

Humanities

Prometheus at Lehigh

Misgivings about progress go at least as far back as Prometheus' theft of fire from Olympus. Famous unbelievers include Samuel Butler, who jibed that progress is based on a universal desire of every organism to live beyond its income. There's the pretty contradiction put by Chesterton, who suggested "true progress consists in looking for a place where we can stop." Or take e. e. cummings in "Pity This Busy Monster, Manunkind," where progress is put down as a disease—a hopeless case prompting the famous throw-away line, "Listen: there's a hell of a good universe next door; let's go."

A nice bravado. Cummings would have enjoyed the report of a 1972 symposium sponsored by the National Aeronautics and Space Administration on the subject of life beyond earth. The symposium agreed that extra-terrestrial intelligence must exist, but was divided on whether communication with alien civilizations would be for good or ill. Considering our access to nuclear energy and its result in stockpiles of hydrogen bombs and a balance of terror, what nightmares might not ensue from the influence of a superior technology in outer space? For that matter, extra-terrestrial beings are perhaps vastly more intelligent than man and may even now be avoiding the corruption of contact with us!

But to turn from such troubled dreams of the future, what of the waking reality? Here are the down-to-earth musings of a latter-day Montaigne looking out from his tower:

"I live in mid-Manhattan and, like most of my contemporaries, experience a love-hate relationship with technological civilization. The whole world is accessible to me, but the unobstructed view from my 26th-floor window reveals only a confusion of concrete and steel bathed in a dirty light. . . . Night and day, the roar of the city provides an unstructured background for the shrieking world news endlessly transmitted by the radio.

"Everything I eat, drink, and use comes from far away, or at least from an unknown somewhere. It has been treated chemically, controlled electronically, and handled by countless anonymous devices before reaching me. . . . My life depends on a technology that I do not really understand, and on social forces that are beyond my control. While I am aware of the

dangers this dependence implies, I accept them as a matter of expediency. I spend my days in the midst of noise, dirt, ugliness, and absurdity, in order to have easier access to well-equipped laboratories, libraries, museums, and a few sophisticated colleagues whose material existence is as absurd as mine.

"Our ancestors' lives were sustained by physical work and direct associations with human beings. We receive our livelihood in the form of anonymously computerized paper documents that we exchange for food, clothing or gadgets. We have learned to enjoy stress instead of peace, excitement in lieu of rest, and to extract from the confusion of day-to-day life a small core of exhilarating experiences. I doubt that mankind can tolerate our absurd way of life much longer without losing what is best in humanness. Western man will either choose a new society or a new society will abolish him; this means in practice that we shall have to change our technological environment or it will change us."

This is René Dubos, renowned microbiologist, in his book "So Human an Animal." He is that *rara avis*, a scientific humanist, a man who clings to faith in man's ability to cope. Throughout history, he insists, "progress has been a movement toward imagined goals"; ergo, let us imagine the kind of world we want, one governed by a truly human concept of technology—"a science of humanity"—and act to regain control of the forces shaping modern life.

Humanities Perspectives on Technology

These views have the makings of a manifesto, a manifesto which, figuratively, may already be found nailed to the door of the humanities departments at Lehigh University. They describe, also, the kinds of deliberation which led to the recently-instituted Program of Science, Technology and Human Values established jointly by the National Endowment for the Humanities and the National Science Foundation. It is under that rubric that the Endowment has made a five-year development grant to Lehigh to conduct a unique new program, Humanities Perspectives on Technology, directed by Classics Professor Douglas D. Feaver.

As Dr. Feaver puts it, the aim is "to develop historical, literary, philosophical, religious, and aesthetic perspectives on modern technology and to stimulate a dialogue on such questions as human habitat, natural environment, and communication in society, and

their implications for human values." The means: modification and extension of the humanities curriculum, to open up for students new possibilities of comprehending and synthesizing the lessons of the past and the dynamics writ large by technology. The program, now in its second year, is based in the College of Arts and Science but draws students from all three undergraduate colleges, plus a number of graduates.

Lehigh would surprise John Stuart Mill, who believed that "universities are not intended to teach the knowledge required to fit men for some specialized mode of gaining their livelihood." Half the student body at Lehigh is enrolled in the College of Engineering and Physical Sciences, one third in the College of Arts and Science, the rest in the College of Business and Economics. But Lehigh (founded 1865) was among the first to assert that professional education need not and should not proceed unleavened by the traditional liberal arts. Inter-college cooperation is of long standing, and it is only in the third year—after grounding in the humanities and natural sciences—that formal engineering studies are offered.

At Home in Bethlehem

It helps that Lehigh University is a relatively small, private institution (3,850 undergraduate and 2,000 graduate students) situated in the small city of Bethlehem, Pa. (pop. 73,000). The city of Bethlehem in itself offers a kind of "humane perspective on technology." The main plant of the Bethlehem Steel Corporation lies across the Lehigh River from the 18th century buildings of the Moravian mission to the Indians; on the university campus, a few blocks from the great Steel smokestacks, the world-famous Bach Festival choir sings in Packer Chapel.

Nevertheless, Humanities Perspectives on Technology is something of a gamble. Lehigh's curriculum is not as overspecialized as in the typical multiversity, but its faculty is not immune to wariness of interdisciplinary experiments. In the words of John W. Hunt, Dean of the College of Arts and Science, "the definition of a true professor has always been that he knows his boundaries—has a strong sense of territoriality. He can argue that every step outside the strict traditions of his discipline is at the expense of professional excellence. Lehigh aims at creation of a natural rapport between faculties and has done pretty well; but it's not just a piece of cake."

There is also, of course, the pervasive tension between humanists and scientists and technologists, delineated by C. P. Snow in his controversial lecture, "The Two Cultures." Commenting on this in "The Children of Frankenstein," Herbert Muller observes that Snow complacently assigned the greater importance and value to science, but that he was right in his basic thesis that both cultures—now separated by mutual incomprehension—are essential to an adequate education. Here is Muller's outline of the "enormous difficulties" faced by educators in this regard:

"Let us begin with an elementary objective . . . that

our universities should turn out good citizens. . . . They should be able to deal intelligently with questions about both what we *can* and what we *ought* to do. For these purposes a purely scientific or technical education will not suffice; apart from such common deficiencies as a considerable ignorance of history and government and a limited command of English, technically trained students are likely to have an excessive faith in scientific method or technique, too little awareness of the complexity of social and political problems, too little understanding of questions about what *ought* to be done. Neither will an education in the humanities alone suffice for enlightened, responsible citizenship, since so many of our problems are technical and it gives too little idea of what we *can* do. The plain trouble is that most college graduates—whatever their specialty—have too limited an understanding of our technological society for potential leaders. Very few, in either the sciences or the humanities, have studied the impact of science and technology on society and culture, the source of our imperious problems. But how, then, to give them all an adequate understanding of their changing world? How to prepare them to make the best of this world?"

Lehigh's humanists don't pretend to have the answers to such sweeping questions, but they are enlarging communication across the barricade. On the other side, the engineers are receptive. Whereas science is often held to be "value-free," its technological applications quite obviously involve and express human values, and engineers worry about the feedback they are getting from a troubled society. Besides this basis for rapport, two other conditions helped set the stage for the new dispensation in the humanities. One was the decline, nationally, in the number of students electing the standard science and engineering disciplines; the other was the admission of women at Lehigh beginning in 1971, with the presumption of a proportionately higher enrollment in the humanities. The sound of opportunity knocking produced a flurry of curriculum planning.

Professor of Classics

Douglas Feaver's role in developing Humanities Perspectives on Technology owes something to his field. "Classics is really interdisciplinary," he likes to point out, "since it involves languages, literatures, and a great deal of history, philosophy, and archeology." A Canadian, with degrees from Toronto and Johns Hopkins, he came to Lehigh from Yale in 1956 to replace a retiring professor of Greek. Lately, the spread of courses he teaches includes Greek language, Greek drama, Plato, Greek and Latin archeology, and—for the new program—"Polis: The Concept of a 'City,' and Its Physical Expression in Antiquity."

There is also Feaver's passion for music. He has had to put off the finishing touches on a book—"Mousiké: The Evidence for Ancient Greek Music"—because of time given to the Perspectives program. But music is more than a research interest. While still in his 'teens, Feaver built his own cello (and, in recent

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The Coming of Age

If it is true—as the statistics are beginning to show—that we are rapidly becoming a nation of middle-aged to older people and that the youth culture will one day be overwhelmed by mere force of numbers, it is high time that we concentrated more of our energies on understanding the problems of the aging in an urban technological society so that their lives may be useful and valuable not only to them but to the whole society. There are 20 million aged today (and the number keeps growing) who deserve to be treated as more than a "contentious minority."

A conviction of this sort was in the minds of a group at Eastern Michigan University, in cooperation with Genesee, Jackson, Monroe and Washtenaw Community Colleges, who were awarded a grant from the Public Programs Division of NEH to plan a one-year Consortium on Gerontology under the direction of Dr. Walter G. Moss, assistant professor of history at Eastern Michigan. The proposal developed from a four-month effort by community representatives, faculty and administrators in the compact area served by the five institutions named above. While the topic was of concern to the organizations and groups represented in the preliminary planning sessions, the new ingredient in the mix was the use of a wide array of humanists and their disciplines to consider the problems of growing old and facing death.

With the nearby Institute of Gerontology acting as advisor, a group of 20 faculty members from the humanities and social sciences were recruited to share their knowledge and experience with those of the other adult participants in the program. Through devices such as reading poetry and plays, seminars, short lectures, film presentations followed by discussion and the like, the groups addressed the problems of aging in the face of the overwhelming emphasis on youth in our country, how the aged have been viewed in literature, how society can best utilize the talents and abilities of senior citizens, and what alternate religious and philosophical approaches exist to face death.

The program was designed for and attracted audiences living in the vicinity of the various community colleges; they ranged from teen-agers to the elderly and took place in many locations throughout the area—on the college campuses, as well as in churches, community centers, retirement homes, senior citizens centers and civic clubs.

The Consortium had a three-pronged approach to

its mission: a tryout period involving various kinds of presentation before limited audiences and the preparation and distribution of a Humanities Resource Guide (listing audio-visual materials and works of literature, history, religion, philosophy, anthropology and sociology dealing with old age and death); a broadening and expansion of successful formats to reach larger audiences by drawing in local organizations; a culminating regional inter-generational conference to summarize and analyze each of the themes, and preparation of a booklet, *Humanistic Perspectives on Aging*.

The program reached directly 2,000 different adults and a much larger audience through cable television, radio shows, newspaper accounts, and the dissemination of the annotated bibliographies. These varied activities have stimulated local interest in the problems of aging and the aged.

As a result of this program, experimental in its approach and exemplary in its dissemination, it is hoped that social and individual options will be gradually broadened. Aging adults should not be left to die on a lonely plateau of uselessness and rejection but their talents should be sharpened and used for the enrichment of all people. As Simone de Beauvoir says in her book, *The Coming of Age*, "The true test of a society is how it treats its old." □

The Comedy of Survival

Dante called his poem *The Comedy*, but this wasn't good enough for the theologians. Mistaking his intentions, and without his permission, they added "divine" to the title. Their action flowed from what Joseph W. Meeker refers to as the "metaphysical morality that encourages man to rise above his natural environment and his animal origins"—a viewpoint epitomized in the literary form and philosophical attitude we call tragedy.

Meeker, a professor of comparative literature armed with an NEH Younger Humanist Fellowship, has taken a fresh look at what Western culture owes to tragedy. The debt is large: tragic images show man's potential strength and greatness, yielding optimism and belief in progress. Aristotle thought tragedy greatly superior to comedy, which is so seemingly careless of morality, goodness, heroism, beauty and other of men's grand abstractions. Meeker finds this order of values dubious for our post-Freudian, post-industrial situation, so much so that his new book (published by Scribner's) is entitled "The Comedy of Survival."

The book, like the man, can be called interdis-

plinary—assuming the word's acceptability in polite usage. It argues comedy's virtues for renewing ego-centric man's biological welfare; it likens literary comedy to biological evolution for its ability to muddle through, caring more for survival than for progress or perfection; it asserts

The comic mode of human behavior represented in literature is the closest art has come to describing man as an adaptive animal. Comedy illustrates that survival depends upon man's ability to change himself rather than his environment, and upon his ability to accept limitations rather than to curse fate for limiting him. It is a strategy for living which agrees well with the demands of ecological wisdom, and it cannot be ignored as a model for human behavior if man hopes to keep a place for himself among the animals who live according to the comic mode.

Meeker's grant was for the study of relationships between ecology and humanistic studies—the implications, that is, of growing ecological knowledge for literature and philosophy. It seems that en route to his doctorate from Occidental College (dissertation: "Thomas Mann and the Art of Erudition"), he had studied wildlife management at Berkeley and spent two years as a supervisory ranger at Mount McKinley National Park in Alaska. He went on to teach at the University of Alaska and later, in Nebraska, at Hiram Scott College. He was made a fellow of Kresge College at the University of California-Santa Cruz and spent the academic year 1971-72 in travel, research and writing, from which the book has now emerged.

High point of the year was an extended visit Meeker paid to Konrad Lorenz at the Max-Planck-Institut in Germany. Attracted by Lorenz's writings, Meeker believed that contact—if it went well—would add greatly to his grasp of biological behavior in man and animals, and how this relates to today's ecological crisis. It went very well. Lorenz is a zoologist, with credentials in psychology and ethnology, who is greatly aware of culture's debts to literature. To take one of many examples, he had written approvingly (in *On Aggression*) of G. K. Chesterton's "novel opinion that the religion of the future will be based . . . on a more highly developed and differentiated, subtle form of humor." To Lorenz, optimism about civilization depends not only on knowledge but on humor. In "The Comedy of Survival" Meeker develops this theme with an array of literary referents, and the book carries a foreword by Lorenz. When Lorenz received a Nobel Prize in physiology and medicine last December, Meeker was there for the Stockholm ceremonies at Lorenz's invitation.

Interdisciplinary study and teaching has its risks. Seen from the round hole of a tightly-defined academic discipline, Meeker looks—to some—suspiciously like a square peg. Programs offering scope for such teachers, never numerous, are among those jeopardized by current faculty retrenchments. Often the man must seek—even define—the unusual situation that welcomes his unorthodoxy. Meeker has found

a truly uncommon solution in joining the staff of Athabaska University in Alberta, the Canadian Government's version of Britain's "open university." Now in its pilot year, the new university integrates traditional disciplines around a single theme: World Ecology and the Human Community. Meeker is Senior Tutor in Humanities, roughly equivalent to a dean. How interdisciplinary can you get?

By no means in cold storage up north, Meeker is involved in programs of the National Science Foundation and the President's Council on Environmental Quality. In May he took part in an international symposium on the environment at the Spokane World's Fair; in June he was invited to join another at the Aspen Center for Humanistic Studies. Another book—*Spheres of Life*—is due out from Scribner's within the year.

Literary comedy, Meeker writes, is the minority report of Western civilization, cutting against the grain of "anthropocentric humanism." It invites a fresh reading. □

Victorian Clutter: Taste or Technology?

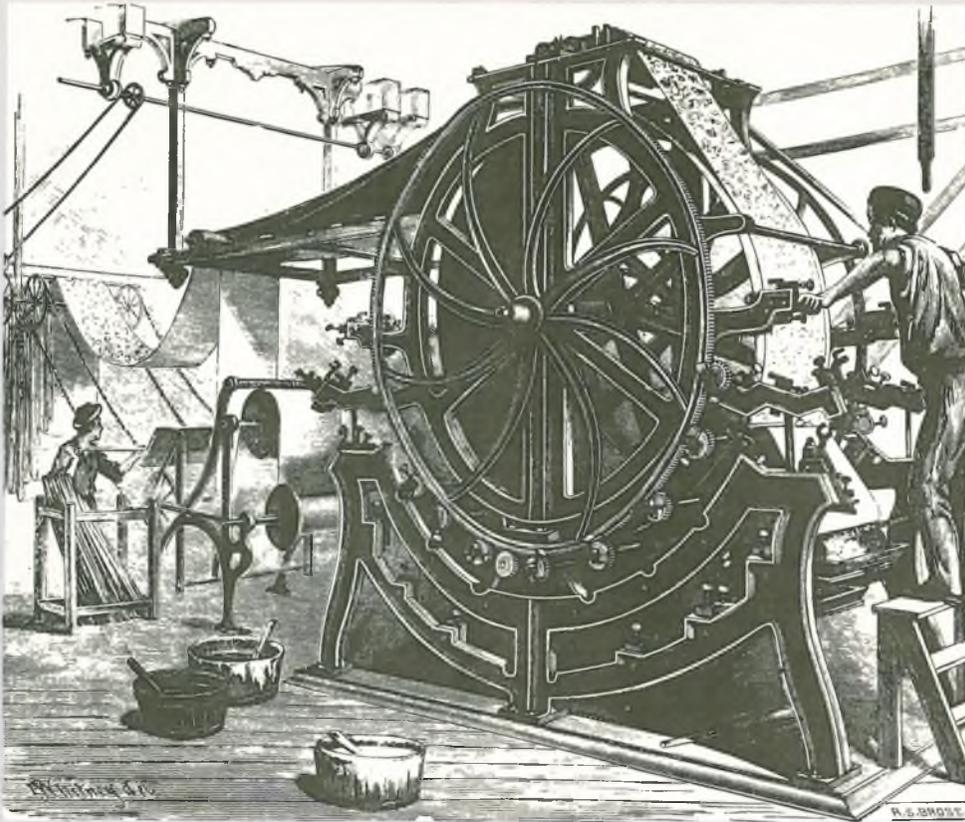
Don't attribute the clutter of the late 19th century drawing room entirely to taste. Technology should get equal credit—or blame, depending on your point of view.

The carved Victorian slipper chair, the flocked wallpaper, the elaborate silver-plated tea urn—all were produced by new machines and processes which influenced both the availability and design of decorative objects.

This interplay between technology and the decorative arts has been too little explored. Art historians



Schoolchildren learning about block-and-tackle technology at the "Artisans and Architecture Exhibition" at The Hagley Museum.



Twelve-color wallpaper-printing machine from the 1880s. From *Technological Innovation and the Decorative Arts*, published by Eleutherian Mills-Hagley Foundation, Wilmington, Delaware

have concentrated on the beautiful object, historians of technology on the machine. A rare blending of product and process took place when The Hagley and Winterthur Museums in Wilmington, Del. staged an exhibition at The Hagley Museum showing the industrial revolution's impact on home furnishings.

The exhibition, funded in part by NEH, was the work of graduate students from the museums' training programs and from the University of Delaware. Over 81,000 visitors saw examples of the evolution of wallpaper, furniture, printed textiles, guns, clocks, household iron items, and silver, from the hand-made versions of the eighteenth century through the machine-produced objects of the late nineteenth century.

As technology improved, production went up and prices down. Evaluating a foot-pedal mortising machine used in making furniture an 1836 commentator wrote: "With ordinary care, and a few hours' experience, any man can perform as much labor in one day, with this machine, as in a whole week in the ordinary mode." The proliferation of goods, combined with better distribution methods, made available to the masses household furnishings that had heretofore been seen only in the houses of the wealthy.

While wallpaper was made and printed by hand, people of ordinary means could not afford it. This situation began to change in 1840 when Howell and Brothers of Philadelphia imported wallpaper printing machinery adapted to the new paper manufacturing techniques which turned out paper in endless rolls.

With inexpensive wood-pulp paper replacing rag paper after the Civil War, prices were further reduced and demand increased. By 1881 the *Scientific American* noted that "papers for the finest and most costly mansion, and papers for the little nest of a cottage" were available at prices ranging from 25 cents to \$12 a roll, "thus suiting all purses and tastes." Such mass marketing made wallpaper a major carrier of decorative styles across the nation.

The influence of technology on design was often less than felicitous. The use of machines for embossing, gilding, and flocking wallpapers frequently meant the subordination of good design to novel effect. In the glassware industry, mold makers developed lacy patterns to camouflage the poor surface quality of early pressed glass. Even textile pattern repeat areas were limited by the diameter of the new mechanized rollers.

Although the machines brought an outpouring of goods from the industrial cornucopia, there was a reaction against technology. In protest against the poor quality of nineteenth-century wallpaper patterns, designers like William Morris revived the tradition of fine hand-printed papers, and handwork in luxury glass items continues to this day. Unique and original designs in household objects will continue to be created and sold—at a price. But the tremendous increase in machine-made items in the nineteenth century did much to close the economic abyss between rich and poor. □

(PROMETHEUS AT LEHIGH, Continued from page 2)

years, a harpsichord); when the time came, he wrote his own wedding music; and today he leads a family orchestra (his wife and four children all play) that enriches many a community program for his church. He has also made, by hand, a copy of an ancient Greek *kithara*, a lyre-like instrument, which he has learned to play. His manufacture of musical instruments qualifies him, in a way, as a technologist, toward which he has the further credentials of having spent four years during World War II as a flying instructor with the Royal Canadian Air Force.

For all that, it was a fortuitous invitation from the engineers that catalyzed Feaver's thinking as a curriculum planner. The invitation was from "the Tall Buildings man" at Lehigh—Professor Lynn Beedle, Director of the Fritz Engineering Laboratory. Beedle is Chairman of the Joint Committee on the Planning and Design of Tall Buildings, established in 1969 by the American Society of Civil Engineers and the International Association for Bridge and Structural Engineering, and funded largely by the National Science Foundation. The Committee's brief is to examine all aspects of tall buildings—the need for them, the problems they create—in light of the population explosion, the growth of cities, "the evident neglect of human factors in urban design," and research findings both old and new. Tall buildings are of the essence of modern civilization's complexity; the Committee's membership totals over 1,000 from 50 countries and its work is divided among nearly 50 subcommittees. The Committee has sponsored 22 international conferences since 1971, and 22 more are projected.

One day Lynn Beedle was holding forth to Doug Feaver about his next conference, which would deal with the history of tall buildings "going back 100 years." Feaver's reaction was "What, only 100 years? There were tall buildings in antiquity, too."—whereupon he was invited to read a paper at the conference. This he did, noting *inter alia* the ambiguity of ancient poets and philosophers toward technology, on which count "a great part of ancient religion was devoted to soothing the wrath of the gods outraged by the presumption of human technology." He went on to trace multi-story buildings back to the Bronze Age, when royal palaces reached four or five levels, and



Old and new skyscrapers, San Francisco.



Signs of Our Technological Times: Tall Buildings and Freeways in Los Angeles.

illustrated how progress marched on despite omens of disaster. One such omen occurred in the Third Century B.C. when an ox fell from the third story of a Roman building—nonwithstanding which "in the next two centuries there was a wild and uncontrolled spate of high-rise construction in Rome."

Feaver came away from the conference convinced that "although the relationship between technological advance and the quality of human existence is a major issue of our time, the potential contribution of the humanities to its understanding has not been adequately explored"—and that humanists themselves must take initiatives. The planners translated this message into the Humanities Perspectives on Technology program.

To break the ice—and breach resistant departmental walls—Feaver and his colleagues decided to lead off with a case-study approach. This was a Focal Area Workshop course called "Life and Work Habitat," which mobilized a relay of 14 faculty members from the three colleges, together with 33 students. Each week a different humanities perspective was the topic, and high points were provided in public lectures by Paolo Soleri, Wolf von Eckardt, and Isaac Asimov. For some students, the workshop was a success; others, accustomed to courses with a beginning, middle, and end, were disappointed—among other things because of conflicting faculty viewpoints and squabbles over terminology. Those conflicts, however, forced faculty members to consider the thought and method prevailing in other disciplines, an experience which was carried over into the new courses and seminars which constitute the evolving program. (Another div-



Government snag-boat removing obstructions from the channel of a western river to allow for the free movement of shipping. From *Harper's Weekly*, 1889.

ident was a 67-page bibliography, revealing the scope for pertinent inquiry.)

The new courses, and certain existing courses which relate to the program theme, will comprise a substantial "course concentration." At this juncture the program embraces 1) a large-scale introductory course, open to freshmen and taught by faculty from the three colleges, called "Humanistic Perspectives in a Technological Society"; 2) a series of new, mostly team-taught interdisciplinary courses—"Leisure in a Technological Society," "Media and Ethical Values," "Humanistic Uses of the Computer," and "Futuristics"; and 3) courses and seminars taught from a single disciplinary viewpoint, including "Technology and Its Critics," "Technology and Religious Thought," "Fiction and the Technological Vision," "Science, Technology and International Relations," "Science Fiction," "Social Ecology," and Feaver's course on the city in antiquity.

So far so good. The Lehigh program looks like a provisional success, judging by enrollments, student reaction, sustained faculty interest, and alumni support toward the gift-and-matching component of the NEH grant. But provisional is the operative word. The definitive test for the new or modified courses is whether they will be accepted, under the university's customary (and stringent) review process, as part of the regular curriculum. Among the 17 courses which relate to the Perspectives program, Professor James Frakes' course, "Fiction and the Technological Vision," has crossed the bar into the curriculum; Feaver's city-in-antiquity course is on the brink of adoption. The out-

look is good for six more humanities courses (in Fine Arts, Philosophy, History, English, International Relations) and two others (Psychology and Social Science). As Feaver puts it, "When the NEH grant lapses, we should have a significant deposit of regular courses that have developed out of the Perspectives experience."

A continuing headache goes with administering the program. Many departmental chairmen are involved, facilitating—or resisting—the release of faculty volunteers to teach Perspectives courses. The NEH grant underwrites the cost of the released time, enabling departments to replace their temporary sojourners. For some faculty who lack tenure there is an implied risk in venturing somewhat outside their specialties; as Feaver observes, "teachers are accustomed to being on top of their subject when in front of a class; to enter a new field like science fiction is to risk facing students who know more about the subject than you do." Among the untenured risk-takers is Ed Gallagher, Feaver's deputy in directing the Perspectives program, whose doctorate is in early American literature. Teaching the science fiction course, he reports, has turned out to be an effective means for opening students' thinking to questions of scientific and technological moment.

The program deserves credit for a major coup, in the form of a \$750,000 endowment for a Distinguished Chair in the Humanities. Under the endowment, given by the Andrew W. Mellon Foundation, Professor Carroll Pursell will come to Lehigh from the University of California-Santa Barbara to teach in the field of the history of science and technology, offering an important focal point for the whole Perspectives enterprise.

There are other pluses. One, growing out of the bibliographies produced in the various courses, is a library acquisitions program which is made possible by the NEH grant. Then there are the broadened horizons for several faculty participants in the Tall Buildings conferences, and for local community leaders—urban planners, architects, utility-company presidents—who have come in to address classes. Finally, the program has stimulated inquiries from 60 colleges, universities and other institutions interested in comparing notes or borrowing ideas.

Lehigh's President, Dr. W. Deming Lewis, remains committed to Humanities Perspectives on Technology,

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but the original plans for adding faculty have had to be scaled down as the trustees react to the pressures of inflation and the drop in value of the university's investment portfolios. Still, Lehigh has weathered these setbacks better than many schools, and a few new humanities teachers have been hired. A puzzle for the future is how student interest will hold up. There are signs that the anti-technology mood may lessen, with students no longer so sure they've got the answers, and there is some swing back to job-oriented ("vocational") goals.

The Two Cultures

Observers of the Lehigh program have found it highly imaginative, marked by a newly enhanced, carefully construed, and soundly based sense of mission of the greatest timeliness for the humanities. It appears also to be properly positioned to take part in the extraordinary, long-haul task of bridging the gulf between "the two cultures." For Lehigh's humanists, the degree of risk-taking has lent an unaccustomed *brio* to their professional and student relationships, in their own college and vis-a-vis the two others. In a way, their situation typifies the humanists' dilemma in society generally. Their college is somewhat overshadowed by the larger engineering school, with the result, as Douglas Feaver says, that "the humanists here simply have to work harder" to assert

the claims of their fields of learning. Moreover, an even greater disproportion is reflected in the larger government and private research and development grants received by the engineers—a disproportion consistent with federal budget allocations where funds for the support of science and technology continue to dwarf those available to the humanities and the arts.

In a word, humanists have their work cut out for them. As Herman Kahn and Anthony Weiner put it, in "The Year 2,000," the dominant Western belief is in the future and "the idea of progress." Even the increasingly common idea of decay is likely to evoke further technological schemes for fending it off. Can the lessons of the past shoulder their way forward, can they be activated in the universities to moderate what Kahn and Weiner speak of as man's "Faustian impulses to overpower the environment"?

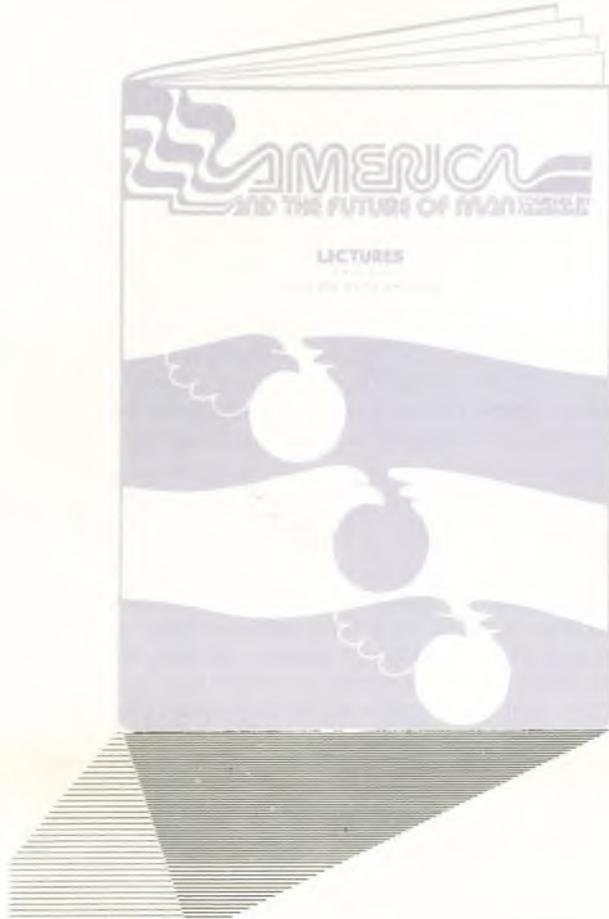
A resounding Yes is a bit much to expect, at least right away. But preparing citizens to live and act in a society of constant change—preserving identities in a mass culture—is an attainable and necessary interim aim. And if the greater goals René Dubos speaks of are to be imagined and gather force, the universities are their likely incubators. In an intellectual environment that proclaims the need for science, technology and human values to ameliorate their estrangement, Lehigh's Perspectives program is a promising starting point. □



Prometheus Fountain, RCA Building, New York City.

Courtesy Bettmann Archive

America and the Future of Man Becomes a Correspondence Course



The first Course by Newspaper, supported by NEH, will gain a new lease on life next year—this time as a correspondence course, conducted through the Independent Study Program, Extension Division, University of California, Berkeley. In its first year as a course by newspaper 20 million Americans, nearly 200 colleges and 270 newspapers participated in the novel educational experience, from the simplest involvement of reading the newspaper articles to studying in greater depth to taking the course for college credit in cooperation with local educational institutions. Inquiries and enrollment requests for the correspondence course should be addressed to Berkeley.

The series of 20 newspaper articles may be purchased in an anthology, *America and the Future of Man: Lectures*, for \$2.25 from: America and the Future of Man, 415 N. Hwy. 101, Solana Beach, California 92075. In addition, using the resources of the complete "Future Kit" prepared in CBN's first year, many colleges and universities are offering courses in Future Studies. The "kit" includes a record, reader, study guide, self tests, and game. It may be obtained from the Solana Beach address for \$10.00. Kit and lectures together can be ordered for \$12.25, including postage and handling. □

NEH Supports Cultural Events

The Endowment has been involved this spring in a trio of cultural events in the world of art history and humanistic scholarship.

Unicorn Tapestries at The Met

Opening in New York's Metropolitan Museum of Art on February 8 was an exhibition entitled, "Masterpieces of Tapestry from the Fourteenth to the Sixteenth Century," for which the Endowment made a grant to prepare the catalogue, educational material, and a film on "The Hunt of the Unicorn."

This display of 97 treasures of the art of weaving from medieval times was a joint venture between the Metropolitan and the Louvre. Tapestries were gathered from collections—museums, churches and private homes—in this country and Europe. Featured were the six-piece "The Lady With the Unicorn" from the Cluny Museum in Paris and the seven-piece "The Hunt of the Unicorn" owned by the Metropolitan. The exhibition, running through April 21, has attracted the largest number of visitors in Met history.

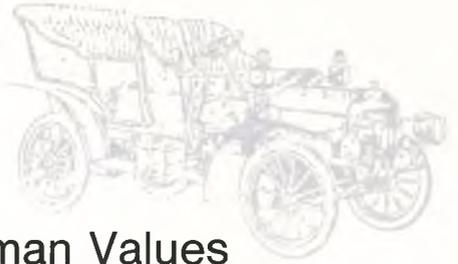
Folger Petrarch Festival

Another event supported by a grant from NEH was a Petrarch Festival arranged by the Folger Shakespeare Library and celebrated in various locations around town in honor of the 600th anniversary of the death of the brilliant Renaissance humanist, scholar and poet. There were a series of musical events, as well as lectures in English, French and Italian, symposia and workshops. There was even a commemoration of the award to Petrarch of the poet's crown of laurel by the City of Rome. Preceded by an academic procession, this reenactment took place on the steps of the Capitol, with appropriate speeches by government and festival officials, and a reading by Senator Pastore of Rhode Island of Petrarch's acceptance speech six centuries earlier.

Jefferson Lecture—Democracy & Poetry

The third spring cultural occasion was the Annual Jefferson Lecture in the Humanities, sponsored by NEH on April 29-30 when Robert Penn Warren gave a two-part presentation entitled "Democracy and Poetry." Held in the auditorium of the National Academy of Sciences before a capacity audience, the event succeeded the Jefferson lectures by Lionel Trilling and Erik Erikson in previous years.

Mr. Warren's remarks were broadcast nationwide and will be published later in book form. His theme concerned the loss of self in the toils of an inhuman and impersonal world, and how the self must be restored if civilization is to continue. □



Reading List on Science, Technology, and Human Values

This list, eleventh in a series, Good Reading in the Humanities, was prepared by a committee of the Department of the History of Science at the University of Wisconsin-Madison, under the direction of Victor L. Hiltz, Associate Professor of History of Science, University of Wisconsin-Madison. Also participating in the selection were members of a graduate seminar of the History of Science Department on "Social Aspects in the Development of Science."

The Subject

One of the chief characteristics of modern society is its dependence upon science and technology. Without technology American society could never have reached the point of affluence; without science, modern technology would be impossible.

Observers of this situation, however, have assessed it differently: Some have argued that science and technology have generally been detrimental to human values and have contributed to a "crisis of values." Others have seen a villain in technology but not in science. Still others have argued that science itself represents one of man's major moral as well as intellectual triumphs.

A thorough understanding of these conflicting views demands an understanding of the relationship between science, technology, and human values through history. The following books have been chosen to bring into focus some of the current areas in which science and technology are having an effect upon human values, as well as to give the historical background necessary to see these issues in perspective.

Good Reading

SCIENCE AND THE SOCIAL ORDER. Bernard Barber. Glencoe, Illinois: The Free Press, 1952. 288 pp. Available in paperback.

This is a pioneering analysis by a sociologist of the relationship between science (defined as the establishment of certain kinds of "conceptual schemes") and social influences "external" to it. Barber argues that the value system of science, with its emphasis upon rationality and individuality, is congruent at many points with the values of political liberalism. In a chapter on "The Social Control of Science" he speculates on what this means for a time when science is intimately involved in technological and political questions. A more recent book on a similar topic is John M. Ziman: PUBLIC KNOWLEDGE: AN ESSAY CONCERNING THE SOCIAL DIMENSION OF SCIENCE, Cambridge University Press, 1968. 154 pp.

SCIENCE AND HUMAN VALUES. J. Bronowski. New York: J. Messner, 1956. 94 pp. Available in paperback.

Bronowski brings forth examples from both science and poetry to make his point that science is not simply "a mechanical record of facts" but that scientific creativity, like artistic creativity, involves the discovery of underlying unity. Bronowski believes that the distinctive value contributed by the scientific revolution is the "habit of truth," and he maintains that this has ultimately contributed to a sense of human dignity.

SCIENCE AND THE CREATIVE SPIRIT: ESSAYS ON THE HUMANISTIC ASPECTS OF SCIENCE. Harcourt Brown (ed.) Toronto: University of Toronto Press, 1958. 165 pp.

One way to examine the effect of science upon human values is to investigate the impact of science upon the humanities. This book contains four essays by distinguished scholars in which the relationships between the sciences and the humanities are explored historically. Such issues are discussed as "does science deal with facts and the humanities with values" and "does science ask 'how' and the humanities 'why'?" Two chapters explore in detail the relationship between science and, respectively, English literature and French literature.

THE NEW TECHNOLOGY AND HUMAN VALUES, 2nd ed. John G. Burke. Belmont, California: Wadsworth Publishing Co., 1972. 266 pp. Available in paperback.

This is a collection of approximately fifty selected excerpts from various leading scientists, politicians, and writers on some of the most important contemporary issues raised by modern technology. The six headings under which the articles are arranged are: 1) Science, Technology, and Society; 2) Population, Resources, and the Environment; 3) The New Technology and the Individual; 4) The New Technology and Government; 5) The New Technology and the Future of Man; 6) Controlling the New Technology. The second edition of Burke's collection differs considerably in its emphasis and choice of material from the first edition, which is also recommended.

TECHNOLOGY IN WESTERN CIVILIZATION. Melvin Kranzberg and Carroll W. Pursell (ed.) 2 volumes. New York: Oxford University Press, 1967. 802 pp. vol. 1; 772 pp. vol. 2.

These two volumes contain a collection of historical surveys by leading scholars on a great variety of topics concerning the history of technology. The first volume contains surveys dealing primarily with the history of technology from antiquity through the nineteenth century; the second volume concentrates upon the twentieth century. The emphasis is not upon the

development of machines as such, but upon the economic, political, and social ramifications of technological change. Excellent bibliographies are included.

TECHNOLOGICAL CHANGE: ITS IMPACT ON MAN AND SOCIETY. Emmanuel G. Mesthene. *New York: New American Library, 1970. 127 pp. Available in paperback.*

Written by the director of the Harvard University Program on Technology and Society, this book rejects the idea that technology is either an "unalloyed blessing" or an "unmitigated curse" and provides a good inventory of recent work concerning the effect of technological change upon society. Technological change is seen to lead to, first, value change, by increasing the options available to society, and, additionally, to political and economic changes, by enhancing the public sphere at the expense of private life.

THE CHILDREN OF FRANKENSTEIN: A PRIMER ON MODERN TECHNOLOGY AND HUMAN VALUES. H. J. Muller. *Bloomington, Indiana: Indiana University Press, 1970. 431 pp. Available in paperback.*

Muller has made an attempt to explore the impact of technology on various aspects of society and culture—war, science, government, business, language, education, the environment, "people." Distrustful of the term "crisis," he strives especially for the balance of historical perspective. In passing he reviews the writings of most of those who have been concerned with the impact of technology during the previous decade.

TECHNICS AND CIVILIZATION. Lewis Mumford. *New York: Harcourt, Brace, and World, 1934. 495 pp. Available in paperback.*

Long before most others, Lewis Mumford was concerned with the problem of technology and human values. This is his first book on the subject and still perhaps the best introduction to his thought, as well as to some of the issues which he first raised. In organization this book is a history of technology, but in spirit it is a personal attempt to understand how technology has affected life. Although essentially optimistic, Mumford is especially sensitive to those cases in which technology, instead of liberating man, has introduced regimentation and standardization into his life.

THE TWO CULTURES: AND A SECOND LOOK. C. P. Snow. *Cambridge, England: at the University Press, 1964. 107 pp. Available in paperback.*

In a famous speech in 1959 C. P. Snow, an English novelist who is also a scientist, argued that the sciences and humanities constitute "two cultures" between which there is little communication. Furthermore, he maintained that the gap between the two cultures has led humanists to misinterpret and belittle the importance of the "industrial-scientific revolution," which he argued was the only hope of the developing countries. The speech gave rise to much debate both in England and the United States, and in a "second look," C. P. Snow reflects upon this debate.

MACHINA EX DEO: ESSAYS IN THE DYNAMISM OF WESTERN CULTURE. Lynn White, Jr. *Cambridge, Mass.: MIT Press, 1968. 186 pp. Available in paperback, as DYNAMO AND VIRGIN REVISITED.*

In this book a distinguished historian illuminates

the attitudes and values implicit in modern technology by relating these attitudes and values to the initial emergence of a Western technological tradition. Although White is one of the foremost experts on the history of early technology, this book is not a scholarly monograph, but a collection of provocative essays about the larger humanistic meaning of technology. Among White's themes is the emergence of the belief that man is superior to nature and can be its exploiter—a belief which he sees originating in religion.

Suggestions for Discussion

1. Is it possible or desirable to "stop progress" (as progress has been traditionally defined)? What are the implications of such stoppage—in this country? in underdeveloped countries?
2. Does science deal with facts and the humanities with values? Does science ask "how" and the humanities "why"?
3. Has technology liberated us or overwhelmed us with its regimentation and standardization?
4. Are there any areas of life in which human values outweigh the impact of technology?
5. Can the "two cultures" of the sciences and the humanities be brought into harmony with each other?
6. Has science encouraged man to feel superior to nature, or is it literature or religion that has done so? Is man headed for a fall? □



New Humanities Council Members

Appointment of six new members of the National Council on the Humanities was recently announced by the White House. The Council consists of the chairman of the National Endowment for the Humanities and 26 members appointed by the President for terms of six years. The Council advises the chairman on policies, programs and procedures for carrying out his functions, reviews applications for financial support, and makes recommendations about these to the chairman. The new members, whose terms will expire in 1980, are as follows:

Caroline Ahmanson, *art collector and philanthropist, Los Angeles*; Luis A. Ferré, *former governor of Puerto Rico*; Robert B. Hollander, Jr., *professor of Romance languages, Princeton University*; Edward H. Levi, *president of the University of Chicago*; Truman G. Madsen, *Richard L. Evans Chair of Christian Understanding, Brigham Young University*; and Blanchette Rockefeller, *trustee, Museum of Modern Art, New York City.* □



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	December 1, 1974	August 1, 1974
	April 1, 1975	November 15, 1974