s Digest Fund. The material presented here, however, does not necessarily reflect the views of the funding agencies.

We were particularly fortunate that Thomas R. Whitaker, Frederick W. Hilles Professor of English and Professor of Theater Studies, who has himself led nine Institute seminars—greater than the number led by any other Yale faculty member—agreed to edit this volume and advise the individual authors in the revision of their curriculum units. We appreciate, too, that in many cases the Yale faculty members who advised the development of the original units conferred with the authors on updating and extending the original statements of their teaching plans. Most importantly, the authors themselves took the time during an unusually demanding school year to undertake the process of revision for this publication, in order to make their experience in the Institute more widely available to their colleagues in other communities across the country.

This volume is the Institute’s first venture in desktop publishing; four individuals not only assisted in the production of the present book but also increased the Institute’s capacity to undertake similar projects in the future. Three of these individuals were Yale undergraduates employed by the Institute during the summer of 1991: Adam W. Schnitzer designed the book and laid out each page; Arthur K. Chung scanned the illustrations which appear here and solved more than one computing problem that could have stalled the whole project; Kimberly E. Kessler assisted by word processing and proofreading several of the units. Erica C. Brossard, Administrative Assistant in the Institute, worked in all the areas mentioned above and completed the volume after summer’s end. Janet

Russell, Senior Administrative Assistant in the Institute for more than ten years, made the arrangements for printing this edition of the book.

This volume, like the Institute itself, is therefore a collaboration among many individuals with diverse responsibilities and backgrounds, each of whose contributions was essential to the finished work. All were guided, I believe, by the expectation that the curriculum units presented here will make the school teacher's experience of participation in the Yale-New Haven Teachers Institute more meaningful to our colleagues in other institutions and schools. We further hope that it will add to their understanding—as well as our own—something valuable about the ways in which public school teachers and university faculty members can work together through such an Institute, as they face in common the challenge of strengthening teaching and learning in an urban community's public schools.

James R. Vivian

New Haven
October 1991

Notes

¹Fred M. Hechinger, "Colleges Reaching Out to Aid Public Schools," *The New York Times*, December 14, 1982.

²———, "Promoting 'Subversion'," *The New York Times*, November 18, 1986.

³———, "With Yale as a Model, Universities and Public Schools Enter an Era of Cooperation," *The New York Times*, December 5, 1990.

⁴National Science Foundation and United States Department of Education, *Science and Engineering Education for the 1980s and Beyond*, 1980, ix.

⁵Rockefeller Commission on the Humanities, *The Humanities in American Life*, Berkeley: University of California Press, 1980, 25, 6.

⁶These results are presented in some detail in "Preparing Teachers and Curricula for Public Schools: A Progress Report on Surveys Administered to Teachers, 1982-1990," by the Yale-New Haven Teachers Institute, 1991.

Introduction

Thomas R. Whitaker

I

This volume presents twelve of the more than six hundred curriculum units that have been prepared since 1978 by Fellows of the Yale-New Haven Teachers Institute. Although these selected units undoubtedly contain both research and pedagogical strategies that teachers elsewhere might well adapt to their own purposes, we do not offer them as plans to be followed or models to be imitated. Their importance is more fundamental and more complex. They stand here as examples of the distinctive process of individual curriculum development in which the Fellows of the Institute have been engaged.

As James R. Vivian stated in his introduction to *Teaching in America: The Common Ground*, the Institute has been guided by four principles: a belief in the importance of the classroom teacher and of teacher-developed materials for effective learning; an insistence that teachers of students at different levels interact as colleagues, addressing their common problems; a conviction that any effort to improve teaching must be “teacher-centered,” and a consequent reliance upon Institute Coordinators, teachers who meet weekly with the Director and constitute an essential part of the program’s leadership; and a certainty that the University can assist in improving the public schools only if it makes a significant and long-term commitment to do so. The Institute therefore makes use of no curriculum experts in the usual sense, no short-term workshops, no regular graduate courses in methods or content. Instead, it brings together teachers from the New Haven public schools and the Yale University faculty in a genuinely collaborative endeavor.

Each year the Director and the Coordinators determine, through discussion among themselves and consultation with other teachers in the schools, the areas in which Institute seminars might most usefully be offered. (In recent years, funding has made possible four seminars in the humanities and social studies, and two seminars in sciences and mathematics.) Yale faculty who might teach in

the selected areas are then invited to submit seminar proposals. After further canvassing other teachers, the Coordinators select the seminars to be offered. It is understood that each will be an opportunity for shared study and also the occasion for the preparation of curriculum units that the Fellows plan to use in the ensuing year.

The balance between academic preparation and classroom application, and between common study and individual projects, will be understood somewhat differently in each seminar. And there are no doubt many ways of crossing the somewhat artificial boundary between “subject” and “pedagogical method.” In the main, however, the collegiality that is so important to the Institute rests on the assumption that the member of the Yale faculty who leads the seminar will bring some special competence in an academic field, and that the Fellows (who are not “students” but full members of the Yale community, with library privileges and stipend) will bring their special competencies in the aims, needs, and problems of their home classrooms.

After selecting the seminars for the year, the Coordinators invite applications from teachers in the public schools. (Originally limited to high-school teachers, the Institute has expanded to include teachers from middle schools and, most recently, elementary schools.) Any successful application must contain a preliminary proposal for a curriculum unit that might be prepared in conjunction with a seminar, and authorization by the teacher’s supervisor to incorporate such a unit in the teaching assigned for the ensuing year. Until very recently, the Institute has been able to accept all applications that meet those criteria.

The preliminary proposals, of course, are just that: each will be revised, after consultation with the seminar leader, into a “Final Unit Topic” of about 250 words with initial reading list, then into a “Prospectus” of two to four pages, then into a “First Draft” of about ten single-spaced pages that sets forth the unit’s objectives and strategies, then a “Second Draft” of 15-25 pages that also includes lesson plans and bibliographies, and then a final draft of the “Completed Unit.” This process of writing, which will benefit from suggestions by the seminar leader and the other Fellows, will be carried out concurrently with the common study of a seminar that meets once in March, once in April, and weekly from May through mid-July.

The seminars offered by the Institute—88 of them between 1978 and 1991—have ranged widely in topic and procedure. Some, especially in the sciences, have tended toward a lecture format; others have placed major emphasis upon informal discussion of a series of texts. All have found place for some sharing by the Fellows of their pedagogical interests and problems. And some have also

incorporated field trips, laboratory projects, exercises in theatrical presentation, and additional writing assignments. A bare sampling may serve here as an indication of the range of the seminars and the commitment of Yale faculty to this enterprise.

History seminars have included "Themes in Twentieth-Century American Culture" and "Odysseys: Nineteenth- and Twentieth-Century African-American History Through Personal Narrative" (led by Jean-Christophe Agnew), "Courts, Congress and the Constitution" (Robert A. Burt), "Immigrants and American Identity" (James T. Fisher), "Remarkable City: Industrial New Haven and the Nation: 1800-1900" and "Multi-Disciplinary Studies in American Regions and Regionalism" (Howard R. Lamar), and "An Interdisciplinary Approach to British Studies," "The Writing of History: Writing as History," and "The U. S. National Parks Movement" (Robin W. Winks).

Seminars in literature and allied fields have included "Greek Civilization" (Victor Bers), "Autobiography" (Richard H. Brodhead), "History as Fiction in Central and South America" and "Writings and Re-Writings of the Discovery and Conquest of America" (Roberto González-Echevarría), "The Family in Literature" and "Epic, Romance and the American Dream" (Traugott Lawler), "Topics in Western Civilization: Ideals of Community and the Development of Urban Life" (Lawrence J. Manley), "Society and Literature in Latin America" and "Hispanic Minorities in the United States" (Nicolas Shumway), "Twentieth-Century American Fiction, Biography, and Autobiography" (Robert B. Stepto), "The 'City' in American Literature and Culture" (Alan Trachtenberg), "Contemporary American Drama: Scripts and Performance" and "Recent American Poetry: Expanding the Canon" (Thomas R. Whitaker), and "Society and the Detective Novel" (Robin W. Winks).

The Institute's pervasive concern with writing has sometimes been given special emphasis, as in "Writing Across the Curriculum" (Joseph W. Gordon) and "The Process of Writing" and "Writing About American Culture" (Thomas R. Whitaker). Seminars in art have included "Elements of Architecture" (Kent C. Bloomer), "Art, Artifacts, and Material Culture" and "The Family in Art and Material Culture" (Jules D. Prown), and "America as Myth" (Bryan J. Wolf).

The smaller number of seminars in the sciences and mathematics have nevertheless been quite various. The biological sciences have been represented by "Genetics" (Margretta R. Seashore), "Adolescence/Adolescents' Health" (Walter Anyan), and "Human Fetal Development" (Maurice J. Mahoney), among others: both biological and physical sciences by a seminar in "Global Environmental Change" (Karl K. Turekian); and the physical sciences by such topics as

"Geology and the Industrial History of Connecticut" (Robert B. Gordon), "Engineering and Science at Work: Coal Combustion and Nuclear Fission as Sources of Electricity" (Charles A. Walker), "Aerodynamics: Its Science, Applications, Recent History, and Impact on Transportation" (Peter P. Wegener), "Electrical Technologies: Light at Nite, Microelectronics, Superconductivity?" (Robert G. Wheeler), and "Crystals in Science and Technology" (Werner P. Wolf). Mathematics has entered significantly into many seminars in the sciences, has been prominent in seminars on statistical approaches to adolescent psychology (William Kessen), and has also been a topic in its own right (in seminars led by Robert Sczarba and Charles E. Rickart).

The curriculum units prepared in conjunction with the seminars have been yet more diverse. The later descriptions of the twelve units included here will point to some of the ways in which Fellows have been able to relate seminar topics to their own teaching needs. Special attention should be called, however, to certain kinds of units that are not adequately represented in this volume because the invited authors did not elect to engage in the further revision that it entailed. Many units, such as Maurcen C. Howard's "Steinbeck: Biography as a Tool in Teaching Reading and Writing Skills" or Patricia A. Niece's "Horacio Quiroga: The Poe of Latin America," would fit easily into conventional courses in literature. Another group comprises units, such as Doris A. Vazquez's "La Nueva Canción en Puerto Rico" or Belinda M. Carberry's "The Revolution in Journalism with an Emphasis on the 1960s and 1970s," that deal with some aspect of popular culture. There are also studies of a historical figure, such as Henry A. Rhodes' "Lincoln, the Great Emancipator?," and of the art of some historical period, such as Linda Powell's "Egyptian Tomb Art: Expression of Religious Beliefs."

There are also a good many ways of approaching the sciences, as in Elisabet O. Orville's "Perception and Sense Organs—A Writing Unit for Biology," or Beverly B. Stern's "The Basic Conceptions of Diagnostic Ultrasound," or Margaret M. Loos's "Let There Be Light," or Robert W. Mellette's "Space Shuttle Science"—as well as a number of ingenious approaches to mathematics, such as Michael Conte's "Mathematics in You," Sheryl A. Hershonik's "Lunar Eclipse: Fact and Myth," Joyce Bryant's "Mathematics: Problems on Coal and Energy," and David Howell's "The Statistical Sampler." A small volume, indeed, cannot begin to do justice to the great variety of curriculum units that the Fellows of the Institute have prepared over the years.

It should be clear, however, that most units tend toward the personal in style and the interdisciplinary in scope. That is so for several good reasons. At the elementary and middle-school levels, the teacher's responsibilities are often inter-

disciplinary by definition. At the higher grade-levels, in an inner-city environment with many poorly prepared or poorly motivated students, the teacher may most easily demonstrate the relevance of a subject, arouse interest in it, and pursue its exciting implications in some interdisciplinary context. Those pedagogical necessities are often compounded these days by the fact that many urban teachers have been assigned to subjects for which they have had no adequate college-level training, and must therefore make use of their curriculum units in part as a mode of self-education in a field somewhat new to them. And the personal style? Fellows of the Institute provide massive testimony that their own teaching is most engaging and successful when they are presenting to the class a unit that they have themselves developed.

These points have been highlighted and further developed by Peter Joseph Casarella, in his Institute-sponsored study of the curriculum units prepared from 1979 through 1985. Casarella found that the units are most often presented in a first-person narrative style that offers a synthesis of research and pedagogy. Some units may emphasize research and others pedagogy, but the norm is some integration of the two concerns. Elisabet O. Orville's "Pollination Ecology in the Classroom," for example, was structured to facilitate the exposition of her research on pollination ecology; a relatively small part of the unit was devoted to a distinct teaching purpose. On the other hand, Richard Canaleri and Farrell Sandal's "Enthusiasm is All Write" was structured to develop a comprehensive course in writing for sixth grade; the research for the unit was oriented entirely toward pedagogical problems. More characteristic of the bulk of the units prepared in the Institute, however, were those that combined research and pedagogy in some personal synthesis. Casarella found such syntheses in every discipline—for example, in Norine Polio's "An Analysis of *The Oxcart* by René Marqués, Puerto Rican Playwright," in D. Jill Savitt's "Sex Roles, Courting and Marriage Among Puerto Rican Teenagers," and in David Howell's "The Statistical Sampler." Sometimes the author treated the elements specified by the Institute guidelines (objectives, strategies, and lesson plans) in separate sections unified only by mutual implication and a strong narrative voice. At other times the integration dictated a more complete fusion of those elements in a single coherent essay. It is clear from Casarella's report that, regardless of the format chosen, the main thrust of the Institute work is toward some mediation between research and pedagogy according to the needs of students and the interests and talents of the teachers. The editorial preparation of this volume of selected units, which has entailed the reading of nearly all of the units and attention to comments made by seminar leaders, certainly bears out that conclusion.

Fortunately, the units prepared by the Fellows are not merely "course papers" for a seminar. Designed as teaching materials, they have been read in-process by other Fellows, and they receive local publication in a volume of units produced by each seminar, with distribution to schools throughout New Haven. Sometimes the authors may conduct workshops on their topics at other schools. Colleagues in the same school and at other schools often incorporate part or all of a unit in their own teaching. In subsequent years a unit may be revised by the author, and by others, as the experience of teaching may suggest. Indeed, there is much evidence that a significant revision of curriculum has taken place in the New Haven system by this grass-roots method.

Institute surveys of 1981 and 1985 indicated that the extent of use of these curriculum units, by Institute participants and by other teachers, had more than doubled during that period. In 1985 such units were taught in more than fifteen hundred school classes attended by more than thirty thousand students. A third of all New Haven secondary school teachers, whether or not they had been Fellows, were using these materials. A high proportion of the units prepared since 1978 were remaining in use, and the frequency of use did not depend upon how recently they had been written. Many of the teachers who used the units were in fact using two or more, and nearly half were using three or more. There is also suggestive evidence that the participation in Institute seminars and the writing of units may have helped to sustain an interest in a profession that the American people have not yet decided to recognize according to its true social value. In 1985, despite substantial turn-over of teaching personnel in New Haven, most of those who had taken greatest advantage of the Institute remained teaching in this city.

Summaries, generalizations, and statistics will take us only so far. A more vivid and complex impression of the curriculum development that is being fostered by the Yale-New Haven Teachers Institute can be gained only through an attentive reading of selected instances. Hence this volume. A few introductory comments on the twelve units presented here will help to set the stage for such a reading.

II

The twelve units selected to exemplify the process of curriculum development in the Institute are excellent in various ways, but they should not be read as significantly more original or more thoughtful than many others. Indeed, the task

of selection was complex, difficult, and to some extent determined by factors unrelated to the quality of the units. On the basis of recommendations by seminar leaders, supplemented by the editor's reading of nearly all the units prepared since 1978, a preliminary list was drawn up of no less than sixty units that clearly deserved national distribution. That list was reduced by the editor, with an eye to appropriate representation of various disciplines and various approaches to unit-writing, to a final list of thirty units. (Most of those eliminated at this point were in subjects that have been prominent in the Institute's work since its inception: history, literature, and social studies.) Invitations were then issued to twenty-nine authors, one now being deceased, to engage in some minor revisions that might clarify their accounts for readers unacquainted with the New Haven schools, update bibliographies where appropriate, and indicate if possible something about the experience of teaching the unit and its importance in the author's career. Eleven of the units in this volume constitute the response to that invitation. The twelfth unit, by the Fellow now deceased, is presented as originally written. If time and energy were less severely limited than they are for most of us who teach, we might have been able to present at least five volumes comparable to this one! Indeed, if readers are interested in consulting units in fields or on topics quite different from those included here, they should direct an inquiry to the Institute office.

As it happens, these twelve units suggest much of the usual range of disciplinary and interdisciplinary work in the Institute. Seven units are designed for high school, four for middle schools, and one for elementary school. Eight units are in the humanities and social studies, four in sciences and mathematics. Those proportions are roughly in accord with the emphases in Institute seminars over the years. The most distinctive qualities of these units, however, are quite individual. They are evident in many ways, but above all, perhaps, in the ingenuity and persistence with which the Fellows have met the extremely difficult challenges posed by their teaching situations.

The volume begins appropriately with "Melting Pot Theater: Teaching for Understanding," a unit by Bill Derry, an Itinerant Arts Teacher in elementary schools. Derry offers a "master plan" for a coordinated effort requiring the contributions of several teachers and resource persons. Using drama as his major tool, he proposes to facilitate the teaching of grades 1-4 about the cultures of Puerto Rico, Russia, and Ghana. Though the unit is unusually ambitious, its integration of subjects and resources is characteristic of much elementary-school teaching. And its approach will be familiar to those acquainted with the work of Dorothy Heathcote and other drama educators. Derry's unit was pre-

pared in conjunction with the seminar on "Contemporary Drama: Scripts and Performance," led by Thomas R. Whitaker in 1990. Although the reading and performance activities in that seminar centered on plays for adults, the Fellows were mainly elementary and middle-school teachers who developed projects suited to their classroom responsibilities. In effect, the subject of the seminar became "Learning Through Drama."

The four middle-school units cover an interesting gamut of subjects. "Who Do You Think You Are?" was developed by Bill Coden, an English teacher for an arts-magnet middle school, in conjunction with a seminar of 1982 led by Richard H. Brodhead on "Autobiography." Coden uses the challenges of student autobiography as means of addressing the teaching of skills in reading and writing. Through a series of adaptations and extensions, this unit has been central to his later teaching. In 1988 he developed a unit on journal-writing, which also incorporated readings from longer autobiographical works. And in 1990 he developed a unit on Chicano literature that deals with similar themes of memory. Each unit responded to a distinct need, but he is now most comfortable when combining elements from each in his teaching.

Benjamin A. Gorman, a social-studies teacher in a middle school, developed "The Community and You: Learning Your Way Around Fair Haven" in conjunction with a seminar of 1989 led by James T. Fisher on "American Communities, 1880-1980." This unit is intended to help low and middle achievers to become more aware of the ways in which geography and history impinge upon their own lives. The anecdotes, the richly detailed historical information, and the mapping activities are of course specific to Fair Haven, Connecticut, but one can easily imagine a unit of this kind being developed in other communities throughout the nation.

"The Chronicles of the New World, Shakespeare's *The Tempest*, and E.S.O.L. Instruction," by Norine Polio, a teacher in a Bilingual Department, is a unit of a very different kind. Developed in a seminar of 1986 led by Roberto González-Echevarría on "Writings and Re-Writings of the Discovery and Conquest of America," it uses the reading and interpretation of Shakespeare's play as an occasion for considering, by way of Caliban, the problems of instruction in a second language. This unit clearly aims to instruct other teachers as much as middle-school students. Since developing it, Norine Polio has modified it for use with mainstream humanities and reading classes, and has also used it to culminate a year-long curriculum based on materials from the periods of the Conquest.

The fourth middle-school unit presented here, "Crystals: More Than Meets the Eye," by Lois Van Wagner, is designed for the eighth-grade Earth Science

curriculum. Developed in conjunction with a seminar of 1989 led by Werner P. Wolf on “Crystals in Science and Technology,” this unit brings together a wealth of material on atomic and molecular structure, shapes of crystals, characteristics of minerals, and the uses of crystals in modern technology. Since developing this unit, Lois Van Wagner has adapted it, by amplifying or omitting sections, to meet the needs of students with a range of abilities.

The seven high-school units—two in English, two in history, two in mathematics, and one in biological science—illustrate a variety of strategies for relating school subjects to contexts that may provide additional motivation or insight. “Seascape: Beginning Explorations” was developed by Phyllis Taylor, an English teacher at Sound School, which shapes its curriculum in ways that emphasize the marine life and maritime activities associated with Long Island Sound. The unit was written in conjunction with a history seminar of 1982, “An Unstable World: The West in Decline?”, led by Robin W. Winks. Phyllis Taylor chose to use the theme of ocean exploration to provide interest and continuity for a course that teaches reading, thinking, writing, and speaking to high school freshmen. Because this unit incorporates non-fiction, fiction, and poetry, it constitutes one kind of introduction to literature. Phyllis Taylor died in the summer of 1989—while a participant in Traugott Lawler’s seminar on “Poetry”; her unit is therefore presented here without further revision.

“American Detectives: On TV and in Books,” was developed by Jane K. Marshall in conjunction with a seminar of 1989 on “Detective Fiction: Its Use as Literature and as History,” also led by Robin Winks. This unit is an example of an unusually advanced phase in a Fellow’s work in the Institute. It was prepared as the final chapter of a book that Jane Marshall has written on the basis of several units intended for her course in “Visual Art and Literature.” Previous units had dealt with the study of material culture, the comparison of poetry and photography, and the comparison of film and fiction—all as correlated with a study of social history. This culminating unit brings together instances of popular culture in ways that maintain rigor of analysis, both thematic and technical.

The two units in history provide an opportunity for somewhat closer comparison of strategies. “From *Plessy v. Ferguson* to *Brown v. Board of Education*: The Supreme Court Rules on School Desegregation” was developed by Karen Wolff in conjunction with a seminar of 1982 on “The Constitution in American History and American Life,” led by Robert M. Cover. It was originally prepared for the history half of an interdisciplinary course in English and history at the High School in the Community, a magnet school that emphasizes teacher-initiated curriculum. Karen Wolff has since used the unit in teaching a variety of

other subjects—statistics and poll-making, drama in the courtroom, and philosophy as reflected in legal systems throughout history—and she has also expanded it into a larger course on the American legal system. Indeed, this unit was for her the beginning of a major new direction in her teaching career.

“The Constitution, Censorship and the Schools: *Tennessee v. John Thomas Scopes*” was developed by Peter Neal Herndon in conjunction with a seminar of 1988 on “Courts, Congress and the Constitution” led by Robert A. Burt. This unit was originally intended for a course in United States history, and it has since been used in courses at various levels emphasizing issues in Constitutional law. Where Karen Wolff leads students through a series of legal decisions, Peter Herndon invites them to examine in detail the issues (and the drama) involved in a major trial. In different ways, both units relate their subjects to questions of continuing urgency and provide opportunities for critical thinking and writing.

The two units in mathematics also provide instructive comparisons. Both, in fact, were prepared in conjunction with a seminar of 1990 on “What Makes Airplanes Fly? History, Science and Applications of Aerodynamics” led by Peter P. Wegener. The first unit, “The History of Flight and Some Mathematical Applications,” by Hermine Smikle, aims to present mathematical concepts that are not usually taught to students categorized as “low achievers,” and to do so by relating them to the history of aeronautics. After its historical overview, the unit uses the topic of navigation to approach a variety of rather complex problems in plane and spherical geometry and graph theory. The second unit, “Ship and Airplane Testing: Physics for High School Mathematics Students,” by James Francis Langan, transposes the seminar’s theme into the realm of naval architecture. Langan is another teacher at Sound School, and he engages problems in hydrodynamics and model-building by way of the history of our understanding of solid and fluid bodies, gravitation, and the mechanical and mathematical principles that pertain to them. He proposes a context for learning some difficult mathematical concepts, and one that may also eventuate in student projects on the history of naval technology.

The last unit presented here, “Creation, Evolution, and the Human Genome,” was developed by Anthony B. Wight in a seminar of 1990 on “Genetics” led by Margretta R. Seashore. Designed for use in an interdisciplinary science and humanities course, taught with a colleague in English, this unit deals with theories and debates and discoveries concerning the origins of life, its evolution, and its chemical basis. It serves as one example of how a teacher may tactfully handle difficult questions of interpretation in a scientific context, and

how a course can lead from the history of science on toward more technical questions concerning molecular biology.

A dozen units, a dozen different ways of bringing to the inner-city classroom a lively concern for a specific and often freshly defined subject-matter, the needs and interests of students, and a humane understanding of our social context. These units will now serve also, we hope, to make clear to readers in other communities and other institutions the vitality of curriculum development that can result from a collaborative program that pays attention to academic subjects, pedagogical challenges, and the process of writing.

Thomas R. Whitaker

