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CLEVELAND STATE UNIVERSITY

THE GAMUT

A JOURNAL OF IDEAS AND INFORMATION

Number 3

Spring/Summer, 1981



Egyptian Altarpiece

Michael Ulichney

THE GAMUT announces a
SHORT-SHORT STORY CONTEST

First prize: \$200
At least two additional
prizes of \$100



Plus publication in
The Gamut, Issue #6
(Spring/Summer, 1982)



The short-short story is a condensed literary form combining the narrative interest of fiction with the economy of poetry. For the purpose of this contest, the maximum length is defined as 1000 words.

Eligibility: to be eligible, a story must not have been previously published, and must be by an Ohio writer (on any subject) or (by anyone) on a subject related to Ohio.

Deadline: entries must be received by December 31, 1981.

Contestants may submit more than one entry. Manuscripts should be typed double spaced, on standard 8½ x 11 paper. Clear photo-copies are acceptable. A cover sheet should contain the author's name, address, phone number, and social security number. Copyright on the winning stories will revert to the author after initial publication by *The Gamut*. Manuscripts will be returned if accompanied by a stamped, self-addressed envelope.

Send entries to: Short-Short Story Contest
The Gamut
1201 Rhodes Tower
Cleveland State University
Cleveland, Ohio 44115

This contest is supported by a grant from the Ohio Arts Council.



With the support of
the Ohio Arts Council

CLEVELAND STATE UNIVERSITY

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Address all correspondence to: *The Gamut*, Room 1201 Rhodes Tower, Cleveland State University, Cleveland, OH 44115

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David B. Guralnik

NEW WORDS FOR OLD

**Should dictionary makers help neologisms to enter the language?
— And if they should, *can* they?**

Our mailbox at the editorial office of *New World Dictionaries* is daily filled with a strange assortment of missives, ranging from scholarly queries and suggestions concerning the origin of a particular term, through peevish notes demanding explanation of the omission from our lexicon of "such a common word as 'prespiration,'" and panegyrics that can only be described as fan mail, to a category of communication that ends up in a file labeled "Odd Letters." That last group has a taxonomy of its own, including such species as *a*) the Ameliorative Alteration ("In the interest of euphony, the present spelling of 'dawdle' should be changed to 'dwadle,' i.e. 'dwindle.'"); *b*) the Cryptic Contribution ("Is it possible you dont no what justice is. if so would be glad to inform you."); *c*) the Nonsense Transaction ("I have found a funny misspelling [sic] in your dictionary. For a reward of U.S. \$500.00 [the writer lives in Taiwan] I shall mail you the page and point out the misspelt word."); *d*) the Unabridged Treatise (a thirty or forty-page letter promoting some religious cult, a pseudoscience, National Socialism, etc.); and many, many others.

And then there was the letter from a man seeking the etymology of "aradil," which "to

my knowledge means 'a desolate, damp atmosphere in nature's surroundings.'" When we replied that we had no record of such a word and asked where he had encountered it, he informed us that some ten years back he had written a poem with that title, which had been published in a newspaper, and he had puzzled over the origin of his own coinage ever since. And that letter was followed by one from a man who asked us to supply the meaning and origin of a word that had come to him in a dream, "aquapoint."

But it is a rare day that the mailbox does not contain at least one communication from a neologist offering, gratis or for a consideration, a coinage or coinages calculated to enhance the dictionary. Here, too, the level of sophistication among the coiners is a variable one, and the offerings range from well-constructed, occasionally even ingenious and potentially useful neologisms, through bastardizations usually formed by indiscriminate combining of Latin and Greek elements, to total and often incomprehensible whimsy. A small random sampling of recent submissions follows:

altophobia (presumably a synonym for *acrophobia*)

David B. Guralnik is the Editor in Chief of the family of Webster's New World Dictionaries, which includes the current Second College Edition and the Dictionary for Young Readers, and which has been located in Cleveland since its founding in 1941. Guralnik also serves as a vice president of Simon & Schuster, which recently acquired ownership of the dictionaries. He has been a practicing lexicographer since 1941, except for a three-year stint with the U.S. Army in World War II, during which he was cited with a Bronze Star Medal. He holds the degrees of B.A. and M.A. from Western Reserve University and is the author of The Making of a New Dictionary and of articles for various scholarly journals and anthologies. The Ohioana Library Association has cited him for his contributions to American lexicography. His wife, Shirley, a teacher and supervisor in the public schools for many years, is currently the administrator of an intensive English-language program for recent immigrants to the U.S. Guralnik has served as president of the Jewish Community Center of Cleveland and as a vice president of the Cleveland Jewish News, and he is currently first vice president of the Cleveland Chamber Music Society.



nomenym (the derivative of an eponym)

revulate ("to revolve and rotate at the same time")

artviera, flutorno, umbelre, vastnily, gramrail, pimtaner, et al. (all from the same neologist, "with no definitions as of now")

mannas ("an old, foolish, disrespectful person")

postjudice (antonym for *prejudice*)

ensmallment (from a nine-year-old, an antonym for *enlargement*)

polysmognythicalchemstratospheri-cramicroscopicalflux ("gas pollution," but obviously also a pretender to the throne of *pneumonoultramicroscopicsilicovolcanoconiosis*, popularly held to be "the longest word in the language")

And then there are the letters that mysteriously hint at treasures withheld, but seek only the method for "getting a new word into the dictionary" and the procedure for copy-righting it so that a royalty might be obtained in perpetuity from each future use of the term.

We usually inform coiners and would-be coiners that it is not the role of the dictionary to promulgate neologisms when they first appear. We add, for those who seek our approval of their brainchildren, that the lexicographer is neither a judge nor critic of language but only its historian. We explain briefly the process by which new terms are recorded in our dictionary when our objective evidence, in the form of citations, has established a pattern of usage over a reasonable period of time and within a broad geographical area. The correspondence usually ends there. But not always. One enraged rejectee really told us off:

... I do not agree with your beastly philosophy at all where you say the words have to be in common use first before they are accepted in the dictionary. Reason is there's only a few geniuses in the world who use brilliant words to describe ... The words I have sent I've used for ten to twelve years and only I know them. I thought it was about time they were put in the dictionary and they should not be rejected simply because I'm the only one that knows them. *An inventors work* should be published *Not rejected* ... You are not right and you know you aren't. I point out that generalized words used by the public are *fools thoughts* while rare words used by the rare people of high intellect are not the *fool publics thoughts* but the superior mans thoughts who

doesn't hide anything from other people. His thoughts may never be known if the dictionary doesn't publish them. Its your responsibility to publish such words at all risks.

This went on for some ten pages, the tone changing from denunciation to cajolery back to censure, and concluding with a glossary of neologisms describing the editors of *Webster's New World Dictionary*. Among them:

gumberbeast (a) a person who will not accept new ideas. (b) a person who is a hinder [sic] to progress.

The passion in that letter, while a little stronger than in most, does characterize much of the mail from neologists. Apparently some people view a contribution to the English lexicon as offering a more lasting transmission to posterity than a published poem or even a platinum record. One man, the president of a bank in California, wrote that he had used the word "unimpedable" and being informed by a colleague that there was "no such word in the dictionary" (the OED does record one nonce usage (1677) of *unimpedible* — the Latin verb *impedire* is of the fourth conjugation) wanted to know if there is "some rule of thumb that prohibits its institution into the language? I'd love to be a contributor to the English language." I replied:

No, there is nothing in the linguistic process to prohibit you from coining a term and using it in your writing. That, in fact, is how the language grows and how the entire lexicon came into use. Someone somewhere at some time felt the need for a new term to express some idea, took a chance and coined a word, and employed it. Others found it useful and borrowed it, and eventually it became a common usage. At that point it was uncovered by lexicographers and recorded in dictionaries. Of course, for every attempt that has succeeded, there have probably been dozens or even hundreds of nonce usages that have not caught on. The pattern of success usually, but not invariably (the language seems to have a life of its own), follows a fixed route. There must be a felt need for such a term, that is not completely satisfied by existing terms. It may be coined in any of various ways, but usually by combining elements already in English or borrowed from other languages, especially the classical tongues. And it must somehow appeal logically and esthetically to those who read or hear it so that they will use it themselves.

Well, then, just how does a new term get into our dictionary? Earlier in this article I made reference to "objective evidence, in the form of citations." These "citations" are slips of paper, four by six inches, to which are at-

tached either clippings or reproduced examples of words in context taken from a wide range of publications, mostly current, and including newspapers, magazines, books, journals, and, in fact, the printed word wherever it might appear — catalogs, labels, advertising brochures. These slips, each properly identified with the necessary bibliographical data, are the evidence that tells the serious lexicographer (not all dictionary publishers maintain an ongoing program of citation) whether a new word has come into use, whether an existing word has acquired or is in the process of acquiring a new meaning or new shade of meaning, whether such a word is being used widely or in a limited area (of either geography or intellectual activity), how long the term has been in use, and whether its occurrence is increasing or declining.

These slips are supplied by readers, mostly by specialized members of staff assigned to read full time in prescribed areas, some by dictionary editors from their personal reading, some by volunteer citators (often retired academics) geographically scattered. (Our instructions to the citators are reproduced on the next page.) In the course of a year, several hundred different periodicals (at all levels of usage — mass-popular, technical, specialized) will be monitored, many issue by issue, others intermittently. In addition, over 500 books a year (fiction, non-fiction, technical, reference, etc.) will be read. Our current file, begun a little over twenty years ago, contains about a million slips, accretions averaging some 50,000 per year.

Those million slips are almost entirely for words that have come into use in the past two decades or for terms that have undergone change or extension of meaning in that period. Were it even possible to duplicate the files of the Oxford English Dictionary, that vast corpus accumulated over a period of more than half a century by thousands of volunteer readers — and it is no longer possible to revive that era of scholarly altruism — it would be folly to do so. The wheel needs no rediscovery, and the more than a million and a half recorded citations in the OED from the earlier standard literature have been serving all modern lexicographers well for the better part of a century. From time to time additional citations from the older literature will surface and bring a fresh light to bear on nuances of some of the established items of vocabulary, and sometimes even antedatings may be uncovered, that is, occurrences in print that precede the earliest citation previ-

ously found. But for the most part, the work of our citators is concerned with collecting occurrences of the new vocabulary in print or with clearly definable changes in usage for items of the standard lexicon.

Textual data is the source for all new accretions to the dictionary. Ideally the total language activity during the period that a given dictionary is in preparation would be inspected and analyzed, but not even the entire Federal budget of monies dedicated to all the arts and humanities would suffice for that purpose. And so the ocean of printed matter with which we are inundated in our times must be sampled, with as much scientific accuracy as we can muster — for we know that our kind of citation file has a built-in bias toward the novel and the unusual. And the scanning must still be done by the human eye, for the state of the art is not yet such as will allow the computer to distinguish some of the current uses of *seminal*, for instance, from the senses already recorded, or to recognize that such a two-word compound as *fortress mentality* may have a distinct lexical meaning that cannot be automatically understood by combining the meanings of the individual words.

And so we have selected a broad, and we believe representative, spectrum of current publications for regular monitoring, a number of others for occasional reading, and to round out the coverage, we allow a certain amount of scanning to be done ad libitum, knowing that the range of interests of our citators and editors in the aggregate is broad enough to fill in most of the gaps that may occur in our prescribed readings. The newspapers monitored extend literally from coast to coast — from *The New York Times* to the *Los Angeles Times*, with a number in between. The periodicals range from *Commentary* to *Commonweal*, from *Mademoiselle* to *Army Times*, from *Electronics World* to *Mother Jones*, the *New Republic* to *Playboy* and *Playgirl*, *Reader's Digest* to *Foreign Affairs*, *Apartment Life* to *Chemical & Engineering News* and approximately three hundred others that are read cover to cover (including advertisements, if any), either issue by issue or sporadically. Approximately five hundred new books are read for citations annually, both fiction and nonfiction, and literally thousands of leaflets, bulletins, programs, and the like are scanned. In all at least two hundred million words of print are read each year to help us keep our fingers on the pulse of the language.

As mentioned earlier, approximately 50,000 citation slips enter our files each year.

GUIDE FOR CITATORS

1. Each citator will be assigned several periodicals (weeklies, monthlies, and quarterlies) that he will read in toto. In addition, each citator will read as his taste dictates in newly published books, fiction and nonfiction, to the extent that his hours will allow.
2. Slips will be made out for all new words, compounds, and phrases (and for new meanings of established words, etc.) that are not already entered in WNWD, College Edition. Care must be taken not to confuse a mere nuance with an actual semantic extension. For example, a word that is recorded as having widespread usage in figurative extension should not be cited for each apparently new figurative use, if this use merely represents another example of the kind of extension described in the dictionary.
3. Each use of a new word, phrase, or meaning from a book should be entered on a separate slip as follows: a) the word or phrase in the upper left-hand corner; b) the year of first publication (and, if it is clear that the word appears in matter appended in a later revision, the year of that revision), the author (with double underline), the title (with single underline), the page (with column number if printed in columns); c) the quotation. For newspapers and periodicals, the following order will be observed: a) the word or phrase in the upper left-hand corner; b) the year, the writer (only if he is a prominent writer, critic, statesman, etc.) with a double underline, the periodical (with a single underline and abbreviated where readily identifiable), the actual date of publication; c) the quotation, clipped and pasted where possible.
4. The quotation should be as full as need be for adequate context. This may mean a phrase, a sentence, or several sentences. Verbiage unnecessary to the context may be omitted and indicated by the dots of ellipsis. The word being cited should not be underlined unless it appears in italics in the original copy.
5. From time to time citators may be supplied with a number of words to whose appearance they will be asked to remain especially alert.
6. One category to which all citators are to pay particular attention is the trademark. If a word is known or strongly suspected to be a trademark, any occurrence of this word that appears to be a generic use of it (whether upper- or lower-cased) should be cited.
7. Any additional or personal comment that the citator may wish to make (e.g., a note on the greater context beyond that shown in the citation) should be entered on the back of the slip, with the word "over" shown in the lower right-hand corner of the face of the slip.
8. When in doubt, leave it in.

The editorial office of *Webster's New World Dictionary* gives this set of instructions to each of its citators — the people whose job is to read new publications and discover new words or new meanings of old words.

That number may represent anywhere from 5,000 to 10,000 discrete terms. Some hot, vogueish terms — such as the current *Abscam*, *cost-effective*, *MX Missile*, *money market*, *palimony* ("alimony" paid to a former "pal") — may have well over 100 citations each from dozens of sources, but a large number of terms will be represented by no more than one or two slips. Not all terms that go into the file are "new" ones. Some may be old, well-established but relatively rare words that have been encountered by our citators but are not entered in our *Webster's New World Dictionary*, Second College Edition, a desk dictionary of approximately 160,000 vocabulary entries. It must be remembered that no dictionary, not even a so-called unabridged dictionary, not even the multi-volume *Oxford English Dictionary*, does or ever could record the entire lexicon of English, if for no other reason than that while the work is in production, new leaves are already sprouting on that linguistic tree. No present-day dictionary is more than a selection, greater or smaller, from the total of well over a million lexical units and morphemes that make up our language at this time.

A portable desk dictionary such as our Second College Edition must be particularly selective in order to remain portable, and so it is safe to say that of the fifty or sixty thousand distinct new terms in our current file, no more than a third will ever be seen in print in such a dictionary. But that decision is an editorial one, and our citators must be omnivores, swallowing up everything lexical that comes their way. Old, even obsolescent, terms have a way of being resurrected from time to time. Take the word *serendipity*, for example, coined by Horace Walpole c. 1754 and virtually moribund by the end of the 19th century. But for some reason, not readily discernible, about 1950, some serendipitous writer rediscovered the term, it became the in word, survived the ravages of the '60s and '70s, and will be found in any current dictionary beyond the scope of the little vest-pocket collections. A few years later such solid but arcane terms as *hubris* and *charisma* and *rebarbative* were born again as the darlings of the literati and political pundits. When our citators come across the first instance of such a disinterred ancient, they cannot know whether it is a case of linguistic exhibitionism for the nonce or whether it presages a full-blown revival. Only time and a flood of citations will tell us that. Occasionally the apparent revival of an obsolete term is, in fact, not that at all. Both *couth* and *kempt* were perfectly respectable words that fell into disuse

in the 18th century, although their privative forms, *uncouth* and *unkempt*, continued in unabated use. Their reincarnation in recent years is less a revival than a whimsical and somewhat facetious back-formation from the surviving words.

Sometimes the cycle of birth, death, and resurrection is telescoped into a relatively brief period. The slang term of euphoria *copacetic*, of uncertain origin and at least a half-dozen spellings, originally cropped up in the Black community at the end of the first World War. It flourished in the jitterbug era preceding World War II, but by 1960 it appeared to have run its course and was ready to be laid out. And then for some reason as yet unknown to me (one member of our staff speculates that its use by an astronaut in a radioed message from his capsule in space was the shot of adrenalin needed), it began to be heard and read again in the mid '70s, at first with self-conscious and half apologetic references to its halcyon past, but now as an assertive claimant for reentry into the dictionary.

At two-year intervals we bring out updated revisions of the dictionary. That task includes the recording of such essentially non-lexical information as the fact that the country formerly known as Rhodesia is now called Zimbabwe, that Jimmy Carter vacated an office immediately filled by Ronald Reagan, and that the new monetary unit of Angola is the *kwanza*. But the major part of our work is the selection from our swelling files of those new terms and usages that readers are most likely to encounter in their general reading and about which they are most likely to seek information of one sort or another.

How is that selection made? Obviously it is in part based on a statistical assessment. When there are a great many citations of a term, clearly it has considerable frequency of usage. A paucity of citations suggests that the term is rarely encountered, at least in the kinds of publications with sizable readerships. But mere numbers alone are an inadequate basis for making the necessary determinations. Geographical distribution and, usually, continued appearance over some period of time must also be taken into account. Twenty citations of a term from a single publication over a one-year period may simply indicate the infatuation of a single writer with that term, but the same number from ten or twelve publications spanning a period of three or four years suggests a term that has a good chance of surviving long enough to warrant its being recorded in a dic-

tionary. And if a number of those *cits* (as they are usually clipped in the shoptalk of lexicographers — pronounced variously *sits* or *sits*) come from hardcover books, its claim for space in the permanent record is reinforced.

Each biennial updating will *inter alia* involve the inclusion of at least a hundred newer terms or extended usages and may in some years incorporate upwards of three hundred. Why so few, some may ask, when there are many thousands of neologisms in your file that one might reasonably expect to be entered? But there are others who maintain that no additions should be made to the lexicon except at extended intervals of twenty years or so. In a time of particularly great flux, they argue, the dictionary should serve as a kind of linguistic gyroscope helping to keep the language on an even keel. Perhaps, they reason, if the dictionary were to exercise long-range restraint in recognizing the existence of the new teratisms spawned by our culture, they would wither away and die.

To both groups modern lexicographers reply that they are neither for nor against change. They simply recognize that it is inevitable, just as resistance to change also serves a useful purpose. It slows down the pace so that a continuity of understanding may be maintained from one generation to the next. The balance between those who would innovate and those who resist innovation is a delicate and necessary one. The vigor and utility of our language are the happy result of that balance. Lexicographers dare not attempt to upset that balance. They are the historians who record the successful accretions and ignore the chaff that has been swept away by those who mold and form the language — its users.

It is easy to forget how quickly some neologisms become woven into the fabric of the language and lose their novelty. We must frequently respond to letters from persons complaining because their 1960 dictionary has ignored a term not even coined until the middle '60s. If current dictionaries recorded no term introduced more recently than twenty years ago, where would readers go for information about the *greenhouse effect*, *consumerism*, *op art*, *gasohol*, *open-ended discussions*, *foxy ladies*, *on-line computers*, *open-heart surgery*, *laugh tracks*, *hot lines*, *Hovercrafts*, *magnet schools*, *fast food*, *flexitime*, and thousands of other terms that have become common coin within the past two decades?

But, insist the opponents of rapid (or any) change, the mere inclusion of ill-

conceived or infelicitous neologisms in a dictionary grants them a sanction that guarantees their survival. Or as one correspondent objecting to the inclusion of *househusband* in our dictionary recently put it, "Please ignore poorly chosen words as not worthy of your printer's ink. They will die as quickly as they were born. Let us upgrade our language and use the beautiful words which have stood the test of the years." To which I answered, "To describe such terms as 'poorly chosen' and to predict that they will 'quickly die' is to assume the roles of both judge and prophet, neither of which is our proper function. When Thomas Jefferson coined the word *belittle*, he was roundly berated by some of his contemporaries for spawning a monstrosity that they predicted would shortly die. *Belittle* is still a much-used term and scarcely raises an eyebrow today. That is how language grows . . . What it comes down to is that you, a user of the language, have every right — in fact, the responsibility — to choose your words carefully. But unless we, the recorders of the language, offer you the full inventory of words from among which to choose, we will have been derelict in our duty."

The term *househusband*, entered in the 1978 updating of our dictionary, may be a good one to demonstrate the process by which a neologism is inducted into the community of the English lexicon. For the uninitiated, let me quote the definition in WNWD: "a married man whose main occupation is managing a household and performing the domestic chores traditionally done by a housewife." The first citation available to us, from *The New York Times*, is dated 1970. At the time the decision to enter it was made, our file contained 39 citations from the following publications: *The NY Times*, *Plain Dealer*, *Playboy*, *Money*, *Ladies' Home Journal*, *Ms*, *Time*, *Newsweek*, *People*, *McCalls*, *Shopper's Guide*, *Redbook*, *Cleveland Press*, *New West*, *Village Voice*, and *Esquire*, as well as citations from five books published between 1975 and 1978. So broad a representation, from 21 varied sources over a period of nearly a decade, made the decision on *househusband* an easy one, however offensive the word (or is it the concept?) may be to some.

One may also question whether dictionary "sanction," or conversely the lack of dictionary recognition, has any significant effect upon the survival of a term. Samuel Johnson, whose *Dictionary of the English Language* (1755) is a landmark in lexicography, originally hoped so. James Boswell, in *The Life of Samuel Johnson*, writes:

On Monday, March 23, I found him [Johnson] busy, preparing a fourth edition of his folio Dictionary He would not admit *civilization*, but only *civility*. With great deference to him, I thought *civilization*, from *to civilize*, better in the sense opposed to *barbarity*, than *civility*.

Even though Dr. Johnson made the great step into modern lexicography by basing his Dictionary on citations, he was evidently not able to free his editorial decisions entirely from personal taste. As late as the Eleventh Edition of the Dictionary (1818 — thirty-four years after Johnson's death), *civilization*, in its meaning "the condition of being civilized," still does not appear, despite the availability of citations, including one from Edmund Burke. But the word — although there may be some doubt about the referent — certainly survived. (Incidentally, Noah Webster does recognize that usage in his dictionary of 1828.) And, to cite a classic example, the old vernacular terms dealing with the organs and functions of sex and excretion, long taboo in our culture, have managed to survive and thrive despite their absence for centuries from all dictionaries until just a few years ago.

Conversely, the recognition by dictionaries, for perfectly valid reasons, of such recently faddish terms as *anomie*, *brinkmanship*, *goo-goo eyes*, *jawbone* (the verb), and *nudie* was no warranty that the terms would remain in vogue, and they are rarely encountered today.

A language is an organism with a life of its own, and a new term tossed out into the linguistic marketplace lives or dies as users of the language either accept it or reject it. All the fulminations against the propriety of *finalize* and *hopefully* did not prevent those terms from gaining enough acceptance for lexical recognition. On the other hand, artificial campaigns to introduce new terms are usually doomed to failure. From time to time, organized lobbies write to dictionary publishers seeking to promote some coinage or another. For a number of years beginning in the late '50s, groups within the radio broadcasting industry carried on a campaign for the replacement of *disc jockey*, which they apparently viewed as somewhat pejorative, with a euphemistic *musicaster*. Much money was apparently spent on puffery, including contests for "the best definition of *musicaster*," but today, twenty years later, the citation file remains silent on that term, and a *disc jockey* remains a *disc jockey* (unless he is a *deejay*) — although there is now an extended meaning, already recorded in our dic-

tionary, designating the chief steward at a disco.

Similarly, practitioners of electrolysis ("the removal of unwanted hair from the body by destroying the hair roots with an electrified needle") were unsuccessful in an attempt to change their designation from *electrologist* to "hypertrichologist," but some, I note in passing, now call themselves "cosmetic therapists." On the other hand, *chiroprapist*, a term in continued use since the late 18th century, has now metamorphosed into *podiatrist*, after a decade or so of uneasy coexistence by the two as virtual equals.

There seems to be no objective way of anticipating general acceptance or rejection of a proposed term. That great neologizer, Lewis Carroll, in "Jabberwocky" alone introduced some 26 coinages — apparent blends, portmanteau words, some arbitrary formations, a few revivals of obsolete arcana — but of that number, only two, *chortle* and to a lesser degree *galumph*, seem to have survived as fixtures in the language. Why those two and not *uffish* or *vorpal* or *frumious*?

Again, back in 1965, I received letters from officials in the Department of Health, Education, and Welfare and in the Chamber of Commerce of the United States, urging that we expand the definition of *agriculture* to include "servicing agricultural needs — the selling of fertilizer, seed, farm machinery, sprays, etc." After pointing out that we, in fact, had no textual evidence of such an expansion in meaning, I noted that in our files were three citations for a new coinage, *agri-business*, which seemed in context to have precisely the meaning they wished to attach to *agriculture*. Since that time, of course, *agri-business* (var. *agrobusiness*) has become an established, common term, and it has been an entry in our dictionary since 1970.

Sometimes it literally takes an act of Congress to bring about a change, and even then there may be only a partial victory. That fine old American whiskey, *bourbon*, was first distilled in Bourbon County, Kentucky, in the 1780s, and for a time its name was written with an upper-case initial, *Bourbon*. By the second half of the 19th century, *bourbon* had become a generic term for whiskey prepared from a fermented mash of not less than 51% corn grain, and was almost invariably written with a lower-case *b*. The 88th Congress of the United States, apparently in response to pressure from The Bourbon Institute, passed a Concurrent Resolution (in the Senate, 1963; in the House, 1964) that read in part as follows:

CONCURRENT RESOLUTION

Whereas it has been the commercial policy of the United States to recognize marks of origin applicable to alcoholic beverages imported into the United States; and . . .

Whereas among the standards of identity which have been established are those for "Scotch whisky" as a distinctive product of Scotland, . . . and for "Canadian whisky" as a distinctive product of Canada . . . and for "cognac" as grape brandy distilled in the Cognac region of France . . . ; and

Whereas "Bourbon whiskey" is a distinctive product of the United States and is unlike other types of alcoholic beverages, whether foreign or domestic;

. . . Now, therefore, be it

- 1 Resolved by the Senate (House of Representatives
- 2 concurring), That it is the sense of Congress
- 3 that the recognition
- 4 of Bourbon whiskey as a distinctive product
- 5 of the United States be brought to the attention of the
- 6 appropriate agencies of the United States
- 7 Government toward
- 8 the end that such agencies will take appropriate action to
- 9 prohibit the importation into the United
- 10 States of whisky
- 11 designated as "Bourbon whiskey."

The Bourbon Institute then publicized and vigorously promoted this official act of orthography and was successful to the degree that enough citations for *Bourbon* came in to warrant our prefacing the definition with "[Sometimes B-]."

What are some of the newer terms or usages that are helping to bulge our files and that we are considering for entry in the next updating? Here is a small random sampling that may somehow typify current interests and concerns: *acid rain*, *acupressure* (actually an old term for an ancient oriental healing practice which has acquired a vogue in recent years), *alien* (from science fiction, an extension of the term to signify any nonterrestrial creature), *cost-effective*, *capital-intensive/labor-intensive*, *supply-side* (the latest catchword of the new economics), *forensic* (the term was originally restricted to public debate or formal argumentation, as in a law court, then was applied to a branch of medicine dealing with questions of law as they affect life or property, and now has been extended so that we have "forensic science in general," "forensic chemists," "forensic anthropologists," and the like), *borborygmus* (an archaism, though found in the medical dictionaries, for the rumbling sounds made

in the belly, a word rediscovered with delight a few years back by such writers as Granville Hicks, and since borrowed by many others charmed by the sounds of the word if not by those it describes), *toxic shock syndrome*, *gridlock* (a creative coinage for the increasingly menacing urban disaster — the ultimate traffic jam in which no vehicle can move in any direction), *refusenik* (a Soviet citizen, usually a Jew, who has been refused an exit visa), *downplay* (a transposed compound from the phrase *play down*, that is particularly offensive to the guardians of the language, although they have learned to live with *downgrade*, *downshift*, and *downsize*, with apparent equanimity), *docudrama* and *mini-series*, *vulnerable* (the in synonym for *sensitive* — "his face and voice are soft and vulnerable"), and of course, *Moral Majority*, which some would say is a misnomer all the way around.

The above list is just a *minuscule* sampling (our files indicate that over the past two years, the erroneous *miniscule* is running neck and neck with the standard spelling — approximately 200 instances of each from comparable, very often the same, publications) of the terms that are affecting, perhaps enriching, our language and, as a result, influencing our thought. The process is a reciprocal one: language is the product of thought and, in turn, affects it.

Once a selection of new entries has been made, determined in part by the mechanical problems and costs of opening pages of metal type, the orthography must be decided upon, pronunciations must be extracted from our oral citation files (sometimes fortified by the recommendations of informed consultants), definitions must be constructed, based on the contexts of the citation slips, levels of usage must be determined by the collective ears of a staff of experienced lexicographers, etymologies must be tracked down, and, for *Webster's New World Dictionary*, it must be established whether the term in question is or is not an Americanism. (WNWD is the only general dictionary to identify all those terms in the language whose first usage occurred in the United States or in those colonies which were to become the U.S.A.) And finally, through a process of editorial legerdemain, space must be found on the affected pages for the newcomers to the lexicon.

When Samuel Johnson began work on his remarkable dictionary in 1747, it was with the intention that its forty thousand entries would fix the language forever. In that best of all possible worlds in which he lived, Georgian England, it was inconceivable to many

of his contemporaries that there would ever be need for more or better vocabulary than that in use by Pope or Steele or Johnson himself. But eight years later, when he came to write the preface to the dictionary, Johnson had changed his mind:

Those who have been persuaded to think well of my design, will require that it should fix our language, and put a stop to those alterations which time and chance have hitherto been suffered to make in it without opposition. With this consequence I will confess that I flattered myself for a while; but now begin to fear that I have indulged expectation which neither reason nor experience can justify. When we see men grow old and die at a certain time one after another, from century to century, we laugh at the elixir that promises to prolong life to a thousand years; and with equal justice may the lexicographer be derided, who being able to produce no example of a nation that has preserved their words and phrases from mutability, shall imagine that his dictionary can embalm his language, and secure it from corruption and decay, that it is in his power to change sublunary nature, and clear the world at once from folly, vanity and affectation. . . .

Total and sudden transformations of a language seldom happen; conquests and migrations are now very rare: but there are other causes of change, which, though slow in their operation, and invisible in their progress, are perhaps as much superiour to human resistance, as the revolutions of the sky, or intumescence of the tide. Commerce, however necessary, however lucrative, as it depraves the manners, corrupts the language. . . .

There are likewise internal causes equally forcible. The language most likely to continue long without alteration, would be that of a nation raised a little, and but a little, above barbarity, secluded from strangers, and totally

employed in procuring the conveniences of life . . . [But] when the mind is unchained from necessity, it will range after convenience; when it is left at large in the fields of speculation, it will shift opinions; as any custom is disused, the words that expressed it must perish with it; as any opinion grows popular, it will innovate speech in the same proportion as it alters practice.

As by the cultivation of various sciences, a language is amplified, it will be more furnished with words deflected from their original sense . . . The tropes of poetry will make hourly encroachments, and the metaphorical will become the current sense . . . As politeness increases, some expressions will be considered as too gross and vulgar for the delicate, others as too formal and ceremonious for the gay and airy; new phrases are therefore adopted, which must for the same reasons, be in time dismissed.

Johnson's sudden, sharp insight into the ways of language may be viewed as one of the foundation stones of the edifice that we now call the art and science of modern lexicography. A cynic might say that the dictionary maker's interest in a constantly changing language is self-serving. But the lexicographers need not concern themselves with that. With or without their interest, the language will continue to go its own way. By the time in the not-too-distant future when America's space shuttle begins regular flights to stations orbiting above the earth, dozens of words now totally unknown will have firmly ensconced themselves in the English language, whether or not dictionary makers or anyone else approves. Indeed, the evolution of our language will end only when our culture itself ceases to exist.

Sara Ruth Watson and John R. Wolfs

MOVABLE BRIDGES OVER THE CUYAHOGA RIVER

Cleveland now has a greater variety of these beautiful and practical structures than any place on earth; but in 1837 "Two bridges or none!" was the battle cry of the famous Bridge War with Ohio City.

A great movable bridge, with its mathematical lines and huge poised weight, inspires the same kind of admiration as a Gothic cathedral. Yet it is as practical as the ugliest assembly line. If you love movable bridges, there is one city for you: nowhere else in the world can you find a greater variety of them than along the two-and-a-half-mile navigation channel of the Cuyahoga River in the heart of Cleveland.

At one time seven different railroad lines entered Cleveland; all of them needed bridges to take them across the valley and the River into the terminals, and each structure had to be designed to fit its particular location. Since they were constructed at different times over the greater part of a century, the twenty-two bridges across the navigable part of the River at present graphically portray the development of movable bridges in the United States. One can see viaducts, stone masonry arches, concrete arches, cantilever spans and girder spans; but it is the movable bridges, with their shifting of immense weights, that catch one's fancy: the swing bridges, vertical lift bridges, bascule bridges, jack-knife bridges and Scherzer Rolling Lift bridges.

Since river vessels always have the right-of-way, each bridge must be opened upon signal from the water (sometimes to the dis-

gust of delayed motorists). The boats' signal for opening the spans over the main river is one long whistle and two short ones; for opening the two bridges over the old riverbed one long, one short, one long, one short. Then the operator on the movable bridges, which are equipped with a whistle synchronized with a white light, will answer with a long and short whistle, plus the light signal. If a bridge cannot be opened immediately, three blasts of the whistle and the light will be given as a check signal. During certain rush hours, the bridge operator has to be alert; while the current in the river is running, he knows a vessel cannot stop when underway. Of course every captain knows not only the exact location of each bridge and the depth of the water under it; he also knows the type of bridge, the vertical clearance and the clear width of the open span. So he can judge his distances and timing precisely.

Most of the bridges are manned twenty-four hours a day, the year round. For vehicular bridges, a bridge operator, stationed in the house at the center of the bridge above the roadway, actually runs the mechanism. An "end man" is stationed at the end with the most traffic to act as eyes for the operator, to flag down the speeding motorist, and to make sure that no pedestrian gets a free ride, accidental or intentional. Today only the



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Center Street and Willow Street bridges utilize end men.

When a bridge opens, the traffic lights turn red, the alarm bell clangs, and the gates are lowered. The barrier cable is lowered to stop cars from plunging into the river, and the bridge lock is drawn to allow the bridge to move. A switch can now be energized that will raise the bridge. Interlocks prevent premature movements. As the bridge rises, the operator gets a ride. And when the span reaches full height, a guide tells the operator the height of the opening (generally ninety-eight feet), although there are, in some cases, emergency extensions of height, and automatic stops prevent over-ride. When navigation lights turn from red to green, the ship may pass.

If we cruise up the Cuyahoga River from the channel entrance at Lake Erie, the first bridge as we enter the harbor is a modern vertical lift bridge. This type is the most popular today because it is fast and easy to operate and because it does not obstruct the channel. It is also aesthetically pleasing. A vertical lift bridge operates in much the same fashion as an ordinary window sash, which moves up and down in vertical guides and is hung from sash-cords that go over a pulley at the top, with a counter-weight at the other end. A vertical lift span is easily recognized by the high skeleton towers, one at each end of the span. The cables that carry the counter-weights pass over giant pulley wheels, called "sheaves," at each end of the lift span. These weights equal that of the lift span, and the height of the towers is determined by the height to which the span has to be raised to provide the necessary clearance over the waterway. The towers are tied at the top with a truss that keeps the towers in perfect align-

ment. For long spans the vertical lifts are the most efficient.

This first bridge, Penn-Central Bridge No. 1 over the Cuyahoga, was designed by Howard, Needles, Tammen and Bergendoff and was part of a \$13,236,000 program started in 1946 by the Corps of Engineers to replace six bridges. This fine specimen of a vertical lift is a double-track railway bridge, originally serving the main line of the New York Central and the ore traffic to the Pennsylvania docks. Its center span is 265 feet, and it has a lift of 98 feet. It replaced an old swing bridge that had a center pier which permitted the use of only half the channel for navigation purposes.

Before we advance farther up the River, let us glance to our right at the old riverbed, for over it are two interesting bridges. The first one was built in 1907 by the Baltimore and Ohio Railroad. This structure was designed by the Scherzer Rolling Lift Company, and the steel work was fabricated by the King Bridge Company of Cleveland, one of the oldest, and in its day one of the most prestigious, of such firms. This bridge introduces us to another type of movable bridge, the Scherzer Rolling Lift. Designed by William Scherzer of Chicago, it was a popular type around 1900. Steel trusses or girders across the navigable channel are supported by, and rigidly connected at their ends to, large steel rollers or rockers that have a weight at the rear end to counterbalance the front end. The rollers are cast in the form of a segment of a circle, because the entire movement of the structure describes an arc of less than ninety degrees, to achieve full clearance of the channel opening. At one time there were nine of these Scherzer Rolling Lift bridges in Cleveland. The type is no longer

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Scherzer Rolling Lift bridge over the Cuyahoga River, built for the B&O Railroad.

being built because the rolling action of the span, as it moves back onto the rollers, causes the piers to shift position. This particular bridge has a 230-foot span, which made it, when it was built, the longest single-leaf Scherzer Rolling Lift ever erected — and it still holds the record.

The second bridge over the old riverbed is the present Willow Avenue Bridge, which provides vehicular access to Whiskey Island. The bridge it replaced, built in 1898, was a swing bridge with a span of 170 feet. The present Willow Avenue Bridge is a 310-foot-long vertical lift, designed and erected in 1964 by Trygve Hoff and Associates — a handsome structure that certainly proves a movable bridge need not be ugly. The automatic electric skew control and four motors at the top of the tower give exceptional, and fast, lifting power. The skew control equalizes both ends of the bridge for a uniform lift of its 750-ton span. It can be raised to its full height of 98 feet in one and one-half minutes. The counterweight cables provide the means of movement.

Back on the main river, the next movable bridge is known as Bridge No. 3. Built in 1956 for the B. and O. Railroad to replace a Scherzer Rolling Lift Structure, it is a record-making modern jack-knife bridge located just north of the Detroit-Superior Viaduct. (Its picture appears on the cover of the first issue of *The Gamut*.) It has a main trunnion bascule span 255 feet long, and a clear channel dis-

tance of about 231 feet. It carries a single railroad track on the 22-foot width of the trusses. There is a vertical clearance of about 23 feet from the top of the track to the bottom of the counterweight when in the lowered position. The substructure consists of two concrete piers with 30-inch steel caissons and 10-inch pipe piles. This bridge is an outstanding example of a single-leaf, jack-knife bascule bridge. The word *bascule* simply means a kind of see-saw; when one end is lowered, the other is raised. And the trunnion is a type of pin forming an axis upon which the span pivots. In this peculiar type each rail is supported directly upon the lower chord of the truss. When the bridge is opened, the span pivots around one end where the trunnion or pin forms the axis. The weight of the bridge is balanced by a weighted lever arm supported by the tower located at the fixed end of the bridge. When in open position, the lever arm folds against the upright truss — hence the name *jack-knife*. This particular bridge is regarded as the ultimate example of this type of structure.

The Center Street Bridge, the only swing bridge in the area, lies at approximately the spot where Moses Cleaveland landed in 1796. It is also the site of the first bridge over the River, and it became involved in the notorious "Bridge War," described below in connection with the Columbus Road Bridge.

The first Center Street Bridge was a raft made of "white-wood logs," secured by



Above: Swing bridge at Center Street opens for passengers of the excursion boat Goodtime II. *Below:* Eagle Ramp vertical lift bridge over the Cuyahoga River.



ropes, a portion of which was floated to one side to allow boats to pass. In 1863 a wooden drawbridge was built. In 1871 it was replaced by an iron swing-bridge, a Post-patent, diagonal truss.

The present structure is a steel Pratt truss, fabricated and erected in 1901 by the King Bridge Company. On June 1, 1897, the Cleveland City Council passed an ordinance "to provide for the reconstruction and rebuilding of the bridge over the Cuyahoga River at Center Street," and directed that the bridge be "reconstructed in accordance with the plans to be filed in the office of the Chief City Engineer."¹ The bridge was designed during 1898 and 1899 by James Ritchie, Chief Engineer for the City of Cleveland. Construction began in 1900. The swing-span is 245 feet long, and a girder span is 62 feet — overall length then is 307 feet. When closed the structure acts as two separate truss spans; the pivot pier is on the north bank of the channel. When this type of bridge was first introduced, the pivot pier was in the middle of the channel. When open, the two arms act as cantilevers supported by the truss tower directly over the pivot pier. A counter-weight in the shorter arm keeps the span in balance; it consists of 112½ tons of scrap iron, tightly packed in the floor. There is a total of fifteen truss panels. The central panel, over the pivot pier, is rectangular, with a span of twenty feet. The pivot pier measures 13 feet long, ten inches high, and has a diameter of thirty-six feet. The bridge was completed in September of 1901. It has been painted and repaired since then, but it is in good condition and, according to the City's Chief Civil Engineer, John Bowersock, is economical to operate. It is a popular tourist attraction and an engineering landmark.

After passing under the Detroit-Superior and Union Terminal Bridges, we come to the Columbus Road Bridge, the other bridge site in the "Bridge War," a bit of early history worth a digression.

In 1835 two land developers, James S. Clark and John W. Willey, who owned considerable property along Columbus Street, as it was then called, improved the roadway, graded it down to the river, and built an imposing bridge at the ferry landing. This bridge, the first important structure across the Cuyahoga, formed the final link in a

short route to Cleveland from the South and West, practically sidestepping Ohio City across the river nearer Center Street. A description of the new bridge in the first city directory printed in 1837, reads as follows:

The bridge was supported by a stone abutment on either shore and piers of solid masonry erected in the center of the river. Between the piers, there is a draw sufficient to allow a vessel of forty-nine feet beam to pass through. The length is two hundred feet, the breadth, including the sidewalks, thirty-three feet, and the height of the piers, above the surface of the water, may be estimated at twenty-four feet. The whole which, with the exception of the draw, is roofed and enclosed, presents an imposing appearance and reflects much credit on the architect, Mr. Nathan Hunt.²

In 1835 the new Columbus Road Bridge was the most remarkable structure in Ohio; visitors from all over the state came to view it and gasped at the work which had cost the enormous sum of \$15,000 to build.

In 1836, first the City of Ohio and then the Village of Cleveland were incorporated, and the rivalry between them grew tense. The merchants of Ohio City were entirely willing to have the Columbus Street Bridge, but they also wanted one at Center Street, and so there arose the famous slogan "two bridges or none." What resulted was the Bridge War, celebrated in the annals of Cleveland. In 1837 the Cleveland City Council directed the removal of its half of the old floating bridge at Center Street. This was an attempt by Cleveland to divert all through traffic to the Columbus Street Bridge, thereby by-passing Ohio City. The mandate of the council was carried out at night, and, when the people of Ohio City realized what had happened, they were enraged. At an indignation meeting they declared the Columbus Street Bridge a public nuisance.

Their marshal gathered a posse of deputies, who damaged the bridge by a charge of powder under the Ohio City end. Then the marshal with his deputies marched to the Cleveland side of the bridge, dug a deep trench at the approaches, and did likewise at the Ohio City end, thus rendering the bridge useless. Ohio City held a council of war and staged an all-out attack upon the bridge. Nearly a thousand men, armed with clubs, rocks, and rifles marched to the bridge, accompanied by a chaplain and a lawyer.

¹Ordinance No. 16000, Cleveland, Ohio, *City Council Proceedings*, April 19, 1897 to April 17, 1898, Vols. 30-1, p. 80.

For much of the information about this bridge I am indebted to Carol Poh Miller's "Center Street Bridge," *Historic American Engineering Record*.

²E.M. Avery, "Early Bridges of Cleveland," in *Bridges of Cleveland and Cuyahoga County* (Privately printed, Cleveland, Ohio, 1918), p. 24.



A contemporary view, from Detroit Avenue, of the old Columbus Street Bridge, built in 1835, and focus of the "Bridge War" between the City of Cleveland and Ohio City.

But Cleveland had learned about the attack from scouts. The Ohio City posse found itself confronted by a company of militia with muskets. Even an ancient cannon had been rolled down to the river's edge. At this point Willey, who was the first mayor of Cleveland, stepped forward, but before he could utter more than a few words, he was greeted by a volley of rocks, and the fight started.

At either end of the bridge was an apron that could be raised or lowered, and the one at the Ohio City side was let down to provide a shelter for the anti-bridge forces. The men went at their destructive task, ripping up planks and throwing them into the river. One Ohio City man named Deacon House picked his way through the Cleveland lines and spiked the cannon with an old file. He became quite the hero of the Battle of the Bridge.

Some men were injured but none killed. Finally the fray was stopped by the Cleveland marshal, who also was sheriff of the county. He took possession of the bridge, obtained a court order against further interference, and posted guards at either end to maintain free movement of traffic. This Battle of the Bridge produced a poet-laureate in D.W. Cross, who wrote a mock-epic poem, in heroic couplets, entitled "The Battle of the

Bridge," which was published in the *Magazine of Western History*. Its model was Alexander Pope's *Rape of the Lock*. There is space here to quote but a few of the lines.

On hills, like Rome, two cities might be seen,
(Meand'ring Cuyahoga flowed between);

Whose rival spires in rivalry arose,
The pride of friends, the envy of their foes.

Each rival ruler of each rival town
On his would smile, but on the other frown.

Each sought for greatness, in his rival's fall,
Regardless that the world was made for all.

Envy and hatred waxed to frenzied height!
Naught could appease but fierce and bloody
fight.

The culmination came! A peanut stand
Erected by a "combination" band

Of desperate men of capital, who swore
No trade should be diverted from their shore.

They claimed that Clark and Willey, reckless,
sought
To build a bridge. The right of way was bought

Already! and they then designed to build
Columbus Street and bridge! This rumor filled

Their souls with madness, and their eyes with
tears!

To think that peanut stand, the toil of years

Should for the want of patronage decay
And trade and barter turn some other way.

They all agreed this could not be allowed,
And boisterous bellowing agitate the crowd!³

The result of the Bridge War was that the West Siders gained their point, and two bridges were provided. The Center Street Bridge was completed after much discussion and the Columbus Street Bridge was equipped with a movable center span.

The Columbus Street Bridge of 1835 marked the beginning of the first period of bridge building over the Cuyahoga River — bridges of wood with masonry piers, designed for wagon traffic. As late as 1853 there were still three of these: the Columbus Street Bridge, one at Seneca (West Third) Street, and one at Division Street (Center Street). There was agitation for a new one at Columbus Street, but because the two towns could not agree on a plan, the county re-built the span. In 1854 Cleveland annexed Ohio City. And immediately after annexation, Cleveland built the Main Street Bridge, re-built the Center Street Bridge, and constructed the Seneca Street Bridge.

In 1870 an iron bridge was built, but this, too, soon had to be replaced. In 1895 a new bridge, designed by city engineer Walter P. Rice, was built. It was an extraordinary structure — a double swing bridge. Each leaf was mounted upon a separate pier and turntable. The clear opening between fenders was 115 feet. Each river arm was 65 feet; the short spans over the piers 15 feet. The combined length of the two leaves was 279 feet. In 1940 the present Columbus Road Bridge was designed by Wilbur Watson and Associates. Its vertical lift span provides a 220-foot clearance.

The series of Columbus Street Bridges exemplifies the history of the low-level, movable bridge over navigable waters. First came the crude and narrow structure, with a center span to open the channel to river traffic. By the middle of the nineteenth century, the timber bridge was replaced by a light iron bridge with a wider roadway; it generally was a swing bridge. Near the end of the century, came a still heavier structure, usually of steel, to carry increased loads. Finally, an entirely different type emerged, designed to accommodate modern transportation needs.

To meet the needs for greater width, greater river clearance, and more height, the vertical lift type is preferred.

At a point on Columbus Road, which was to be the hub of "Cleveland Centre," a pioneer real estate promotion for trade with an international flavor, we encounter an extraordinary railroad bridge built for the New York Central Railroad. This bridge serves the team tracks of the oldest railroads in Cleveland, dating from 1851. Founded by Alfred Kelley, mayor, Canal Commissioner and promoter, it was originally called the Cleveland, Columbus, and Cincinnati Railroad. At a later date, Indianapolis was added, making it the "Big Four." When extended to St. Louis, the name became abbreviated to CCC & St. L.R.R.

The present bridge, erected in 1953, replaced an older Scherzer Rolling Lift Bridge. The design of the present bridge was the work of Howard, Needles, Tammen and Bergendoff, and the bridge received the American Institute of Steel Construction Award of Merit for the most beautiful bridge in its class. It has a lift span of 260 feet, with a clear channel of 200 feet. The two 135 HP motors are located at the top of the two girders, and a drive shaft activates the counterweight sheaves. Massive balance chains adjust the changing load. Normal lift is about 90 feet. The electrical contractors were Dingle-Clark, and McDowell-Wellman erected the steel work.

The middle and lower West Third Street Bridges were replaced as part of the Terminal Tower complex and the Collision Bend Cut 5A Project. The present Carter Road Bridge, which replaced the Lower West Third structure, is a vertical lift, designed in 1940 by Wilbur Watson and Associates. Carter Road (appropriately named after Lorenzo Carter, the first permanent settler) has long been the site of an important vehicular crossing. There was a bridge in this general location as early as 1853. The first bridge collapsed in 1857 when "overloaded with cattle." This was followed by another wooden structure. The Seneca Street span which replaced it was a draw-bridge operated by hand. This was superseded by an iron swing bridge about 1873.

The present structure formed part of the Cleveland Public Works Administration's 5.5 million dollar program for the widening and straightening of the Cuyahoga River. The lift span is 220 feet long; the clear channel opening between fenders is 216 feet. Total length

³George E. Condon, *Cleveland: The Best Kept Secret* (Doubleday and Co., Garden City, New York, 1967), pp. 46-54.



Jack-knife bridge allows freighter to pass up the Cuyahoga River (Bridge No. 19, Erie Railroad).

of the bridge is 284 feet. Two concrete piers support the superstructure. And each pier foundation is comprised of six 30-inch steel cylinders about 140 feet in length, supplemented by steel batter piles and a steel sheet-pile enclosure. The normal lift of the Bridge is about 75 feet, with a clearance of a little over 97 feet for lake freighters. The emergency lift provides for an extra $5\frac{1}{4}$ feet. Overall width of the Bridge is 58 feet, 6 inches. The roadway has four vehicular lanes and is 46 feet, 6 inches wide, with two 5-foot sidewalks. The superstructure was fabricated by the Mt. Vernon Bridge Company and erected by the Bass Construction Company. The contractor cantilevered the center span out from each tower at a nearly full-raised position, in order not to impede river traffic during construction.

The Eagle Avenue Viaduct replaced the Middle West Third Street Bridge, which was originally a Scherzer Rolling Lift. Jim's Steak House, now located at the site of the original Seneca Street Bridge or Lower West Third Street Bridge, features the original bridges on the place mats. The Viaduct has an overall length of about 2000 feet from Scranton Road to Ontario Street. The ramp includes the vertical lift span over the River, built on the same grade as the viaduct. This lift span has the distinction of being the first one in Cleve-

land, having been built in 1931. The span is 225 feet, with a clear channel opening of 187 feet, and is 52 feet wide. Designing engineer was F.L. Gorman, and the engineer in charge of construction was A.H. Suloff. The bridge was recently remodeled with new electrical controls, but the original 100 HP motors were retained in service. This bridge has free-standing towers (without a connecting truss) — a design no longer used because the alignment shifts and then the bridge binds.

Under the Lorain-Carnegie High Level Bridge there is another type of movable bridge — a trunnion bascule with a single leaf. Built in 1920 for the CCC and St. L.R.R., it has a clear channel length of 140 feet and opens to a full angle of 82° . A single track runs through a riveted truss span with a length of 175 feet. In addition to the lift span, the bridge consists of a 45-foot tower span and a 42-foot deck plate-girder approach. The three piers are of concrete.

The prototype of the bascule bridge is the drawbridge across the moat of a medieval castle. The modern prototype is the Tower Bridge over the Thames in London, built in 1894. The present-day trunnion bascule bridge comes with one leaf or two. The leaf is supported at the shore end on a trunnion or shaft. In opening, the bridge pivots on this shaft and raises its leaves to a nearly vertical

position; in the open position the trunnion supports the entire dead weight of the structure. The river arm is longer, of course, than that part of the bridge extending to the rear of the trunnions. This makes necessary the use of counterweights at the rear of the bridge.

This structure is worthy of more than a casual glance, for the enunciation of an old concept in modern technological terms is interesting. The bridge was designed by the Strauss Bridge Company, using New York City 1917 specifications for steel bridges, and was built by the American Bridge Company. Joseph Strauss was the famous American engineer who designed the Golden Gate Bridge and had numerous patents on bascule bridges. He designed many of the lift bridges in Chicago, where one can see excellent examples of both the single-leaf and double-leaf bascule. Strauss also designed the drawspan of the Arlington Memorial Bridge over the Potomac River in Washington.

Another railroad movable span is the structure on the high level Norfolk and Western Viaduct at University Avenue. This structure was built for the original Nickel Plate Road and was designed by the Chief Engineer, E.E. Hart. A double-track viaduct, the total length is 3010 feet. The height above the River is 70 feet. At one time it was the longest viaduct in the United States. The river span at present is a vertical lift, which was erected in 1960 to replace the Scherzer Rolling Lift. The first river span here was a swing bridge with a pier in the center of the channel.

The present West Third Street Bridge is a vehicular crossing that has a long history in the city of Cleveland. The present structure is a vertical lift, built in 1940. Years ago this street was known as Central Way, which was opened in 1872, under the tracks of the Cleveland and Mahoning Railroad. It became the principal thoroughway for the heavy traffic to the first iron refineries in that area. A wooden drawbridge was swept away by flood in 1883. This was replaced by a pivot swing bridge 138 feet long, which stood until replaced by the present span. A unique construction technique was used when the present bridge was being built. A temporary pontoon was fabricated of welded steel with a roadway 20 feet wide and 123 feet long. Electric-driven winches pivoted the deck in a

ball-socket device in the anchored pontoon, and when swung open, there was a clear channel of 80 feet. The present vertical lift has a span of 200 feet and is identical to the Columbus Road Bridge.

The river can boast of a set of twins: two Scherzer Rolling Lift Bridges. One, the Newburgh and South Shore Railroad Bridge, has been retired from service but remains standing in an upright position. It had a glorious past: built in 1903 by H.L. Schuler, it was, at the time of erection, the longest bridge of its kind in the world. It is a double-track, single-leaf span 160 feet long, with two 50-foot deck-plate girder spans on two concrete abutments. The original 50 HP General Electric motors are still there.

The rail traffic is now being carried by its twin, a Baltimore and Ohio Bridge. It too is a Scherzer Rolling Lift, built in 1906 to serve the American Steel and Wire Company's central furnace via the West Third Street yards of the railroad. It is a double-track railroad structure with an overall length of 205 feet and a lift span of 160 feet. It is supported on concrete piers with pile foundations. The main span is composed of triangular-shaped trusses 29½ feet apart, with inclined top chords supported intermedially between the panel points. The trusses have a maximum depth of 44 feet and are connected by top and lateral sway-bracing. All connections are riveted. The bridge was fabricated at the Toledo plant of the American Bridge Company from plans furnished by the Scherzer Rolling Lift Bridge Company. At present the structure is owned and maintained by the Chessie System.

We are now at the turning basin, beyond which the River is not navigable for the lake freighter. Although there are more movable bridges over the river, in a trip of only 2½ miles one can see all the principal types and can witness their evolution. There is a specimen of the old swing bridge; there are Scherzer Rolling Lifts, jack-knives, trunnion bascules (both single and double leaf), and modern vertical lifts. In few creations of man are beauty of form and utility of function so imposingly embodied; and in no place on earth can these monumental structures be so extensively enjoyed as along one short stretch of river in Cleveland, Ohio.

Daniel Hathaway

THE NEW OLD ORGANS OF NORTHEAST OHIO

Before Praetorius, what next?

Some of the freshest musical developments in this, the oddest of centuries, have been thoroughly anachronistic. While new and improved generations of the ubiquitous pianoforte continue to roll off the assembly lines, some eccentric craftspeople are beginning to build exemplars of its ancestor, the fortepiano, an instrument rendered obsolete during Beethoven's lifetime.¹ While musical instrument companies press further with the technological development of the metal flute, otherwise contemporary individuals are producing recorders and *flauti traversi* modeled after the artifacts of the great Renaissance and Baroque makers and often designed to play at "old" or low pitch.² And while modern organ-builders consort with cybernetic engineers to produce space-age, solid-state consoles, experiment with making pipes out of aluminum or, the ultimate progress, replace pipes altogether with digitally-generated sounds, an Oregon builder, recently translated from Ohio, is completing an instrument at Oberlin College which is in every respect identical to a North German organ of the first quarter of the seventeenth century. Odd currents are coursing through the music world these days, and the most re-

cent stages of the Organ Reform Movement are among the most controversial and intriguing. The Movement began in the 1920's in Germany as a reaction against the decadent excesses of the Romantic organ. No one knows where it will lead or end, but its recent history can be uniquely chronicled among the instruments of Northeast Ohio, where the new Oberlin instrument marks the present benchmark of reverse progress.

Reform movements imply the existence of a lost ideal which the reformers wish to recover. For the organ, the lost "Classical" period stretches from roughly the middle of the fifteenth century to the death of Johann Sebastian Bach in 1750 — some three hundred years during which the instrument developed features of maturity, cohesion and balance in the process of adapting to the requirements of increasingly demanding musical styles and functions. Earlier instruments, about which we really know very little, may have provided drones against chant, doubled Gregorian vocal lines, played the *cantus firmus* of a polyphonic motet or mass, or performed simple, two-part pieces. But beginning in the late fifteenth and early sixteenth century, an independent musical rep-



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Mr. Hathaway came to Cleveland in 1977 from previous posts at Groton School in Massachusetts and Grace and Holy Trinity Cathedral in Kansas City. As an organ recitalist, he has played at a number of English cathedrals and in France, Germany, Austria, and Sweden.

A student of Jerald Hamilton, Piet Kee, Harald Vogel, and Luigi Tagliavini, Mr. Hathaway has recorded music of Britten and Howells for the 75th Anniversary Commemorative Recording of Flentrop Orgelbouw. In addition to his post at Trinity Cathedral, he is music director of the upper school at Laurel School and Co-conductor of Opus 1 Chamber Orchestra.



Small Flentrop organ (1976) in Trinity Cathedral, Cleveland, showing traditional components: a. Brustwerk doors; b. reed pipes; c. windchest; d. pedal pipes; e. tracer rods or trackers (direct mechanical connections between keys and pipe valves); f. stops (levers which admit or shut off air to various registers of pipes); and g. keyboards. (Photo: David Knipper)

erty developed with publication of the *Fundamentum Organisandi* of Conrad Paumann (1452), the *Buxheim Organ Book* of ca. 1460-70, and the successive German schools of Arnolt Schlick (d. after 1517) and Paulus Hofhaimer (d. 1537). Distinctive national trends in composition and organbuilding followed in Italy, England, Spain, France and the Low Countries during the sixteenth century, and with the important stylistic changes of the early Baroque period, Jan Pieterszoon Sweelinck of Amsterdam (d. 1621) initiated new forms of musical rhetoric which directly influenced the Middle German school of Scheidt and Praetorius and the North German Circle of Scheidemann, Tunder and Buxtehude, which in turn provided an important set of antecedents for the generation of Johann Sebastian Bach.

From Roman times until the invention of the "Pipeless Organ" of the twentieth century, all organs have shared the common features of pipes which produce musical sounds, windchests upon which the pipes sit, wind to blow them, a mechanism for letting wind into the pipes, and human or automatic intervention to activate the mechanism. During the Classic Period of organbuilding, pipes of various materials and tonal character³ enclosed in one or more resonating cases were situated on wind

chests opened mechanically by the player through the use of trackers or stickers (thin pieces of wood attached to the key which pulled down the valves or pallets underneath the pipes⁴). The low-pressure, elastic wind supply which blew the pipes was produced by hand-pumping one or more bellows. Other special features of organs during this time included the establishment of particular spatial relationships among various choirs of pipes, and the standardization of a tuning system appropriate to the peculiar characteristics of pipe tones.

A typical large classical organ consisted of several divisions or ensembles of pipes. The main ensemble was arranged symmetrically on a central windchest.⁵ Secondary windchests and ensembles of pipes were located above, below or to the sides of the main division, or in a separate case behind the player, depending on the size and complexity of the instrument. The arrangement of the chests could be identified by the outward appearance of the organ case, for prominent pipes of each ensemble were placed in the prospect or façade (front) marking the relative positions of the windchests. Thus in nearly any European country during the mature Classical Period a large instrument of four divisions would have its most important division (Hauptwerk, Hoofdwerk, Grand

Orgue, Great Organ) disposed in the torso or central portion of the case; a pedal division would be divided to the left and right sides of this main ensemble; a manual division would be located either at the very top of the case (Oberwerk, Bovenwerk, Recit, Swell Organ⁶) or in *Brust* — in the “breast” of the case above the player’s music desk (Brustwerk, Borstwerk, Echo⁷); and, finally, there would be a division (Rückpositif, Rugwerk, Chair or Choir Organ, Positif de dos) housed in a separate case behind the player and directly over the heads of people gathered in the church where the instrument stood, usually in a gallery at the end of the nave, in an unencumbered, free-standing position⁸).

Throughout the Classical Period, with the possible exception of its last few decades, organs were universally tuned in some form of “mean-tone” temperament, a system of tuning which produces a large number of “pure” intervals in the most common keys or tonalities, but which makes performance in remote keys (those that employ multiple sharps and flats) intolerable, unless extra keys (more than twelve notes in the octave) are provided to correct glaringly out-of-tune intervals. In his *Musicalische Temperatur* (1691), Andreas Werckmeister proposed compromise tunings which would permit performance in all keys, but which would retain the desirable quality of individual key-color. Werckmeister’s systems are called “well-tempered” tuning. A third major system, “equal temperament,” used in most twentieth-century keyboard instruments, divides the octave into twelve equal semitones. All equal-tempered intervals are slightly impure, but all by the same amount. It remains uncertain whether organs were retuned in any of the “well-tempered” systems until well into the eighteenth century,⁹ but the number of different tuning schemes proposed in treatises during the Baroque era indicates that more easily-changed instruments like the clavichord and harpsichord were set in any number of experimental temperaments. It seems certain that J.S. Bach’s *Das Wohltemperierte Clavier*, with its double set of twenty-four preludes and fugues in all keys, was a practical musical treatise on compromise tunings.

In summary, the classical organ was as organic a unity as the violin. All features — pipes, windchests, wind supply, mechanism, placement, encasement, tuning and player — worked together to produce a cohesive musical effect in which the alteration of any single aspect of the instrument profoundly affected the whole organism. Forces

which would ultimately dismantle the unity of the classical organ were already at work toward the end of J.S. Bach’s lifetime, as the musical rhetoric of the Baroque period was gradually replaced by the expressive novelties of the *Style Galant* and the *Empfindsamer Stil*, the more vigorous orchestral style of the Mannheim School and the mature Viennese Classical Style of Haydn and Mozart. As the serious, elaborate contrapuntal textures of the Baroque composers disintegrated in favor of light, elegant, decorated homophony with constant changes of affect and dynamics, composers simply lost interest in the organ. By 1800, no significant music was being written for the instrument.

Also toward the end of J.S. Bach’s career, the tonal unity of the organ was beginning to suffer internal degeneration. At the apex of its maturity, the classical organ boasted a clear, bright ensemble in which every stop blended with every other, and few if any registers were included only for unique effects. A famous example of the corruption that began in Bach’s time is the Joseph Gabler organ in the Benediktinerabtei at Weingarten, begun in 1736 and completed in 1750. Besides the multiplication of unison stops, including such imitative voices as the Violoncello, Viola dolce and Unda Maris,¹⁰ the organ provided such toys as carillons, a Cymbelstern or revolving bell-star, and a Cuckoo, a Nightingale and a Drum stop. Less a musical instrument than a tourist attraction, “the effect it gives is of a huge rococo cinema-organ built to delight all who saw and heard it.”¹¹ Though for its time the Weingarten organ is a bizarre and rather extreme example of anti-classical decadence, it suggests the beginning of an identity crisis which continued through the early decades of the twentieth century. Having lost touch with an idiomatic repertory, the organ increasingly assumed an imitative role as a surrogate for the developing orchestra. Though such Romantic composers as Mendelssohn and Schumann wrote a small number of pieces for the organ in purportedly polyphonic forms, Liszt, Franck and Reger are the giants who saved the instrument from complete musical exile during the nineteenth century. But their approach to the organ was rooted in a fascination with the possibilities of orchestral color.

As the necessity for a cohesive polyphonic ensemble declined, the call for new sonorities and imitative voices increased. With the gradual disappearance of the higher-pitched stops of the classical *plenum* and their replacement with unison stops de-

manding more and more wind, radical changes in the wind supply and action of the organ developed. Though the organ at Notre-Dame in Paris was pumped by human power until after the first World War, elsewhere experiments were made with water power, steam, gas, and finally, in the 1880's, with electricity, attended by various inventions designed to stabilize the wind against the heavy demands of many large, wind-consuming pipes. As wind pressures rose to accommodate tonal changes in the instrument, organ actions became more resistant to the player's fingers. The Barker Lever, first applied to the important Cavaillé-Coll instrument at the Abbey of St.-Denis in 1837 during the course of its construction, pneumatically assisted the mechanical action of the organ and was widely imitated until superseded by improved technologies. These occurred by 1845, when the Montpellier builder, Moitesier, patented a pneumatic organ action replacing parts of the previously universal organ action with tubes operated by exhaust air. By 1862, a patent had been taken out for a system combining electricity with pneumatic motors, thus effectively spelling the end of traditional organ actions, windchests, and even the ancient disposition of pipes within organ cases, for the possibility of physically separating the player and his key-desk from the organ opened up whole new possibilities of organ placement as well. By 1872, Henry Willis, the English builder, rebuilt the organ in St. Paul's Cathedral, London, bisecting the old case which had stood on the chancel screen in the traditional and optimal location for classical organs in Britain, and relocating each half above the choir stalls, there to be controlled by the organist from a single, remote location, thanks to the progress of Victorian technology.

The triumph of electricity reached its apogee in the work of Robert Hope-Jones, an English telephone engineer whose invention of a fog signal adopted by the Canadian government gives no small clue to his tonal sensitivities. Having resigned his telephonic position in 1889 in favor of the improvement of the organ, Hope-Jones and his contemporary engineers arrived at a system of organ action which permitted each pipe to have its own remotely-controlled valve. The next logical possibility permitted by electricity was to employ each pipe in the instrument in multiple roles; whereas a classical organ may have had, on one manual division, flute stops at three different pitches (8', 4', 2', sounding in octaves apart), the electrically-controlled organ could use one set of flute pipes, extended

upward by twenty-four pipes, for the same purpose by the simple process of wiring in the valves appropriately. Forgetting the issue of artistic scaling, or the relative strength of different stops in the ensemble so carefully managed by the old builders in creating an organ *plenum*, this discovery made great economic sense: one could construct an apparently huge instrument using only a small number of different sets of pipes.

Inadvertently, Hope-Jones made his greatest contribution to the history of the organ by creating the possibility of the Theater Organ, which made a brief but unique impression on popular culture between the invention of the silent "movies" and the advent of "talkies." Supported by Mark Twain, Hope-Jones' patents were acquired by the Wurlitzer Company in 1910, but before that, the English inventor had briefly joined with Ernest M. Skinner, the famous early twentieth-century builder, to produce an organ in Trinity Cathedral, Cleveland, which epitomized the state of the art at the time of its installation in 1907.

This instrument (which has now been disconnected but still remains largely intact in the Cathedral, notwithstanding a number of revisions and an unsuccessful rebuilding in the 1950's) represents the farthest point of discontinuity with the tradition of the classical organ. Pipes were mostly large (unison, sub-unison and octave pitch), heavily constructed and outfitted with structural details to permit the use of high wind pressures. Windchests were electro-pneumatically controlled; the wind was raised by a large turbine and sent at high pressure through stabilizers which maintained a constant and solid wind-supply, the player operated the instrument remotely from an electric console many yards from the pipes, the pipes themselves were deployed in no particular order in a large chamber (with two divisions in swell-boxes), and invisible to the onlooker, and the instrument was tuned in equal temperament, though at a pitch antedating the universal A=440 hz. established in 1939. Moreover, the instrument was considerably smaller than its list of stops would imply, for electrical circuits permitted stops to appear on more than a single manual, and at multiple pitches. A particular feature of the instrument, also made possible by electricity, was the location of a powerful trumpet-like stop in the crypt at the extreme "West" end of the Cathedral, which spoke through a grill in the floor and achieved a certain notoriety in the incumbent organist's popular performances of "The Ride of the Valkyrie."¹² Needless to

say, performances on this instrument relied heavily on orchestral transcriptions and on the quasi-orchestral repertory of contemporary composers.

Although the great impetus of the Organ Reform Movement dates from the 1920's, its seeds were sown somewhat earlier, and may be traced to the experiences of two important figures who would have great influence on the course of organbuilding during the following decades.

In his autobiography, *Out of My Life and Thought*, Albert Schweitzer tells us that in the autumn of 1896 he visited the *Liederhalle* in Stuttgart to examine the new organ that had been given enthusiastic reports in the newspapers. The organist, one Herr Lange, for whose musicianship Schweitzer apparently had much respect, played the new instrument for him, and of this event he writes: "When I heard the harsh tone of the much belauded instrument and in a Bach fugue which Lange played to me perceived a chaos of sounds in which I could not distinguish the separate voices, my foreboding that the modern organ meant in that respect a step not forward but backward suddenly became a certainty."¹³

Three years earlier, Hendrik Wicher Flentrop had become organist of the Westzijdkerk in Zaandam, the Netherlands, which had retained a Duyschot organ from the eighteenth century. In 1900, the restored church was fitted out with a modern, electropneumatic organ, built inside the Duyschot case, which made every pretense of triumph over the limitations of the former, classical instrument. To Flentrop, as to Schweitzer, the result was not an improvement, but a backsliding. Schweitzer went on to publish, in 1906, a pamphlet, "Deutsche und Französische Orgelbaukunst und Orgelkunst," which proclaimed the simple message that old organs sounded better than new ones, and that much of the difference had to do with the mechanical design, construction and placement of the instruments. Flentrop went on to found, in 1903, a piano and organ firm which developed into what is now Flentrop Orgelbouw, a company which would explore, during the next seventy-five years, the complicated question of why the "modern" organ had lost its way, and why the techniques of the old builders led to such far superior results.¹⁴

Though the right questions had been asked by 1900, the pivotal year for the Organ Reform Movement came twenty-six years later. In the meanwhile, Han Henny Jahn and a group of German *literati* had discovered the Arp Schnitger organ in the Jakobi-kirche in Hamburg (built 1689-93) and the



History-making "new old" organ by Hugo von Beckerath installed in 1957 in the Trinity Evangelical Lutheran Church on West 30th Street, Cleveland.

more ancient "Totentanz" organ in Buxtehude's church, the Marienkirche at Lübeck (1474-1761), monumental organs from the high water mark of organbuilding during the era of the North German masters. The publication of Renaissance and Baroque treatises on organbuilding coincided with the construction, by Oskar Walcker in 1921 at the University of Freiburg in Breisgau, of an organ conceived in 1619 by Praetorius,¹⁵ and the publication of modern editions of Buxtehude and others. The Freiburg Conference of 1926 established the parameters — and the divisions — of the reform movement (*Deutsche Orgelbewegung*).

As a result of much investigation and discussion, Arp Schnitger emerged as the historical idol of the movement, and his works and the North German and Dutch school of organ building established by Schnitger and his pupils became the general model for the reform which followed.

Almost from the beginning the movement was divided into two more or less distinct groups. One group strongly advocated a strict Baroque revival; these avowed antiquarians were interested primarily in restoring and reproducing the work of the great Baroque masters. The other group took a more rational point of view, which accepted the work of Schnitger as a general guide to the principles of the art in matters of tonal design, scaling, and voicing techniques

... this latter group advocated a careful study and appraisal of every feature and detail that was to be accepted into the modern organ, so that those areas which were only of antiquarian interest would not be imposed on modern thought and practice.¹⁶

The reform movement in Europe initially produced a clear manifesto regarding the nature of the organ as a polyphonic instrument, its proper placement, tonal design, physical arrangement and acoustical setting, and such figures as Sybrand Zachariassen of the Marcussen firm in Denmark began to build mechanical action instruments in the mid-1920's, based on experiences with the restoration of old instruments. Early reform movements in the United States, however, concentrated entirely on the restoration of the lost tonal elements which had disappeared during the nineteenth century, and which were regarded as essential to the performance of early music.

For the Cleveland builder, Walter Holtkamp, 1933 was a turning point: for a series of then-radical Bach recitals at the Cleveland Museum of Art, Holtkamp was invited by Arthur Quimby, Curator of Musical Arts, and Melville Smith, a student of Nadia Boulanger, to construct the first "Rückpositiv" in North America as an adjunct to the Museum's 1922 E.M. Skinner organ, a development which contemporary accounts agree enlivened the performance of Bach's music beyond what had been previously imaginable.¹⁷

G. Donald Harrison, an Englishman who assumed leadership of the Aeolian-Skinner Company in the mid-1930's (the successor to E.M. Skinner), took a similar approach. His large organ at Groton School in Massachusetts in 1935 included a Rückpositif as part of an integrated tonal design with complete ensembles based on old traditions ranging over three centuries. Both Holtkamp and Harrison, however, stopped short of any developments more radical than tonal design and modified voicing of pipes. The first Rückpositifs of both builders sat in the open without benefit of case, and although wind pressures were lowered, no other attempts were made to reconstruct the organic unity of historical instruments. Electropneumatic action prevailed, equal temperament was accepted as a standard, and in the case of Holtkamp, completely exposed pipework arranged in idiosyncratic patterns became a trademark.¹⁸ By the time organ building in the United States had been brought to a

standstill by the Second World War, Harrison, Holtkamp and a few other builders had created an entirely new kind of instrument which came to be known as "The American Classic Organ." Certainly American, the new breed of instrument might better have been called "American Eclectic," for the underlying principle of a Harrison organ of the period was broad stylistic utility, sought through the hybridization of the work of Gottfried Silbermann (d.1753) and Aristide Cavallé-Coll (1811-1899) with English Romantic elements, a plan arrived at during a brief excursion to Europe and after the first products of the German Reform Movement had been examined and rejected. Nonetheless, both builders were indicted for "baroquification" by reactionary contemporaries, and Harrison himself referred to the famous instrument of twenty-three independent stops which his firm installed in Harvard's Busch-Reisinger Museum, and which was heard by millions in E. Power Biggs' CBS broadcasts during the 1940's, as "Baroque Organ-Experimental."¹⁹

After the wartime hiatus, a few individuals in America independently came to realize that the innovations of Harrison and Holtkamp had not produced satisfactory results. Lawrence I. Phelps, working as a voicer and tonal finisher with the Holtkamp firm, became disenchanted with its prevailing voicing philosophy, finding that the "rich powerful brilliance to be heard in many of the newer organs . . . did little to bring to light the polyphonic literature in anything like the clear transparent manner so earnestly claimed for it by its defenders."²⁰ Even more important, Phelps had become aware of the significant musical advantages of old-style windchests, an example of which he had encountered while reinstalling the 1862 organ imported from Walcker for the old Boston Music Hall in its new home at Methuen, Massachusetts. He reached the conclusion that exposed pipework served no musical end. Robert Noehren, on the basis of travels in Europe and first-hand acquaintance with North German and Dutch instruments which had survived from the classical period, had also decided that American experiments were wide of the mark. But by the beginning of the 1950's, Holtkamp had lost interest in the postwar plans to build mechanical actions owing to the unwillingness of customers to accept such an innovation, and Noehren had failed in attempts to persuade American builders to replicate the work of the old European builders and the new European reformers. Phelps left Cleveland and Noehren

entered into projects involving the renovation of surviving mechanical organ actions (which, as in Europe, had been the prevailing type of action in America until the application of electricity) and the revoicing of existing pipes or the use of new pipework in conjunction with these restored mechanisms. This work was done in conjunction with the builder Hermann Schlicker of Buffalo, and an early project involving an old organ in Grace Episcopal Church in Sandusky focused considerable interest on the notion of non-electric action.²¹

The first real post-war wave of reform came directly from Europe, not only in the form of students, organists and builders who returned from travels on the continent with fresh impressions of the musical integrity of old organs, but also in the form of imported instruments, chiefly crafted by builders who had been willing to learn humbling lessons from the old makers in the process of restoring surviving instruments from the classical period. Ironically, while a 1955 renovation of the Skinner organ in Trinity Cathedral, Cleveland, was ill-advisedly providing that thoroughly post-Romantic instrument with a veneer of high-pitched stops in a vain attempt to make it more tonally versatile, Rudolph von Beckerath of Hamburg was beginning to build an organ for Trinity Evangelical Lutheran Church, just across the Cuyahoga River on Cleveland's West Side, which would transform the history of the organ in America.

Von Beckerath's four-manual, forty-four-stop instrument, delivered in 1957, soon attracted extraordinary attention.

Not only did it bring to America for the first time a modern, encased mechanical-action instrument with traditional classical voicing reminiscent of the finest instruments of Arp Schnitger, but it also marked the very first time that sounds of this stature had ever been heard in North America.²²

What the Schnitger organ at the Hamburg Jacobikirche had inspired among the reformers in Germany, including eventually von Beckerath, the latter builder's Cleveland instrument inspired among those who were willing to listen and learn in the New World. The following year, another organ from Europe created similar shock waves in Cambridge, when D.A. Flentrop of Zaandam, the Netherlands, installed a three-manual, twenty-seven-stop organ in the Busch-Reisinger Museum at Harvard, replacing the Harrison "Baroque" instrument of the forties and becoming the new vehicle for the organistic

evangelism of E. Power Biggs.

As Flentrop and von Beckerath instruments began to proliferate in America during the sixties, a small group of builders left the world of the main-line, electro-pneumatic "American Classic" factories and set up shops to begin the modern American production of mechanical-action organs in the classical style. Charles Fisk of the Andover Organ Company in Massachusetts created his own firm at Gloucester and produced a monumental instrument in Appleton Chapel of Harvard's Memorial Church in 1967. Fritz Noack, a von Beckerath apprentice who worked in Fisk's shop, soon followed the trend with his own workshop in Lawrence, Mass., and later in Georgetown. Lawrence I. Phelps presided over the construction of encased, mechanical action instruments at the well-established Casavant firm in Quebec and later set up an independent shop in Erie.

Although the first wave of American builders closely imitated the late-fifties instruments proceeding from Europe, their growing experience and accumulating information about old organs led to closer attention to the techniques and materials of the old builders. They also began more careful study of previously neglected aspects of the musical character of the old instruments, whose original disposition had in many cases been altered during the nineteenth century, particularly in regard to winding and temperament. Flentrop (who had been entrusted with the restoration of many of Holland's most historic and valuable instruments) was a leader in these researches, which revealed that certain of the sound-ideals promulgated by the German Reform Movement were not historical but neo-Baroque. The unfortunate "restoration" of Christian Müller's famous instrument in the Bavokerk in Haarlem by a Danish firm pointed out the difference between old and new material in an astonishing way. This realization brought about a change in direction adopted most notably by Ahrend & Brunzema and by Flentrop in Holland, and by Fisk, Noack and John Brombaugh and their associates and apprentices in America. "New" organ builders had considered the use of modern materials (plywood, aluminum and plastic for trackers) as a matter of little consequence to the sound and operation of instruments; equal-tempered tuning and a relatively solid wind supply seemed a necessary compromise in the twentieth century, particularly since instruments usually stood in churches or college chapels where a repertory of five centuries was customarily performed. In the case of early

American "reformed" organs, it also seemed foolish to deny the player the convenience of electric or electro-pneumatic stop-changing aids to satisfy the demands of service-playing and later music which had not been anticipated by the old, classical builders. Thus the Harvard organ of 1967 was equal-tempered and provided with an electric stop-action, in addition to using modern materials throughout the action of the instrument. For the convenience of the players who would use the instrument, it was also provided with a modern "concave and radiating" pedalboard, unlike old instruments in which the pedalboards were flat and the pedal keys perpendicular to the organ case.

Notions about pipe materials and voicing were also being altered by new information. Knowing that nineteenth-century organ builders, seeking a smooth tone at high pressures, had heavily nicked or grooved the windways of the pipes, the reform movement had always promulgated the fiction that old pipes were "unnicked" and thus spoke with a characteristic puff of air at the moment of attack. It was thought that this "agogic attack," known in the trade as "chiff," was an essential element in the clarification of contrapuntal lines; this hypothetical quality of "Baroque" organs became so desirable in the neo-Baroque stages of the reform movement that, not to be left behind by the latest trend, makers of electronic instruments offered an electronically-produced version of pipe-attack sound. (Electronic "wind noise" was also available as an option, lest an audience find the aural experience too antiseptic!) A close look at old pipes disclosed that organ pipes had always been lightly nicked to produce correct speech, a fact which rendered the spitting pipes of the neo-Baroque organ unhistorical as well as unmusical. The concomitant discovery that old builders preferred pipes made of hammered lead, alloyed only to the point of strength, altered previous impressions about the appropriate material for the pipes of the principal ensemble of the organ, which had been produced of nearly pure tin.²³

Northern Ohio again appeared at the focus of the reform movement in 1970 when John Brombaugh, working from a shop in Middletown, Ohio, produced an important instrument for the First Lutheran Church in Lorain, incorporating many of the features of the most recent research into the character of old instruments. In the meanwhile, the Flentrop firm, moving into new leadership under Hans Steketee, embarked upon three monumental organs based on Dutch historical

principles, two of which were destined for installation in Oberlin and Cleveland, the third for Duke University in Durham, North Carolina. The Oberlin instrument, installed in Warner Concert Hall in 1974, the Duke Chapel organ of 1976, and the Trinity Cathedral instrument of 1977 share the characteristics of historically authentic pipe construction and voicing (Oberlin has pipes made of 70% lead in the interior of the case behind the more tin-rich front or prospect pipes); mechanical key and stop action (no electricity intervenes in these organs except the blower which generates the wind); traditional, "flexible" wind supply; unequal temperament, based on the treatises of Werckmeister; and a flat pedalboard. The organs are encased in solid wood, frame-and-panel structures; only natural materials are employed throughout the instrument. Duke and Cleveland occupy the traditional west-end-of-nave site of classical instruments and are elevated from the floor in galleries constructed entirely of solid wood (Cleveland even avoids steel girders) for resonating purposes. In addition, Duke includes both French and Spanish reeds of historical construction, which broadens that organ's possibilities for the performance of historical repertory while at the same time making the instrument less purely Dutch in origin.

In the same year that Oberlin welcomed its large Flentrop organ, two other important instruments were first heard in Cleveland. Rudolf Janke of Bovenden bei Göttingen, West Germany, built a three-manual, thirty-five stop organ for the Methodist Church in Berea which incorporated most of the developments evidenced in the Oberlin organ; and John Brombaugh temporarily set up a two-manual instrument in Trinity Cathedral for the National Convention of the American Guild of Organists, which provided many auditors with their first experience of meantone tuning and of musical sounds which would not have seemed strange to seventeenth-century ears. The instrument, destined for the Episcopal Church in Ellensburg, Washington, was tuned in the temperament known as Werckmeister III at its final installation. This organ and the 1975 Brombaugh instrument in the Methodist Church in Oberlin turned the historical clock back even farther than the eighteenth-century antecedents of the Flentrop instruments.

When Brombaugh's new instrument in Fairchild Chapel at Oberlin College was formally heard in concert for the first time in June of 1981 during the Oberlin Organ Institute, the reform movement reached back to



Large Flentrop organ (1977) in Trinity Cathedral, Cleveland. (Photo: David Knipper)

its earliest model since the purported Praetorius organ at Freiburg in the 1920's, but with the benefit of enlightened and thorough research into the true qualities of such an instrument. Not only does the Fairchild organ replicate the sounds of North German instruments of the early seventeenth century through the use of Schnitger's own 4:10 lead-to-tin ratio in certain stops of the plenum, and a very high lead content in other pipes,²⁴ but it also restores the possibility of pumping the bellows by hand (or, more correctly, by foot; the person in charge stands alternately on two large pedals and exercises more art than effort in adjusting the wind to the requirements of the playing). Brombaugh has also provided the player with three extra sub-semi-tones in most octaves of the keyboard and pedalboard for altering the mean-tone temperament of the instrument to suit certain accidentals which would otherwise be impossibly out of tune. This is accomplished by providing "split" sharps — sharp keys with a front section and a separate, raised back section; the most common accidentals are played from the front keys and less commonly employed accidentals from the back keys.²⁵ The *plenum* of the principal manual is balanced by a regal in *Brust* position, and a rare, wooden *principal* stop of narrow scale, modeled on such a rank in the Hamburg Schnitger instrument, provides an alternate unison voice of distinct timbre. This installation, the first Renaissance organ in North America, slightly anticipates the completion of a similar instrument now in the final stages of construction by Charles Fisk at Wellesley College, also based on Praetorius' *Syntagma Musicum*. Both organs raise fascinating questions about future developments in historically-oriented instruments. Before Praetorius, what next?

Given the already remarkable range of available instruments at Oberlin, it is tempting to imagine a hypothetical recital some years hence which might operate like a progressive dinner party: Estampies from the Robertsbridge Codex on a replica of an English medieval organ, then on to another hall for Schlick organ motets on an early sixteenth-century clone, and so on about the campus calling in at different instruments for music requiring Spanish trumpets, Italian Renaissance *plena* or French Baroque *Grands Jeux*. The logical progression extends even further to the possibility of a Cavallé-Coll replica (such a scheme was brewing for the opposite end of Duke University Chapel) or perhaps a Liszt or Reger organ. Considering the alterations made in Romantic and post-

Romantic organs in the name of eclecticism, it would not be illogical to restore nineteenth-century instruments to their pristine condition where original material still exists, or to create "exact" copies where such instruments have disappeared. As tastes and styles come and go, all well-crafted organs which survive have a claim to historic immortality, and thus to a place in the peculiar musical museum which the twentieth century is creating.

Though the limits of historical preservation, restoration and replication are difficult to predict, those whose ears have been sensitized by the sounds of authentic instruments playing their own idiomatic repertory are not likely to be satisfied with the homogeneity of compromise represented by the eclectic modern organ. When Frescobaldi, Bruhns, Marchand, Franck, Hindemith and Messiaen are played (as can happen) on the same program on an "American Classic" organ, all suffer diminishment, but the pre-nineteenth century music takes the greater beating. It may do less cosmic damage to play Messiaen on an unequally tempered replica of an Andreas Silbermann instrument than to make Messiaen's own Parisian Cavallé-Coll produce a suite by de Grigny, but in any case, the twentieth-century musical sin of standardization by stylistic annihilation is avoided. Can an organ designed to play everything effectively play anything without reducing the experience to boredom?

One of the very interesting phenomena of the most recent stages of the historical revival is a great upsurge of interest in organ music among those who were previously quite indifferent to the instrument. There has always been a certain interest in the mammoth, electro-pneumatic organ as a mind-boggling piece of engineering, as evidenced by the (usually young) visitors who happen along and treat an exposition of such an instrument as they would a guided tour through a submarine. Recently, however, such drop-ins to Trinity Cathedral (including many students from Cleveland State University across the street) have become fascinated with the sound of the instrument and with its old-world craftsmanship. Impressed by what they see and hear and, most important, not intimidated by the organ (which has the welcoming ambiance of an object built for human use and enjoyment), they often come back to hear the organ played in concerts. Since this and similar instruments express a distinct identity and personality, they can be enjoyed and admired in ways which elude the characterless examples of "American



Above: Oberlin College Conservatory of Music Professor William Porter standing in front of Oberlin's new organ built in 1981 by John Brombaugh and located in Fairchild Chapel. Right: Stops and keyboard of Oberlin's new Brombaugh organ, showing split keys which allow the performer to alter the instrument's mean-tone temperament to suit certain accidentals which would otherwise sound hopelessly out of tune. (Photos by Joan Anderson, courtesy of Oberlin College.)



Classic" organbuilding. Indeed, the 1907 Skinner instrument, before becoming comatose, exacted similar feelings of devotion; before its plastic surgery of 1955, it had its own well developed personality, though of a thoroughly Romantic sort.

The "personal" integrity of an organ, then, seems to be the key to its musical effectiveness. Just as human beings have their areas of expertise, competence and ineptness, so musical instruments which truly communicate with the listener and promise future interest and renewed dialogue necessarily possess the same qualities. The Flen-trop instrument in Trinity Cathedral with whom I regularly collaborate has an interesting range of topics, but doesn't converse with equal brilliance on all subjects. It is, of course, fluent in Dutch. It can speak about Buxtehude, J.S. Bach and their circle at considera-

ble length, and knows a great deal about the music of the French Baroque. It occasionally discusses Franck (without getting all of its facts straight), and can be cajoled into speaking Reger, Vierne and Messiaen with a slight accent. Like all worthy acquaintances, it never pretends to be anything but itself — even when role-playing, its own *persona* remains intact. Quite interestingly, it can enter into extremely productive dialogues with contemporary composers, and is quick to pick up new concepts (aspects of its personality, like mechanical stop action and traditional winding permit stops to be drawn in various stages from fully-off to fully-on, and the characteristics of the wind supply invite experimentation with textures that play on the instrument's respiratory system).

Doubtless the American Classic organ will continue to be built. Firms now building

encased instruments with mechanical action, but who have not abandoned eclectic tonal schemes, appear to be willing to continue in that vein for the foreseeable future (obviously to satisfy customers who are profoundly uneasy about the utility of instruments built in classical tonal style, even though the Brombaugh organ in the Methodist Church at Oberlin and the Janke in Berea appear to be entirely satisfactory in musical environments where one would least expect their tonal ethos to be successful). Companies still thrive untouched by the post-war manifestations of the reform movement, and will likely continue to build electro-pneumatic instruments with consoles resembling the cockpits of jet aircraft, for customers who misunderstand the philosophy and possibilities of mechanical action,²⁶ until such devices become economically untenable due to original engineering costs and staggering maintenance costs during their relatively short useful life.²⁷ Doubtless also the more curious and adventuresome "reformed" builders will continue to research the archives and produce, for interested customers, a further series of historical instruments from specific places and periods in the

wake of the Oberlin Fairchild Chapel and Wellesley College organs. But now that the stream of imported instruments has slowed to a trickle owing both to changes in the international economy and to the appearance of skilled American builders in the classic tradition, the majority of enlightened new instruments yet to be built in the twentieth century will probably resemble the important Cleveland-area instruments which have quietly grown up around us since 1970, based on the influential von Beckerath organ of 1957. Charles Ruggles, a native Cleveland builder and former Brombaugh apprentice, is just beginning to produce such instruments from his shop in Cleveland Heights, with his first major instrument already in place in the Lutheran Church of Highland Heights, and a similar church-scale organ now in progress for North Olmsted.

Dirk Flentrop has said, "It is not easy to write about organs; they need to be played or listened to."²⁸ In Northeast Ohio, we have the unique opportunity to visit, see and hear important examples of organs which have transformed the modern history of a very ancient art.

NOTES

¹A fortepiano recently built by Philip Belt is now in use at Gartner Auditorium of the Cleveland Museum of Art.

²In general the standard pitch for instruments has risen over the centuries. Most Baroque instruments were tuned at A=410/415 hz (vibrations per second). In 1885 a standard international pitch was set at A=435 hz; it has now risen to 440 hz.

³Lead, tin, and wood were the classical pipe materials; flue pipes (producing tones in the same fashion as a whistle or recorder) could be cylindrical or tapered, open or stopped with a canister over the top of the pipe which sometimes also terminated in an inserted chimney, while the resonators or pipe bodies of reed stops (producing tones by the vibration of a brass reed like the clarinet) could be cylindrical, flared or could adopt any number of fanciful shapes intended to alter the harmonic structure of the tones produced by the reed tongues. Wood pipes, because of their construction, were nearly always rectangular in shape and stopped at the top, allowing them, like stopped metal pipes, to produce tones an octave below the sounds generated by open pipes.

⁴One of the main principles of windchests operated by mechanical action demanded that all pipes controlled by a single key sit on a common wind-channel, a system which continues to produce the most successful pipe-speech.

⁵In the earliest organs, this division was a gigantic "mixture" in which multiple pipes corresponding to the pitches in the harmonic series spoke together in a rich, powerful ensemble when a single key was depressed. This "Blockwerk" became the "plenum" of the classical organ, and during the late medieval period was fitted with sliders — strips of wood pierced with holes — which moved laterally inside the windchests to silence each row of pipes in the ensemble, permitting the selection of individual voices in the "plenum" and inventing the concept of "stops." What had originally "stopped off" certain ranks of pipes became a device for "drawing" certain ranks of pipes at the player's discretion.

⁶The "Venetian Swell," which operated like the Venetian Blind, was applied to this division of the organ in England during the late eighteenth century to produce the possibility of dynamic contrast. The device, operated by a foot pedal, demanded that the pipes in question be segregated in a box, and parallels

such developments as may be seen in the Schudi-Broadwood harpsichords of the late 1700's (Haydn purchased one, now on display in the Hofburg Musical Instrument Museum in Vienna), where moveable slats were arranged over the strings of the instrument to be opened and closed by the performer's foot.

⁷In French instruments, the echo division was located inside the case without any direct tonal egress; in German and Dutch instruments, *Brustwerken* and *Borstwerken* were provided with doors which could be opened and closed by the player simply by reaching up over the music desk.

⁸The freestanding position had both a musical and practical rationale; all sides of the resonating case could therefore transmit the sound of the pipes, and the reed pipes, which had to be frequently tuned, were accessible through doors in the back of the case.

⁹Harald Vogel, Director of the North German Organ Academy, has not discovered any direct evidence of non-meantone tuning in North German organs before 1740, though mysterious entries in the account books of Buxtehude's church in Lübeck for 1683 suggest the possibility that the temperament of its organs was being altered at the time; Buxtehude's close connection with Andreas Werckmeister points in the same direction. On the other hand, the English organs in the Crystal Palace Exposition of 1851 were set in meantone, and even later instruments may have progressed from that old system to equal temperament without the intervening step of well-tempered tunings. Since all old organs were tuned by cutting the pipes off at their exact speaking length and, except for very large flue pipes and reed pipes (which were tuned by rolling down a tongue cut into the top of the pipe, rather like opening a can of anchovies, to change the effective speaking length of the tube, or, in the case of reed pipes, by changing the length of the reed by moving the tuning spring which held the tongue against its shallot) were tuned by flaring or tapering the tops of the pipes with "tuning cones," it can be appreciated that it was no small chore to change the temperament of an organ. Usually, it was necessary to raise the pitch of the instrument in the process because many pipes had to be shortened to arrive at the desired new tuning. The "improvements" of the post-classic period included the introduction of tuning collars which slid up and down over the tops of the pipes to change their tube lengths, a novelty produced by both the selection of less-malleable metals for pipe material and by the opinion that the battering of tuning cones eventually ruined the pipes, fatiguing the metal at the top and driving the foot of the pipe into the windholes of the chest. One of the unfortunate results of tuning collars was the necessity of far more frequent tuning visits, for collars tend to shift with changing temperatures and vibration. Modern instruments thus outfitted normally receive as much tuning attention as well-maintained pianos; by contrast, Buxtehude's organs needed attention only once every five to ten years on average, though of course, reed pipes were tuned as frequently as necessary (and more conveniently). Competent organ tuners can cone-tune an instrument without doing violence to the pipes.

¹⁰A compound stop of some antiquity patterned after the *voce umana* stop sometimes built in old Italian instruments. In Italy, two open metal ranks (Principal pipes) were tuned slightly apart to produce slow acoustical beats supposed to imitate the vibrato of the human voice. Later Romantic versions of this specialty were made with narrow-scale pipes imitative of string tone.

¹¹Peter Williams, *The European Organ* (London: B.T. Batsford Ltd., 1966), p. 79. The Weingarten instrument is, of course, a southern example; northern instruments were slower to reflect the rococo tendencies of the South.

¹²As in the case of other such experiments with stentorian voices, this Ophicleide stop was on very high wind pressure and produced such a din that its speaking aperture in the floor was surrounded by ear-protecting plate glass walls. The pipes still exist, but their pit has been marbled over to provide a site for the staircase to the new organ gallery.

¹³Cited from Lawrence I. Phelps in his excellent survey, "A Short History of the Organ Revival" in *Church Music* (67.1), page 13, which has provided much information for the present discussion.

¹⁴Dirk Flentrop, son of the founder of the company, had the satisfaction of reversing the disaster of 1900 in 1976, when he and Hans Steketee replaced the "modern" pneumatic organ of the turn of the century with a two-manual, twenty-one stop replica of the original Duyschot instrument; the new organ stands in a restored church in close proximity to Flentrop's workshop, and provides visitors with a convenient example of the company's historic restoration philosophies.

¹⁵Michael Praetorius, *Syntagma musicum* (Wolfenbüttel, 1619).

¹⁶Phelps, pp. 14-15.

¹⁷John Allen Ferguson, *Walter Holtkamp, American Organ Builder* (Kent: Kent State University Press, 1979), p. 28.

¹⁸The 1952 Holtkamp instrument at St. Paul's Episcopal Church in Cleveland Heights exemplifies that builder's approach to the deployment of unencased pipework.

¹⁹Phelps, p. 24.

²⁰Phelps, p. 25.

²¹Phelps, p. 25.

²²Phelps, p. 27-28.

²³Facade pipes still retained a high percentage of tin, as did certain other stops in historic *piena*.

²⁴Another feature of Brombaugh's pipes involves painting them with a varnish (after the researches of Michigan harpsichord builder Keith Hill) consisting of resin, lye, linseed oil and turpentine, which appears to focus their tone and eliminate undesirable pipe-noise in their speech.

²⁵The Schnitger organ at Cappel near Bremen is an important surviving example of sub-semitone usage, and Fritz Noack has recently built two interesting practice organs for Oberlin College which include this feature.

²⁶A colleague reports that after he played a concert of music by Franck on a new mechanical-action instrument, a member of the staff of a main-line, "American Classic" organbuilding firm congratulated him and confessed he hadn't realized that Franck could be played on a tracker organ. Franck's own organ at Ste-Clothilde in Paris was, of course, operated by mechanical action.

²⁷Until some successful replacement for the kid leather that forms pouches at the action point of every function in the electro-pneumatic action can be found (a large organ may have thousands of pouches), the effects of air pollution necessitate the replacement of leathers after only two or three decades of use, running up a bill that may approach the cost of replacing the instrument. Alternate substances have been tried and have enjoyed some success, but one wonders whether improvements in the technology of such a system are worth the effort when a simple and attractive solution — mechanical action — is close at hand. Electro-pneumatic stop actions have been applied, of course, to mechanical key action instruments in the attempt to have the best of both worlds — reliable and simple key action and the convenience of rapid stop changes through the allied use of a combination action. Even here, the technology causes problems; a famous embarrassment occurred at the time of the dedication of the Kung organ in Alice Tully Hall at Lincoln Center in New York, a mechanical key action instrument whose electrically-controlled stop action failed just before the dedicatory recital. Unable to draw stops, the recitalist, brought especially from Vienna for the concert, went home again.

²⁸Quoted by Peter Williams on the frontispiece of *The European Organ*, from D.A. Flentrop's short essay on building and restoration, "Progettazione e costruzione d'organi — considerazioni d'un organaro," in *L'Organo* IV, i (1963), p. 155.

N'omi Greber

SALVAGING CLUES TO A PREHISTORIC CULTURE

Modern archaeological methods add to our knowledge of the Hopewell people, who lived in Ohio over 1500 years ago.

During the seven-hundred-year period from 200 B.C. to 500 A.D., southern Ohio was the home of prehistoric people who attained a highly developed culture, with complex social organizations and with craftsmen of artistic excellence. The people of this culture, called Hopewell, used materials that came from as far south as the Gulf Coast and as far west as Yellowstone. They constructed many of the extensive geometrical earthworks and associated mounds found in the southern half of the state, such as those in Ross County at Mound City National Monument on the Scioto River and Seip State Memorial on Paint Creek (Fig. 1).

Much about the development, movements, and way of life of the Hopewell people remains a mystery and must be fitted together by conjecture based on the tantalizing pieces of evidence they left in the ground. Maps and short descriptions of many Ohio earthworks were contained in the first volume of the *Contributions to Knowledge* published by the fledgling Smithsonian Institution (Squier and Davis, 1848: see bibliography at end for this and subsequent parenthetical references). By the early part of this century, many major sites had been excavated, by Cyrus Thomas for the Smithsonian Institution (1887, 1891, 1894), by Frederick W. Putnam for the Peabody Museum of Harvard

(e.g. 1885, 1886, 1887), and by Warren K. Moorehead and William Mills for the Ohio Historical Society (e.g., 1906, 1907, 1909). They dug in the mounds, located burials and building sites, collected a dazzling array of artifacts (mainly from burials), and then filled the excavations back in. Most of the excavation sites are now farm fields. Though many of these original investigations were carried out according to the best scientific procedures of the day, adequate records were not kept for some, and none of them had the advantages of present-day technology. Consequently archaeologists today can return to the sites and glean more information, though new discoveries of sensational artifacts are less common. One sort of information that can still be gathered is the floor plan of the remains covered by mounds, and some details of the sequence of their construction; this can throw light on the development and movements of the early people, especially when different mounds and earthworks are compared (Greber, 1976).

Assigning dates to the remains of a prehistoric society is essential to any hypothetical reconstruction of social ties, trading partners, and political boundaries. The relative order of events can be inferred by stratigraphy (study of strata or layering) if sites overlap, and contemporaneity can also be deter-

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This work is part of a project sponsored by NSF with additional financing furnished by the Explorers Club and private individuals. Access to the site of Seip Mound 2 was kindly granted by the landowner, Mary Ann Schlegel.



Steatite animal-form pipe found over primary mound covering multiple burial in Seip Mound 1.

mined by the common occurrence at different sites of artifacts known to have been used for a given time span. The most desirable information is an absolute date such as can be obtained from a radiocarbon assay. This procedure, which was developed in the 1950's, measures the decay of the radioactive carbon isotope 14 in organic material (the decay begins when the plant or animal dies). In order to obtain such dates, organic material such as wood must be found in an undisturbed context, not an easy task for sites which were excavated many decades ago.

The technical problems of archaeological exploration are complicated by practical obstacles which often hinder work in the field. Any field work must have permission of the land owner, public or private. Because much of the private land on which the Hopewell sites are found is extremely productive farmland, large excavations are usually not feasible, and work frequently must be done between harvest and planting. Much of the survey described in this article was done later in the fall and winter than is common, so that we often worked under wet or freezing conditions.

Non-destructive archaeological techniques that can be used while the crops are in the field can significantly extend the useful field season. Partly in order to map buried archaeological features by non-destructive means and partly to find undisturbed areas associated with Hopewell sites, in 1979-80 I organized a series of experiments, funded by the National Science Foundation, using geophysical remote sensing techniques at a number of Hopewell sites in Ross County. The successful use of such techniques makes it easier to leave sites as nearly as possible in-

tact so that future investigators, with even more sophisticated techniques, will have something left to study. This conservation is a major concern of present day archaeologists even while excavating. In the particular investigation described below, the crew used two methods to locate underground features without digging: surveying variations in subsurface electrical resistivity, and scanning with ground-penetrating radar. But before I proceed with a description of these experiments, I will provide a little more background about what is known of the Hopewell people.

It is likely that the ancestors of these people had lived in the same general area before 200 B.C., and that their descendants remained in southern Ohio after 500 A.D. The Hopewell probably subsisted by hunting and gathering, with perhaps some tending of crops, e.g., nut trees, and/or some crop planting, but there is no evidence that there were extensive fields of maize (Ford, 1979). The particular ecological and cultural circumstances which resulted in the special characteristics of this time period have been debated for over one hundred years and continue to be studied today.

By the time the first Europeans crossed the Alleghenies and entered Ohio, the traumatic influences of European contact had already changed the way of life of the local Native Americans. Although in other parts of what is now the United States there were groups of Native Americans building mounds and carrying on elaborate ritual lives after European contact, in the Midwest the apparent extreme differences between the Native Americans' observed way of life, and the sophistication of the monuments and



Above: Pipe in form of bird catching fish. Ohio pipestone. Found in Tremper Mound on the Scioto River.

Right: Mica hand found in Hopewell burial (burial 47, mound 25, Hopewell site).



buried artifacts in the region, gave rise to fanciful theories of lost races of mound builders (Silverberg, 1968) and of culture contact with ancient Old-World civilizations. But by the beginning of the present century, the archaeological investigations already mentioned had permanently resolved such myths about the mound builders. Excavations showed that the many monuments found in the Mississippi River Valley and its tributaries had been constructed by Native Americans. Variations in the types of monuments and associated artifacts could be explained by geographical and chronological differences.

In Ohio the most elaborate and exotic of these monuments are those of the Hopewell culture, named for the Hopewell Mounds and Earthworks (Shetrone, 1926; Moorehead, 1922), on the North Fork of Paint Creek. This site, acquired in 1980 by the Archaeological Conservancy, is now protected from destruction by farming or construction and will be available for present and future generations to appreciate and study. Vast quantities of artifacts typical of the Hopewell culture were recovered from the early excavations at this site, as well as from other major sites included in the early investigations: the Turner Group on the Little Miami (Putnam, 1886; Willoughby and Hooton, 1922), the Liberty Earthworks on the Scioto south of Chillicothe (Putnam, 1885; Mills, 1907), Tremper on the Scioto near Portsmouth (Mills, 1916), The Seip Earthworks on Paint Creek (Mills, 1909; Shetrone and Greenman, 1931), and Mound City. At the Hopewell site and Mound City, caches of obsidian were found which has been identified as coming from Yellowstone (Griffin, Gordus, and Wright, 1969). Large conch-shell vessels,

probably from the Gulf Coast, are relatively common, and many sites have yielded artifacts of copper that probably came from upper Michigan (Goad and Noakes, 1977). Occasionally silver, meteoric iron, and gold have been found. There is evidence that some metal was used in making drill tips and awls, but the vast majority of metal objects made were symbolic in nature. These include, for example, geometric or animal forms, beads, plating for ornaments, and head dresses. One unused copper axe found at the Hopewell site weighs thirty-eight pounds; another from the Seip Earthworks weighs twenty-eight. Mica, most likely from the Piedmont, was cut into a vast array of designs. Exotic flints, marine shell beads, fossil sharks' teeth, and alligator teeth were also buried. Of possible local origin are the literally thousands of pearls and drilled canines from a wide range of animals, raccoon to black bear. Ohio pipestone from the Portsmouth region was made into platform pipes with realistic representations of birds, animals, and occasionally humans carved around the bowls. Caches of these pipes were found at Tremper and Mound City, and examples of these as well as other artifacts are displayed today at the Ohio Historical Center and Mound City. An uncountable number of perishable objects are known only from burned deposits where bits of charred fabric or leather may remain. Fabrics, some with

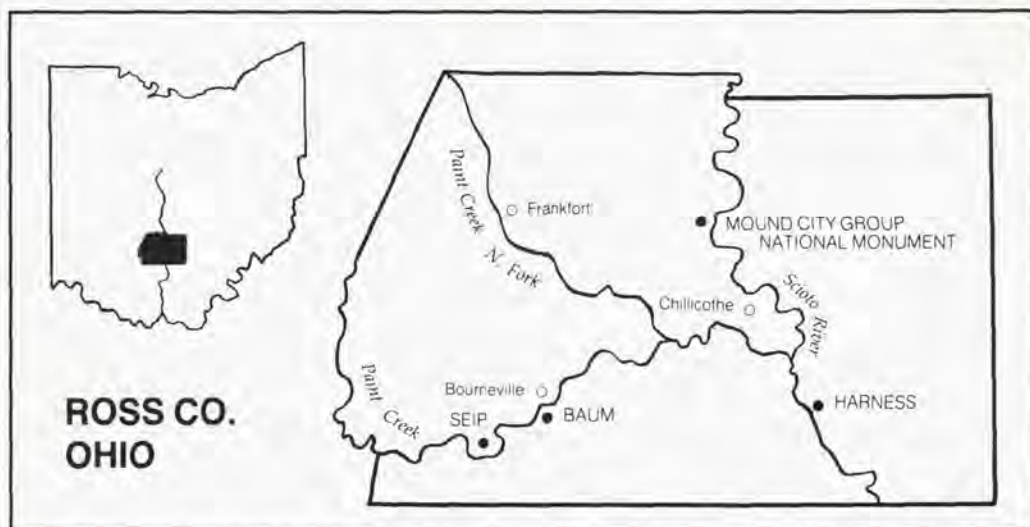


Fig. 1. Earthwork sites in Ross Co., Ohio.

batik type designs, have also been found where they have been preserved by contact with copper.

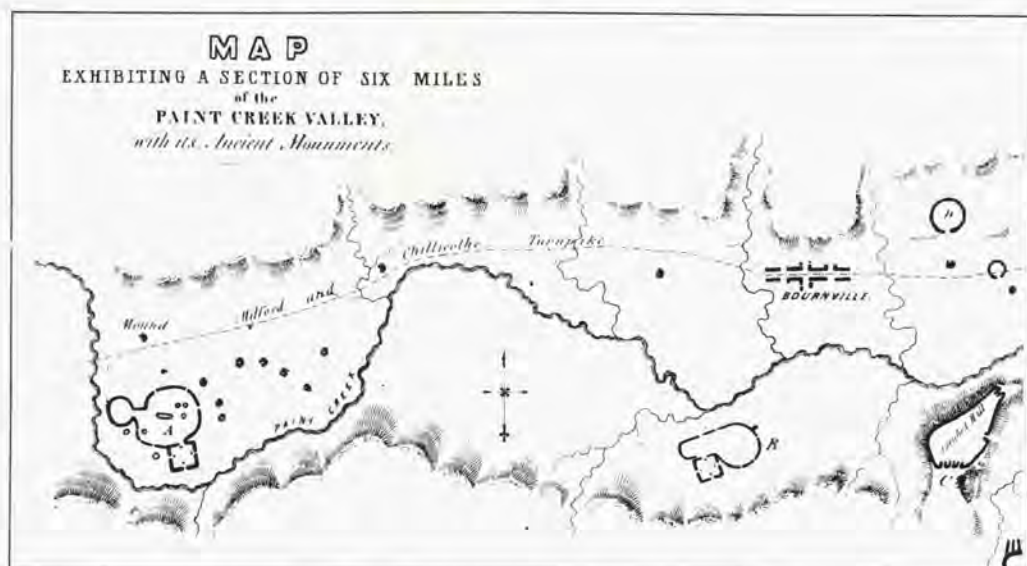
Many of the artifacts were placed in graves, though at each major site separate caches of objects have been found, either in the same buildings with the burials or in other contexts. These remains reflect a rich ritual life, but many questions are still unanswered about the cultural dynamics that produced them (Caldwell and Hall, 1964, Brose and Greber, 1979).

The part of the remote sensing survey described here was done at one of the major mounds associated with the Seip Earthworks, Ross County (named after the Seip brothers, who owned the land at the time of the original excavation early in this century). Part of the earthwork and all of the reconstructed Seip mound are now in Seip State Memorial. Seip Mound 2 was excavated by the Ohio Historical Society under the direction of William Mills (1909); Seip Mound 1 was excavated and restored by the Ohio Historical Society under the direction of Henry Shetrone over a period of four seasons beginning in 1925 (Shetrone and Greenman, 1931).

Seip Mound 1 lies approximately at the center of the large circle of the earthwork. This mound covered three smaller conjoined mounds, which in turn covered the remains of large civic-ceremonial public buildings. The stages in which the mound was built can be reconstructed. The builders first chose a knoll or elevated situation as a site, then leveled off the ground and built a multi-layered

clay floor. Posts were sunk into the ground through the floor to make walls for buildings, the largest section of which measured approximately 60 by 70 feet. These buildings seem to have been used for ritual purposes; the dwellings for the community were elsewhere. Tombs were constructed on the floor within and about the buildings. Most of these tombs were made of logs, though some were of stone or of clay, and they were usually covered by small earth and stone mounds. Seip Mound 1 contained remains of at least 123 individuals in 94 burials, 112 of the bodies having been cremated; the grouping of the burials and variations in the number and type of objects found in each burial suggest differences in status, possibly based on role in the community, age, the major social division to which the individual belonged, or circumstance of death. Some of the deaths seem to have been socially prescribed as part of the burial ceremonies honoring a highly prestigious person — in layman's terms, human sacrifice.

At some point, perhaps because of the death of an important individual, the buildings were dismantled or burned, and earth was brought to cover them. Excavations reveal small distinct pockets of soil and gravel where basket loads were dumped to build up the mound. When the mound reached a certain height, more soil and gravel was spread in layers or sheets over the top. Later, additional strata were added. Usually one or more burials were added with each new additional layer. The final mound was then one



Map of ancient earthworks, from Squier and Davis (1848). Seip mounds are at A; Baum earthworks are at B.

loaf-shaped elliptical earthen structure with large stones placed around the outer edges to aid in preventing erosion.

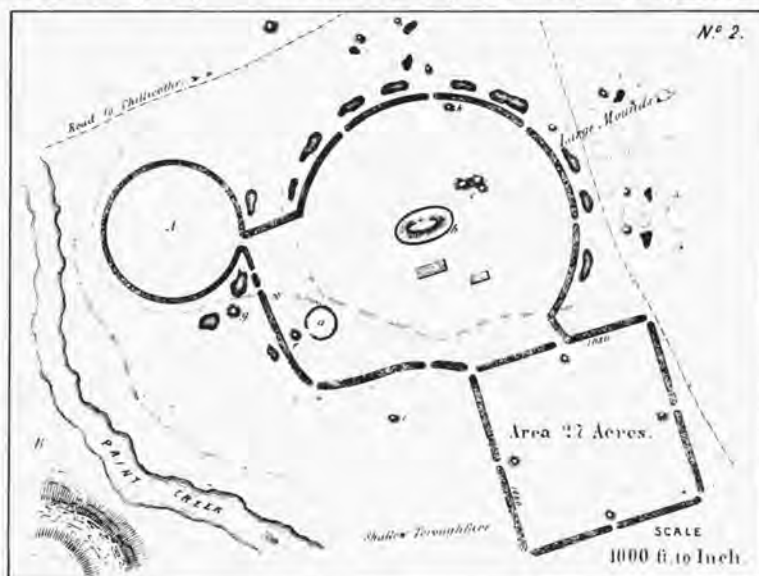
Seip Mound 2 probably represents a stage of construction parallel to the first stage of Seip Mound 1 — the three conjoined smaller mounds. It may be that the community moved away from the area before adding as many strata as in Mound 1.

In 1907 excavations by William Mills at Seip Mound 2 uncovered the remains of three joined buildings as well as quantities of exotic goods (Mills, 1909). As is common, these buildings had been at least partly

burned before they were covered with earth and gravel. Two of the buildings contained 43 cremated burials somewhat similar to those of Seip Mound 1. During the excavations the buildings were completely exposed, all the burials and artifacts were removed, the excavation was recovered, and crops were planted over the site. Before the 1907 excavation, the highest section of the mound had been almost six meters above the general ground level; by 1979 it was less than two (Fig. 2).

In the fall of 1979, after the harvest, I undertook to survey the mound site as part of a

Plan of Seip earthworks from Squier and Davis (1848). Mound 1 is at *b*; Mound 2, consisting of three conjoined mounds, is at *c*. The small earthwork circle at *a*, almost obliterated by the plow even in the time of Squier and Davis, is 250 ft. in diameter.



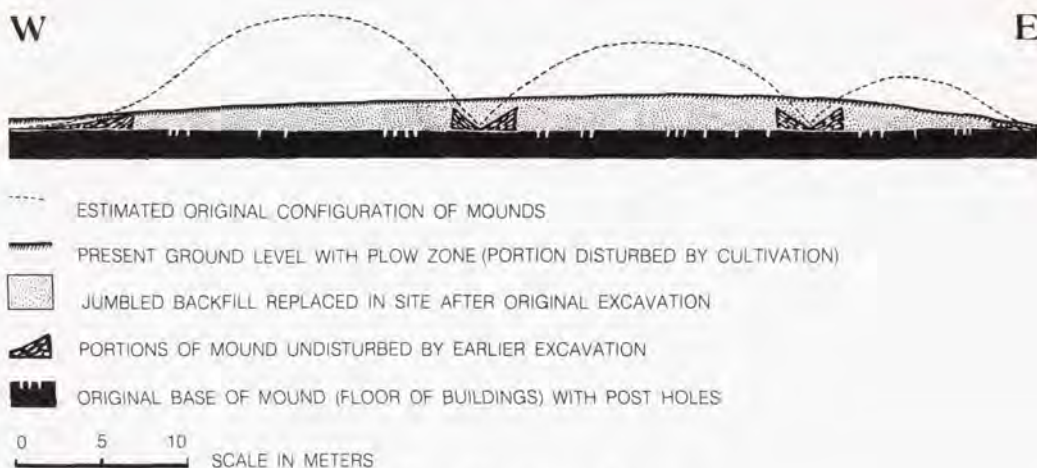


Fig. 2. Sketch of estimated profile of Seip Mound 2 as it presently exists.

study of Hopewell settlement patterns, seeking more detailed information than we now have from the extant records of the original excavations. Over the rather amorphous lump covering the old excavations, we took two sets of remote sensing data, measuring electrical resistivity and scanning with ground-penetrating radar.

In a resistivity survey, a voltage is applied by means of metal electrodes inserted about 15 centimeters (6 inches) into the ground, and the resistance to the flow of current is measured. A subsurface archaeological feature can be detected if there is sufficient contrast in resistivity between the feature and its matrix. While soils and rocks are basically poor conductors, they can conduct small amounts of electrical current if they are wet. The amount of conductivity (inverse of resistivity) is dependent upon the compactness and moisture content of the soils and the quantity and solubility of salts and acids which maintain the electrolytic process. There will be a difference in resistance, for example, between the undisturbed natural soils and the organic materials found in a trash pit, a buried masonry wall, or a buried hearth. Anomalies can also be caused by tree roots, rodent dens, or natural geological layerings. Thus, to interpret resistivity readings for archaeological use one needs to know the approximate depth, size, and expected composition of the buried archaeological features.

The resistivity survey was done under my supervision using a null balancing resistance meter (one which matches a variable known resistance with the unknown quantity). For the purposes of our survey we imposed an arbitrary north-south/east-west

grid on a contour map of the mound remnant (Fig. 3). We moved back and forth across the mound area along a series of parallel lines (or transects) 1 meter apart within this grid, recording variations in the ground resistance. The probes were placed in a Wenner array (four equispaced probes) along the transect. A rapid turnover switch, using five probes (four at a time), was a practical addition to speed field work. A field traverse will give optimum monotonic definition of a feature in the resistivity profile if the feature is linear and of high contrast, if the traverse intersects the major axis of the feature at right angles, and if the probes are set broadside to the line of survey. A series of discrete readings is taken along the transect. The depth of the reading depends upon the distance between the probes; the spacing used for these surveys, 1 m and 1.5 m, produced readings for ground resistivity at depths of 1.5 m and 2.25 m, respectively. Fig. 4 is a plot of the resistance reading of a north-south transect along the East 18-meter grid line, which crossed over the edge of a buried excavation.

Radar systems used for subsurface sensing operate in a manner similar to shallow-reflection seismic sensing systems. For the present survey an impulse of radar waves was transmitted at 10 times per second into the ground and reflected back to receiving antennas from various types of underground discontinuities. We pulled the two major antennas on a plexiglass sled along a series of north-south lines or transects in the same pattern as the resistivity survey. The reflected pulses were displayed simultaneously on an oscilloscope and a facsimile recorder. Radar distinguishes archaeological features, much as in resistivity surveys, by

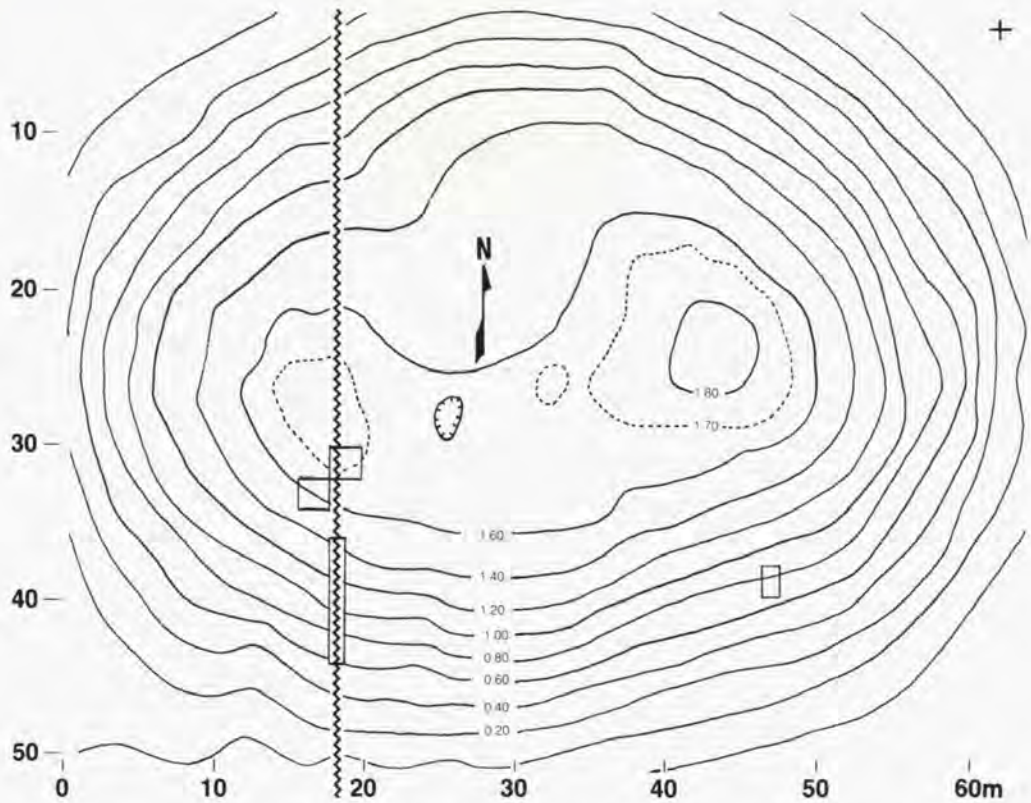
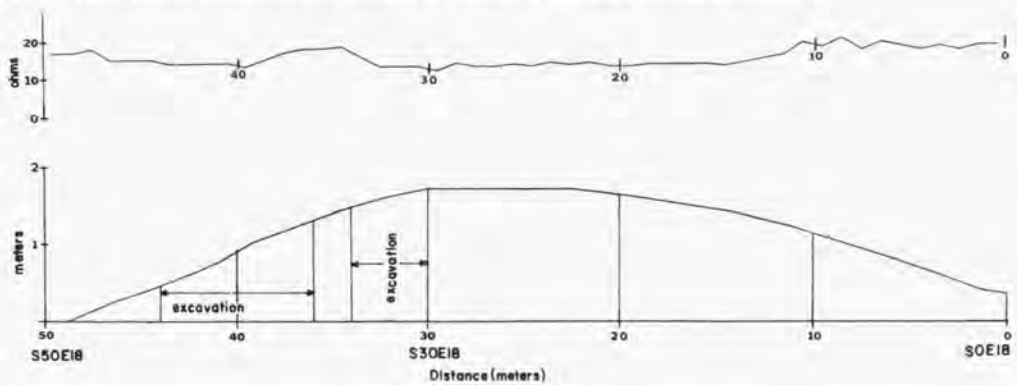


Fig. 3. Contour map of site of Seip Mound 2, with superimposed grid in meters. Rectangle and squares indicate test excavations. (Fig. 8). Wavy line indicates the E 18 transect over which the resistivity and radar readings were taken (Figs. 4 and 5).

Fig. 4. Profile of E 18 transect of Seip Mound 2, with corresponding resistance readings.



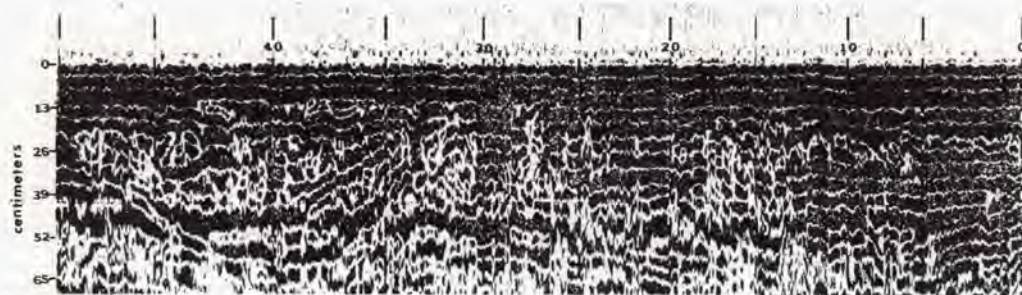


Fig. 5. Radar profile along E 18 transect of Seip Mound 2.

differences in reflective properties. The data we obtained constituted in effect a stratigraphic profile similar to that which an archaeologist draws of the strata uncovered along the vertical side of an excavated unit. The radar equipment is more sophisticated and expensive than the resistivity meter and probes; a variety of antennas had to be tried to determine the one best for the specific archaeological requirements. In this case it was necessary to find objects very close to the surface (in geological terms) — two meters or less. This survey was conducted for me in February, 1980, by James Fowler and Leslie Davis, geophysicists from Ensco, Inc., Springfield, Virginia.

The resistivity survey was completed in late fall before the soils, though not the archaeologists, were frozen. The radar survey was conducted in mid-winter. Normally the

ground is frozen enough at this time to allow free access to all farm fields. This year the soils were still saturated from heavy summer and fall rains, and the temperatures were not as low as usual. Consequently the survey was hampered in several areas by mud and snow just at the freezing point. Again, this was a problem for the crew but did not affect the radar readings. The difficulties in pulling or lowering the plexiglass sled holding the two major antennas over the muddy and sloping surface of the mound remnant can be seen in the unequal markings which indicate the horizontal scale on the radar traces (Fig. 5).

Fig. 5 shows the surface radar trace on the north-south grid line at E18 over which the resistivity survey was run. The radar data gives in effect a continuous profile of horizontal distance versus depth below ground.

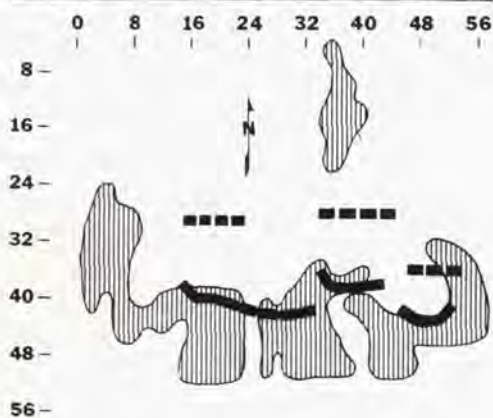


Fig. 6. Estimate of non-excavated subsurface portions of conjoined mounds at Seip 2. Shaded portions represent unexcavated portions of the horizontal base of the mound, on which the buildings were erected. The heavy solid lines indicate the outer perimeter of the mound piled on the building site. Heavy dotted lines indicate the estimated limit of Mills's excavation, and roughly correspond to outer walls of buildings.

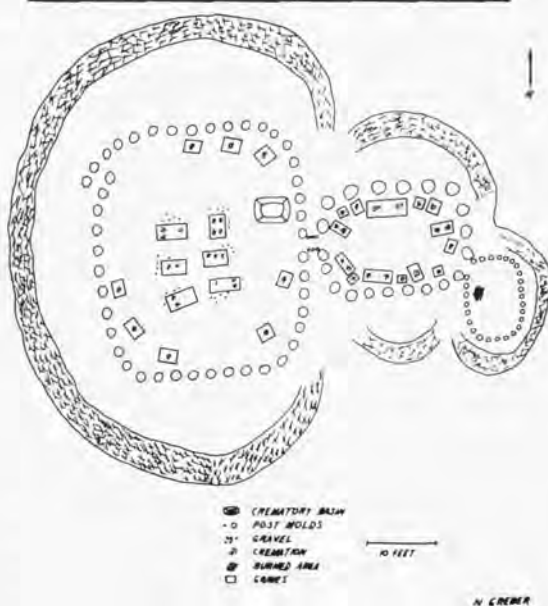


Fig. 7. Estimated floor plan of Seip Mound 2.



Fig. 8. Profile of test excavation along the E 18 transect at Seip Mound 2. Dotted layer at top is the plow zone. Bottom layer with heavy diagonal stripes is unexcavated. At right may be seen clumps of earth and gravel dumped by the builders as they piled up the mound. The thinner layers at the left were spread out, leading up to the central mound.

The strong bowl-shaped anomaly at the southern end of the profile comes from two sources. Since the surface of the mound is rising in this area, an essentially horizontal surface will appear to be deeper in the trace as one goes north. Thus, the left-hand part of this anomaly represents a well defined surface ("floor") generally fifty centimeters below the base of the datum stake (ground level) for the locality. At S40 there is a change as the strongest signal now comes from a surface which begins at this floor level, rises toward the surface of the present mound, and ends abruptly approximately 20 cm below the surface near S33. This rising surface is also detected as an anomaly in the resistivity values between S32 and S39. The horizontal surface south of the rise is not readily apparent in the resistivity data. Plotting the locations of similar anomalies from other radar transects gives a map of what appears to be the unexcavated portions of the original three conjoined mounds and an unexcavated floor surface at the edges of these mounds (Fig. 6). This is completely consistent with the records of the original excavation and of recent excavations in similar mounds. I have drawn a floor plan based on written descrip-

tions and archival photographs of the three structures (Fig. 7). These buildings fit into the area north of the remaining un-dug sections as mapped using the radar data.

Although it was obvious in the resistivity transects that there were anomalous areas in the southern half of the test area, the boundaries could not be clarified as simply as in the radar traces, even using a wider grid spacing for deeper penetration. It is much more difficult to remove the effect of the topographic contours from the resistivity data. Resistivity has been very useful, however, in mapping buried features in relatively level fields.

Test excavations have corroborated the existence of the predicted main features along the E18 line and in a shorter stretch of the E48 line. In the spring of 1980, before planting, we were allowed to make small test excavations in the mound remnant along the E18 transect (indicated on Fig. 3 by the long rectangle and two squares). The locations of these excavations were chosen to check the interpretation of the radar data. Profiles of the strata disclosed by the excavation are given in Fig. 8. The thin sheet loadings characteristic of the upper surface of mounds are



Test excavation along E 18 transect at Seip Mound 2 (corresponds to profile in Fig. 8).



Excavations of buried plaza area within large earthwork circle containing Seip Mounds 1 and 2. Members of the CSU Field School in conjunction with the Cleveland Museum of Natural History are checking findings of remote sensing data.

evident in the layers uncovered between S44 and S36; the clumped basket loadings may be seen in the strata of the shorter section excavated between S34 and S32. The base construction level was found as indicated, through the entire trench. At S40 the thin horizontal outer layering changes to the more rapid rising, more numerous, thicker stratigraphic layers of the main mound as predicted by the radar data. The previously unexcavated section continues to a peak at S33 where the heavy outer gravel cover has been truncated. This layer is most likely the source of the resistivity anomaly. There is a short section of even, parallel lines in the radar trace immediately north of S33 which appear to be reflections of the meter-long section of undisturbed mound layering. These layers end near S31 in a jumble of clay back-fill which is reflected in the scattering within the radar trace.

In the test excavations small amounts of charcoal were found under the layers covering the beginning of the main floor (near S38). Unfortunately the sample is not large enough for present dating techniques. How-

ever, with the maps based on the radar data, small-scale excavations which will not interfere with the farming activities can be placed in areas most likely to yield undisturbed archaeological remains.

These investigations, which are still in progress, will clarify and supplement the data available from Mills's original excavation and help answer questions about the construction, use, and dating of the site. Though resistivity and ground-penetrating radar are most commonly applied to solving such geological problems as the location of oil fields or the properties of glaciers, by combining the experience and training of geophysicists and archaeologists, these techniques can also be used to map, in some detail, buried archaeological features, as has been described in this article. Thus, in spite of the many obstacles which create far from ideal conditions for archaeological investigation, we can continue to salvage bits of information that will help in piecing together the puzzle of the civilization that flourished in Ohio over 1500 years ago.

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Donald M. Hassler

THE HARD SCIENCE FICTION OF HAL CLEMENT

Fantastic tales of alien creatures from outer space address real human problems, and belong to a centuries-old philosophical tradition

An acknowledged master in a major literary genre who won't take his own work seriously: it sounds like fiction, but it is a description of Hal Clement, scientist and author of a number of highly acclaimed works of science fiction. Indeed it fits many other practitioners of this unjustly neglected branch of literature. Science fiction has long been lumped together with comic books, Westerns, and detective novels as "popular culture," and it began to receive scholarly attention along with other such "sub-literary" writing only a few years ago when people started studying it for its anthropological or sociological interest.¹ While it is true that some science fiction, like any other literature, occurs in the form of pot-boilers, it is also true that some works in the genre use sophisticated literary means to convey serious ideas.

All science fiction may be classed as fantasy, since the narratives are alien to the world as we know it. But all fantasy narratives are not necessarily trivial — witness *Gulliver's Travels*. Works of science fiction are further categorized as "soft" or "hard," depending on whether the scientific and technological details are improbable and of secondary importance, or are plausible extrapolations from accurate facts, and of

central importance in the story. While hard science fiction may be traced back to Jules Verne and earlier, the genre emerged as a major type in the pulp magazines of the late twenties and thirties, when many readers, fascinated with modern science, enjoyed projecting its progress imaginatively into the future.

Writers of hard science fiction have themselves contributed to the neglect of their work as serious literature. Many of them have said that they are more interested in science and technology than in literature. Also, many of them who grew up in the fan organizations promoted by the pulps regard their writing as merely a hobby — a profitable one, perhaps, but nevertheless an activity pursued mainly for entertainment. But such attitudes grossly undervalue the best hard science fiction. In the first place, the competent scientific extrapolations of many writers in the genre can lift the eyes of practicing scientists — and of their governmental and institutional backers — to the broad implications of science. It is scarcely an exaggeration to say that Americans would not have set foot on the moon in 1969 if Buck Rogers and company had not pioneered the way years earlier. Secondly, the settings of science fiction,

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usually in the future or on another planet, provide detached, Swiftian perspectives from which to view the world around us. Like Gulliver returned to England, the reader of science fiction sees familiar surroundings differently. Finally, as in Gulliver's vision, a tone of near comic absurdity can often be found in hard science fiction and may be its most serious characteristic. The farther from familiar reality science explores, the more important it appears to be for scientists themselves to entertain hypotheses and ideas that may seem absurd: the recent naming of subatomic qualities "charm," "truth," and "beauty" is an example from nuclear physics. Science fiction conveys this sense of reaching out beyond the familiar with a comic tone which itself seems to be part of the reaching, and which also helps the reader to be more comfortable in unusual and uncertain environments.

Hal Clement, one of the finest writers of hard science fiction, often reveals in his work a complexity of theme, an intricacy and appropriateness of tonal effect, and an overall significance that are characteristic of this genre at its best. Clement's stories and novels reflect his scientific training and often present solid facts in a new and revealing light. More important for the thesis of this essay, Clement is fascinated with epistemology, and his works jolt the reader into a deeper understanding of the complexities of the human mind and the intricate connection between our mental activity and its physical matrix. Such an accomplishment deserves a literary critic's attention and respect.

Clement, whose real name is Harry Clement Stubbs, has a background typical of the hard science fiction writer. He entered Harvard College in 1939 steeped in science fiction and intending to major in astronomy. He wrote the story that was to be his first published fiction late in his sophomore year or the summer following (he cannot remember exactly when, though he does remember writing an earlier piece of science fiction that has remained unpublished).² The story, entitled "Proof," is a reasoned speculation told from the point of view of a life form evolved within the gaseous interior of the Sun that cannot imagine metals and other elements existing in a solid state. This extrapolation seems comically absurd both from the point of view of the characters who cannot conceive of solids and from the point of view of the reader who cannot conceive of the characters, but the tale is presented as logically plausible and hence a fantasy of the hard kind. The story was accepted by John W.

Campbell, editor of *Astounding Science Fiction*, the leading pulp magazine for hard science fiction, in October 1941 and appeared the following June in an issue with a cover story that was to become part of Isaac Asimov's *Foundation Trilogy*.³ At the time he was writing "Proof" and his other early stories, Clement was also writing articles for *Sky and Telescope* and studying with the solar expert Donald Menzel.⁴ He recalls his concern that Menzel and his other teachers might disapprove of the fantasies of science fiction, and so at the suggestion of his sister he signed his stories with his middle name, Clement. He later found out that Menzel himself had tried to write science fiction. By that time, "Hal Clement" had become a familiar name in the pages of *Astounding*.

His work as a man of science has continued steadily since those early days at the Harvard Observatory. In the summer of 1942, he enlisted in the Army Air Force Reserve but was allowed to complete his undergraduate degree in Astronomy before beginning pilot training. Clement flew 35 bombing missions over Europe as a co-pilot and pilot on a B-24. While he was based in England, his interest in meteorology led him to write several new stories. But — even though he had taken a semester of "Writing" at Harvard and was himself a published author (his first cover story, "Technical Error," appeared in the January 1944 *Astounding*) — Clement has said that he never considered writing realistic fiction about his war experiences.⁵ Following the war he set out to write science fiction and to teach science. He earned a Master's degree in Education from Boston University in 1947, taught secondary school in Worcester, Massachusetts, and in 1949 earned an appointment as science teacher at the exclusive Milton Academy (T.S. Eliot's prep school) in Milton, Massachusetts. Except for two additional years as a technical instructor at Sandia Air Force Base in New Mexico during the Korean War, when he also did a little more flying, Clement has continued to teach at Milton and to write science fiction. He is an enthusiastic supporter of NASA and served in a public information unit giving speeches about the space program until his retirement from the Air Force Reserve. He has written articles on education and contributed to science textbooks; and at the urging of the New England Science Fiction Association, probably the most sophisticated fan organization in the country, he edited a collection of stories (including his own description of the first manned lunar landing) entitled *First Flights to the Moon* (1970).⁶ But his most important writ-

ing has been a growing body of science fiction stories and novels. To date he has published eleven novels (two of them marketed as juveniles) and three collections of shorter pieces.

The income from this body of work, in a field that has from the start been commercially alert, must have been considerable. Clement has said that the money from his writing has put his three children through college.⁷ But even though Clement has made money at his writing and even though he is highly respected by fans of hard science fiction, he consistently and almost naively maintains that he writes primarily for fun. He says that though he knows he is a good storyteller he is not a literary writer.⁸ He enjoys both the storytelling, which he traces back in his own experience to telling other people's stories around Boy Scout campfires in the thirties, and the calculation and analysis that he works out for each of his stories before writing them down. Of the two kinds of activity, he claims to like the slide-rule work most.⁹ In fact, like some enigmatic poets I have known, Clement even bristles at times, in a friendly manner, at the suggestion that there might be hidden meanings in his work. He writes in a letter:

I don't feel competent at psychoanalysis even of myself, and am not aware of any subtle hidden meanings in any of my stories. I write them, generally speaking, for fun — though I suppose my idea of fun would be another handle for the analyst.¹⁰

Science fiction writers often, I think, protest a bit too much that they are just having fun. In a recent introduction to the science fiction of Isaac Asimov, James Gunn assumes the militantly simple position that this type of literature should not be searched for any effect beyond plot. Gunn, himself an important writer of science fiction, explains that his study will include a number of plot summaries "... because what happens is the most important aspect of Asimov's fiction (and most other science fiction), and what happens is revealed in plot."¹¹

Although I see this emphasis on plot as an outgrowth of the "fun and fan" syndrome that has been part of the genre since the early days of the pulps, I see no reason why it should determine the manner in which we must approach these works. Hard science fiction may be an attempt to popularize hard science in which the story outline is the most important communication device; but it also may contain some thematic, imagistic, and even tonal complexities about the meaning of

science that are not at first apparent. Hal Clement's work is harder than it seems and harder than he says it is. By the standards of both science and literature, such difficulties make the works even more interesting. I grant that few spectacles are sillier than the over-intellectual academic critic yapping about the real writer — the energetic terrier hardly noticed by the Saint Bernard. So, although my comments no doubt at times will only nip at the heels of a large body of fiction, I hope to draw attention to key notions in Clement's work that may lead to a richer appreciation of it. I am looking for the interesting ideas, which are sometimes expressed in plot situations, but sometimes also in character, image, theme, or tone.

During my recent interview with him, Clement acknowledged that as a seeker after complexities I would enjoy his latest novel, then still in press and published in the fall of 1980; so perhaps *The Nitrogen Fix* is a good place to begin the exposition of several provocative ideas in Clement's work, because it represents the latest product in a consistently thoughtful writing career.¹² Teasing me about the story that I had not yet had the opportunity to read, Clement said:

I've mentioned already the thing in *The Nitrogen Fix*. The non-human, alien creature is completely sexless, has no sex drive, and I had to find some substitute for this which might reasonably motivate an intelligent being. . . . You'll have some fun with that. A lot of people will have fun psychoanalyzing me on that one.¹³

In this tale about a future earth in which genetic engineering intended to enhance agriculture has reduced free oxygen in the atmosphere to a trace, the activity that replaces sex for the alien creatures is learning. The prime motivation for alien "Observers" who have been drawn to the earth by the nitrogen buildup in the atmosphere is simply curiosity. The Observers are a hive species, sexless, whose reproduction is by parthenogenesis. Each individual unit, of which two figure in the novel, can share total communication and memory with the entire species once contact with any other unit has been made. Thus the pooling of knowledge, which the aliens accomplish by touching, makes them seem even more alien in a world where science and knowledge are dirty words because of the dirty trick that genetic engineering has played. Clement's ambiguities about touching here seem more interesting than the self-consciousness he expressed that his fiction would not conform to the usual expectations about sex in contemporary fiction. Hard sci-



Hal Clement

Photo: Bradford Herzog

ence fiction, of course, is notoriously devoid of stories with a love interest — with just a few exceptions of which Clement's work is not one.¹⁴ What substitutes in Clement as a magnificent passion is the value of curiosity coupled with serious issues about epistemology, and he knows these are his themes. As the surviving humans in the novel struggle among themselves (and, also, struggle to understand the peculiar aliens), the most helpful Observer, who has been named "Bones" since he has no skeleton (irony is a frequent device of Clement's) tries to comprehend human epistemology:

Bones was fascinated. Psychology was another totally new field to a mind which had not only never met another intelligent species until now, but had never encountered a different mind in its own. This crowd of *individuals*, cut off from each other except through crude and time-consuming code symbols, was a revelation — a brand new field of knowledge — indeed, a whole set of such fields. It was obvious that the incomplete and distorted picture of the universe transmitted by words would have fantastically unpredictable effects on those minds; the code symbols themselves would probably take the place of the reality they were supposed to transmit much of the time

It would not occur to Bones for a long time that the Observer's sensory impressions were just as much a coded representation of reality as were human words. So were the molecular patterns

which recorded those impressions, and passed them from one Observer unit to another. The species was a good scientist, but not yet a philosopher.¹⁵

What interests Clement is not only the nitrogen-based physiology and alien appearance of this character, both of which are fantastic extrapolations from plausible bases, hence hard science fiction, but also the puzzles of epistemology that the character encounters. The story of *Bones* is a penetrating fictional rendition of the idea perennially grasped — from Plato to Hume to modern linguists — and perennially neglected, that thought is at the mercy of its frail and ever-shifting vehicle, language. Further, even though the Observer species *can* communicate by direct chemical interaction, with the droll analogy to human sexual contact, knowledge for the species is still indirect and thus uncertain. Clement suggests, in other words, that regardless of what symbol system we use to perceive and to communicate, whether linguistic or chemical, we can never be sure of the ultimate nature of the universe; and his expression of that theme in the Observer species is only his most recent attempt to speculate about a basic epistemological problem. Since language and the communication of knowledge are at best only partially efficient, the means of acquiring knowledge and testing its accuracy are of the utmost importance. One of Clement's main themes, then, has to do with the conditions, opportunities, and limitations that govern accurate knowledge about the physical universe.

As the quotation above suggests, this theme is neither dry-as-dust science nor a mere easily resolved puzzle; the pursuit of the epistemological problem throughout Clement's work is both serious and provocative. The limitations of our direct access to knowledge through either metaphysical or psychological means seem to be a constant irritant to Clement, one which may be seen in his skeptical remarks about psychoanalysis. Certainly it is the basis for his belief in the patient accumulation of partial knowledge, as through scientific experimentation, since no direct and final knowledge is possible. In a story that appeared in *Astounding* in 1947, Clement pits a psychologist against the most advanced computer in order to unravel the nature of mind. The poor psychologist becomes paralyzed in a kind of infinite regress. Near the end of "Answer," Clement's speaker laments:

Trying to understand perfectly the workings of a brain — with a brain — he'd think, What

change is this very thought making in the pattern? and he'd try to include that in his mental picture; and then try to include the change due to that, and so on, thinking in smaller and smaller circles. He was conscious enough, I guess, so naturally the stimulants made no difference; and every usable cell of his brain was concentrated on that image, so none of the senses could possibly intrude. Well, he knows now how a brain works.¹⁶

Clement's experimental or Baconian approach to the limitations of knowledge results in what is probably the most well known characteristic of his work: the creation of a great variety of alien life forms and alien environments. That is, a variety of observers may allow us to escape the plight of the poor psychologist in "Answer" by maintaining a great deal of contact with the outside world. One way to build up a store of partial knowledge, if it cannot be gotten by direct revelation or introspection, is to hypothesize a number of inquisitive and potentially intelligent beings. Another way is to imagine many variable conditions, because, as things change, more can be learned about what causes the changes. This procedure is that of the model — what scientists call thought experiments. Both kinds of extrapolation are central in science fiction, and Clement is a virtuoso at both.

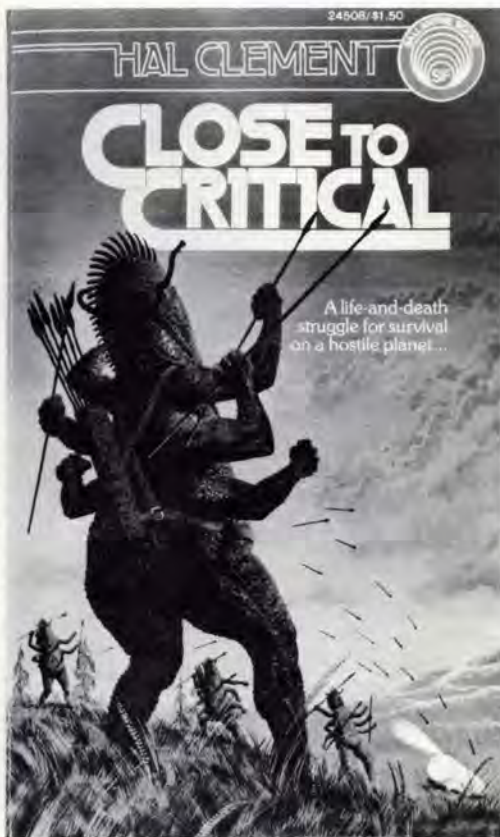
His alien life forms are almost all curious, shrewd creatures, hence potential learners. The accumulation of a tremendous amount of data from different points of view is one result. His best-known aliens are the caterpillar-like Mesklinites from his classic *Mission of Gravity* (1954) who learn to overcome their fear of falling — no small accomplishment since the immensely high gravity on the fantastic planet Mesklin has evolved life very close to the ground. The Mesklinites learn from their human visitors the physics of flight. At the same time, of course, Clement's reader learns a lot about Mesklin.¹⁷

Human explorers in Clement stories use intelligent natives to help them learn, and natives as clever as the Mesklinites with bodies and home environments as different from Mesklin as Mesklin is from earth use humans in other stories to help them gain knowledge.¹⁸ Clement's vision of cooperating and scientifically-oriented life forms throughout the universe is remarkably peaceful and optimistic. There seems to be very little tooth-and-fang competition for life space. The universe seems big enough for all, and even when mistakes are catastrophic, such as the nitrogen imbalance which makes the earth nearly uninhabitable for oxygen-based life in his latest novel, the intelligent

manipulation of the natural environment can correct matters.¹⁹ Some of Clement's fictions are modeled after the detective story, and a few of his characters, both human and alien, are criminals; but crime is generally overcome in these stories by careful reasoning.²⁰

The really dangerous antagonist in most of Clement's narrative situations, of course, is the universe itself; and wide knowledge about the variability of nature — what will happen given certain conditions — provides the answers. They are answers comprised of probabilities — in other words, the settings or environments contribute significant data from which solutions are constructed. Clement seems particularly expert in the use of two variables: gravity and temperature. Although this may sound unpromising, Clement's fictions impress upon the reader the near infinite possibilities for changing the conditions of matter depending on the closeness or distance from other matter. Planetary environments are, in fact, key characters in Clement's fictions, where differences in atmospheric components, in orbit, in mass, in heat all play important parts to entertain and to instruct the reader. And the main element is variety. These conditions are not so far-fetched, of course; we experience a similar variety of conditions in different earth environments, in the weather, in the multitude of life forms on earth. For example, Clement has said that he got the idea for the life conditions on the planet Abyorman in *Cycle of Fire* (1957) (in which one species, evolved for high temperature, lives dormant inside another species evolved for low temperature as the planet completes a highly elliptical orbit that drastically changes its average temperature) from an article in *Scientific American* about a form of virus that infests a certain bacillus and then waits through several generations of the bacillus before reappearing.²¹

Although the notion of an endless variety of life forms and environments is fascinating, there is much about a universe of such plenitude that is unsettling from the human point of view. With much less data at their command, the thinkers of the eighteenth-century Enlightenment expressed their similar sense of the vastness and incomprehensibility of the universe as the aesthetic effect of *sublimity*. The sublime was often deliberately sought in works of art to create terror and disorientation as the proper imitation of the vastness of the universe.²² A major characteristic in Clement's work is such a sublime effect of disorientation, frequently achieved through images of gravity, falling, free fall, circling.



Sensational covers for Clement's novels appeal to readers' taste for the bizarre, but give little hint of the serious thought embodied in the stories. Copyright © 1954 and 1964 by Ballantine Books.

These images may simply have stayed with him after his great success with the extrapolation on variable gravity in *Mission of Gravity*; or it may be that, from Newton to the black hole astronomers of our day, the mysterious weak force of gravitation has an irresistibly strong appeal. Who can say why a writer (scientific or lay) repeats images? But there is no question that in Clement's fictions of a future world of continually improving science and technology the peculiarly non-human experience of free fall as well as variable gravity is mentioned and elaborated upon often. From an early juvenile novel in which free fall is seen as a major obstacle to space exploration (*The Ranger Boys in Space*, 1956) through the novels set in various planetary and stellar environments, each with variable gravitational forces, to a number of shorter fictions in the last two decades, Clement has continually written about the sensation of disorientation that results whenever man leaves his fixed-gravity haven, the earth. From the Mesklinites' dramatic fear of falling to the nausea of humans in free fall, the experience and image of falling are used by Clem-

ent to represent, paradoxically, both the difficulty of adapting to a variable universe and the necessity of coping somehow with alien environments. Progress proves ironic as it takes man off the familiar "household" of the earth — or as it takes Mesklinites off Mesklin. The computer story "Answer," mentioned above in the discussion of epistemology, contains several sentences representative of Clement's matter-of-fact presentation of the image in a suggestive context. The ultimate computer is housed in a satellite that the questing psychologist, Wren, has to visit off the earth:

Wren had become more or less used to weightlessness on the flight to the station, but its sudden conjunction with so much open space unnerved him for a moment, and he clutched at the arm of the figure drifting beside him . . .

"I say, don't you spin this place to give centrifugal gravity? I'm still not quite sure of myself without weight." The taller man laughed at the question.

"I suppose we could, though it would be hard to keep the screen spherical with anything like one gravity at its rim. It was decided long ago that the conveniences derived from spin were far



Clement's latest book deals with epistemology as well as with extrapolated interplanetary technology. Copyright © 1980 by Ace Books.

more than offset by the nuisances; you'll be weightless as long as you are here."²³

In this case, the future technology needed to create the ultimate computer dictates that people near it remain in the disoriented state of weightlessness. As mentioned earlier, what the computer uncovers is also disorienting. Partial knowledge and falling are for Clement mirrors of man's limited condition.

Clement frequently digresses into the problems of language and communication. Our partial knowledge — which is all we can hope to acquire — can at best be communicated only partially through language, yet this imperfect communication is our only means of accumulating knowledge and hence of surviving. The problems and potentials at the Tower of Babel should always be the concern of fallen and "falling" man. Despite some clumsiness in its own language at times, Clement's work often reveals this concern, from his most recent alien, *Bones the Observer*, whose problems with language were suggested in the quotation above, all the way back to "Proof." An alien from the

planet Dromm, briefly mentioned in several novels and perhaps awaiting more complete development in a fiction yet to be written, tells his son, "You mean you . . . let that human girl do all the talking? I'm ashamed of you. You know perfectly well that no chance to learn the use of a new language should ever be missed."²⁴

A close attention to the phenomenon of language and to the limitations in communication with language always leads to the expression, and perhaps the understanding, of irony. As the reader has no doubt already noticed, Clement likes irony. His titles seem ironic or at least pleasantly ambiguous. *Mission of Gravity* is a weighty story with some droll characters and situations — not exactly mock-epic, but spaced-out epic; yet it is also a serious story of journeying toward discovery. *The Nitrogen Fix* includes some precise chemical knowledge about "fixing" elements in certain compounds and is also about the survivors' efforts to correct some serious mistakes in genetic engineering. The short story "Stuck With It" is about adhesives but also about limitations — again — in genetic engineering. Clement's punning is a literary way of coping with the limitations of partial knowledge, and in spite of his frequent disclaimers to the contrary he even makes fun sometimes of the science fiction writer himself — a literary self-consciousness that many critics would not allow this "naive" genre.

The stance of the "wise fool," or the tone of comic absurdity, that appears in the work of a hard science fiction writer such as Clement functions both as a defense against the inevitable failure of any search for truth and as a license to speculate in the widest possible way. This open, even playful, frame of mind reinforces the peculiar affinity between hard science fiction writers and many eighteenth-century writers, such as Swift, Hume, Voltaire, and Diderot, all of whom made use of comic irony to express the paradox of humanity's quest for truth. Knowledge can never be final, and hence all men are more or less foolish in their intellectual pride. But the comic acceptance of limited knowledge is the liberating ingredient that permits enlightenment to continue.

Perhaps it is appropriate that the final quotation from Clement's fiction in this brief account should be taken from his first published story; even then he expressed well the irony of the science fiction writer who dares fantastic speculations in order to contribute to the accumulation of ideas. One of the characters made entirely of gaseous mat-

ter, having listened to his colleague speculate about the far-fetched notion of matter existing in a solid state, recalls that, even though he had suggested the notion originally from some observational data, his colleague is known to have dabbled in what we call science fiction:

I seem to have heard that you have somewhat of a reputation as an entertainer, and you seem quick-witted enough to have woven such a tale on the spot, purely from the ideas I suggested. I compliment you on the tale.²⁵

Clement's own tales have entertained many readers over the years and will continue to do so as a substantial part of the canon of modern science fiction. But in addition to entertaining, his fiction probes serious themes: variability and possibility, the uncertainty of knowledge, the necessity yet imperfection of language. Together these themes comprise what might be called a world vision, one that is consistent with the notions of science in

our day but that at the same time speculates about the human meanings of science. By definition, Clement's science fiction stories do not meet the expectations of realistic fiction, and — another virtual convention of his genre — his human characterizations are mostly flat and less interesting than his aliens. But there is something compelling in the themes and images, and in the earnest quest for knowledge in Clement's work. Surely it is a narrow criticism which can classify such literature as trivial.

Clement perhaps sums up his own fiction best in one sentence from our interview, and the careful qualifications that I have transcribed carefully in the sentence suggest his vision of limited knowledge: "I like to think of things that might happen if our picture of the universe is even moderately accurate."²⁶ Now we may see through a glass darkly; and for Clement, though it may be hard, he will keep looking through that glass because he sees little chance of breaking beyond it.

NOTES

¹The number of book-length studies that treat science fiction as a serious field of literary study has been increasing. See Darko Suvin, *Metamorphoses of Science Fiction* (New Haven: Yale University Press, 1979). This paper is intended as part of a longer study of the comic effects in the genre, and I am grateful to the Research Council of Kent State University for support in its preparation.

²Many of Hal Clement's personal recollections and statements in this paper are from a taped interview I held with him at his home in Milton, Massachusetts, June 22, 1980, referred to henceforth as "Interview."

³The best source for ready reference about details pertaining to all aspects of the genre from names such as John Campbell to pulp titles such as *Astounding Science Fiction* is Peter Nicholls, ed., *The Science Fiction Encyclopedia* (Garden City: Doubleday, 1979). The title of the Asimov cover story in the June 1942 *Astounding* is "Bridle and Saddle."

⁴Donald H. Menzel was Director of the Harvard Observatory where *Sky and Telescope* was published when Clement was there. Menzel has published widely in the field of astronomy, but I can find no listing for published science fiction of his.

⁵Interview. Clement said his war experiences were not very exciting. He never saw an enemy fighter. Perhaps steady, competent technology leads scientists to wish to escape to fiction at times.

⁶Hal Clement, *First Flights to the Moon* (Garden City: Doubleday, 1970). The most reliable source for bibliographical data on the first editions of each of Clement's nearly 20 books (a couple of works have been reissued under new titles) is L.W. Currey, *Science Fiction and Fantasy Authors: A Bibliography of First Printings of Their Fiction and Selected Nonfiction* (Boston: G.K. Hall, 1979). The NESFA is an example of science fiction fandom at its best; Clement has been active in the association, which has published reference works, sponsored conventions, and contributed to the development of the genre.

⁷Clement has said, also, that the first several hundred dollars he earned for "Proof" and "Impediment" in *Astounding* in June and in August 1942 helped his parents to take his hobby seriously. Interview.

⁸Interview. Also see R. Reginald, *Contemporary Science Fiction Authors II* (Detroit: Gale, 1979), p. 856.

⁹*Ibid.*

¹⁰Letter from Harry C. Stubbs [Hal Clement] to the author, dated July 23, 1979.

¹¹James Gunn, "I, Asimov," *Extrapolation* 21 (Winter, 1980), 311. Asimov writes hard science fiction, but his work is neither as complex nor as interesting as Clement's though his overall writing career has been widely and justly acclaimed.

¹²Clement, *The Nitrogen Fix* (New York: Ace Books, 1980).

¹³Interview.

¹⁴For love and sex in science fiction see the work of Theodore Sturgeon or Philip José Farmer, although Walter Tevis's recent novel *Mockingbird* (1980) is a beautiful love story with some sex.

¹⁵*The Nitrogen Fix*, pp. 208-209.

¹⁶Clement, "Answer," *The Best of Hal Clement*, edited by Lester Del Rey (New York: Ballantine Books, 1979), p. 170.

¹⁷For this novel, Clement has written a non-fiction explanation of the planetary conditions. See "Author's Afterword: Whirligig World, "Mission of Gravity" (Boston: Gregg Press, 1978), pp. 242-256.

¹⁸See *Close to Critical* (1964), *Star Light* (1971), and "Stuck With It" (1976) in *Best of . . .*

¹⁹At the conclusion of the novel, *The Nitrogen Fix*, the humans and the aliens are on the road to making a reducing culture that will restore free oxygen to the atmosphere. The aliens, then, presumably will depart for other planets since they are nitro-life.

²⁰See *Needle* (1950), *Iceworld* (1953), and especially *Through the Eye of a Needle* (1978) in addition to several stories in *Small Changes* (1969).

²¹Interview. The article is André Lwoff, "The Life Cycle of a Virus," *Scientific American* 190 (March, 1954), 34-37. Lwoff is almost poetic in talking about death, life cycles, and order and disorder; one can understand why the article should be an inspiration for the poetics of variety in Clement.

²²The question of the aesthetic responses that nature stimulates in the perceiver has been widely written about since the time of Edmund Burke's *Enquiry into . . . the Sublime and Beautiful* (1756).

²³Clement, "Answer," pp. 150-151.

²⁴Clement, *Close to Critical* (New York: Ballantine Books, 1964), p. 190.

²⁵Clement, "Proof," *Where Do We Go From Here: Great Science Fiction Classics*, edited by Isaac Asimov (Greenwich, Conn.: Fawcett, 1971), p. 135.

²⁶Interview.

LURES OF THE UNKNOWN

Pencil drawings by Michael J. Ulichney

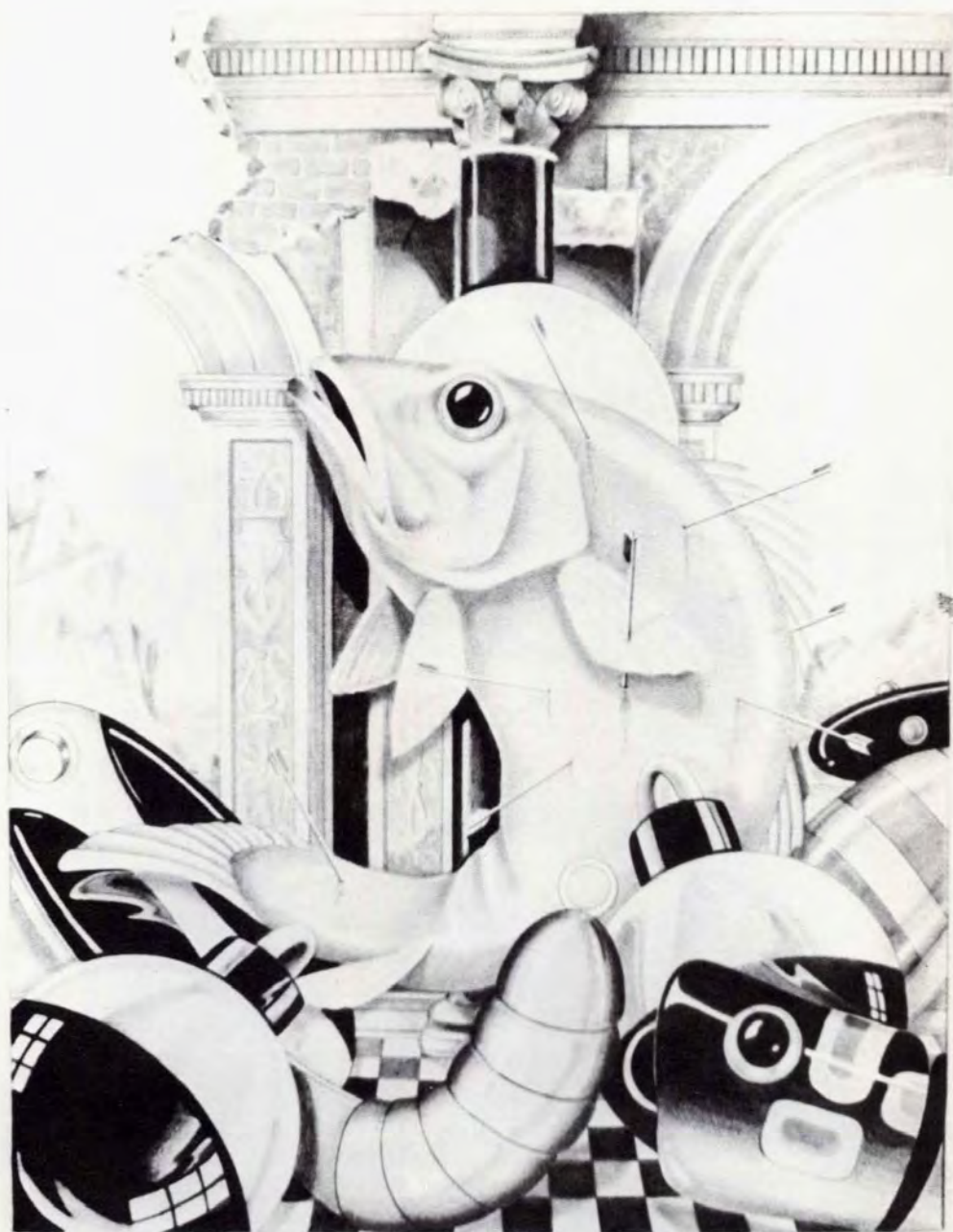
Michael Ulichney lives in Stow, Ohio, and works as a designer in Cleveland. He holds a B.F.A. from the University of Akron and an M.F.A. from Kent State University. He has exhibited widely in Ohio, having been represented in four recent May Shows at the Cleveland Museum of Art and twice received the Graphics Award at the All Ohio Fine Arts Show in Columbus. Though he is perhaps best known for pencil drawings like the ones in the following pages, he has recently been painting large canvases in acrylics, using vivid colors and airbrush techniques.

According to the artist, the drawings reproduced here represent a cohesive body of his work, "a very private and complex period in the evolution of my art." Although they include some religious motifs, the drawings are not intended as direct religious statements, either serious or satirical; some of them, however, do parody well-known paintings of religious subjects. "The development of my personal imagery," Ulichney says, "is part of an evolution of devices by which I explore private allegorical narratives and their association with our world. These personal icons when removed from their accustomed environments become endowed with a new spiritual significance. Images are stripped of ties with their conventional past; their essence is now intensified by the drama of their new society. They become for me a private mythology."





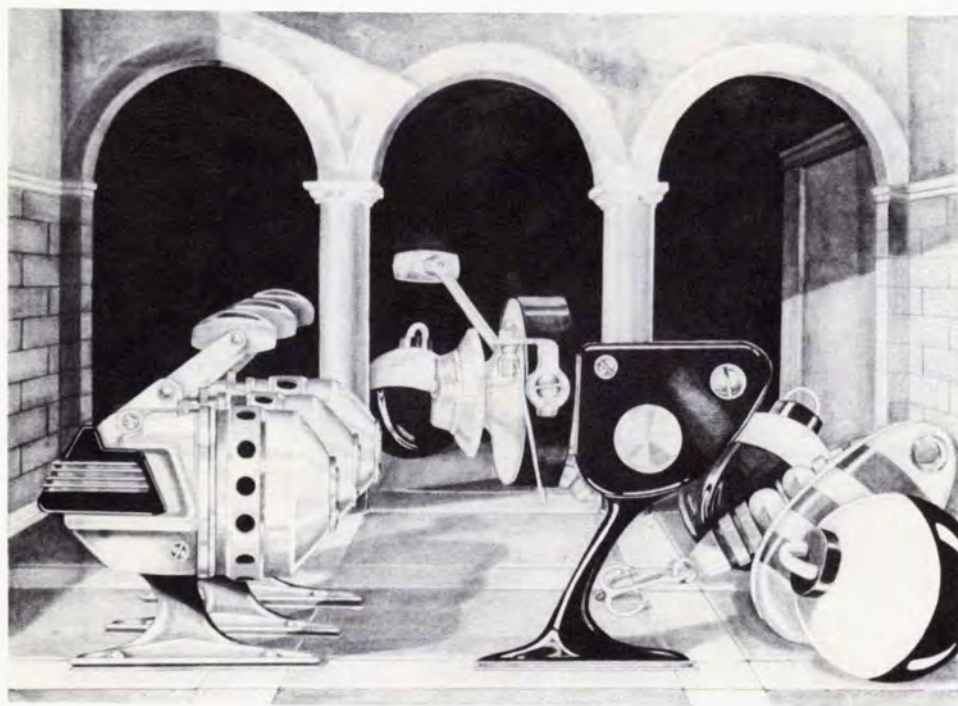
Nile Trout



Trout Martyr



Saints and Martyrs



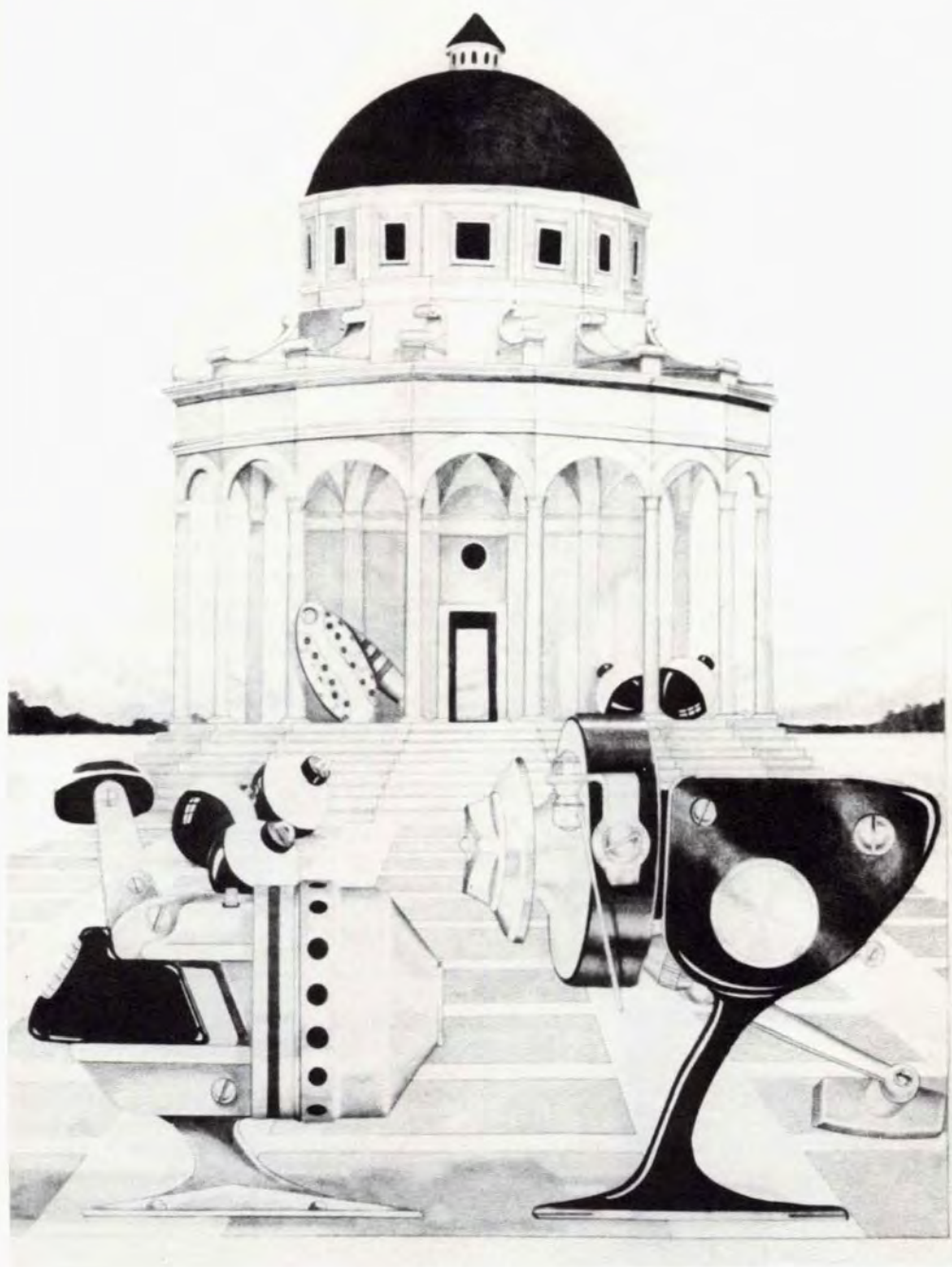
Oath of the Horatii



Guardians of St. Mark's



Trout Teaching in the Temple



Marriage of the Virgin

John Gabel

WHAT TO DO WHEN YOU'RE THROUGH AT 35

A Cleveland firm's retirement plan for Major League baseball players has set the pattern now followed in most professional sports

Most retirement plans assume that employees will remain with the same organization for a number of years, perhaps even their entire career, and that they will retire at around 65 after 30 or more years on the job at generally predictable salaries. It is not hard, in such cases, to set up a system of regular contributions into an income-producing fund that will provide pensions at a reliable level for the employees' old age.

But my firm, Retirement Plans, Inc., which designs such programs, deals with one group of employees that departs wildly from these norms. We designed the Major League Baseball Players Benefit Plan, which since 1957 has provided pension, health, and welfare benefits for the players, coaches, managers, and trainers of the twenty-six Major League baseball clubs. A baseball player may be in the Major Leagues for only a couple of years, and the chances are that his professional athletic career will end before he is 35. In that short time, he may be on the rosters of half a dozen clubs. He may have earned as much in this short career as many people do in a lifetime. Salaries, however, may vary by a factor of 10, not only from player to player, but from year to year for a single player. Since the income tax structure

makes retirement benefits an important form of deferred compensation, such benefits become a particularly significant part of contract negotiations for athletes. All of these special circumstances have led to an unusual system of benefits and funding in our program, which was the first of its kind and which has set the pattern for similar programs in other professional sports.

Four times a year — after the All-Star game and the World Series, and twice more — I meet with the Major League Baseball Players Pension Committee, consisting of one owner and one player elected from each league, to discuss the ongoing administration of the pension plan and the investment of the plan's considerable assets (about \$150 million). Every four years, during contract negotiations, my firm provides a variety of packages of costs and benefits to serve as a basis for the negotiations. We also, of course, issue an annual financial report and a handbook for the players describing the plan. This year, for the first time, we are preparing a version of the handbook in Spanish.

The player representatives to the Pension Committee are elected by their fellow players through the Major League Baseball Players Association. In 1957 the Pension

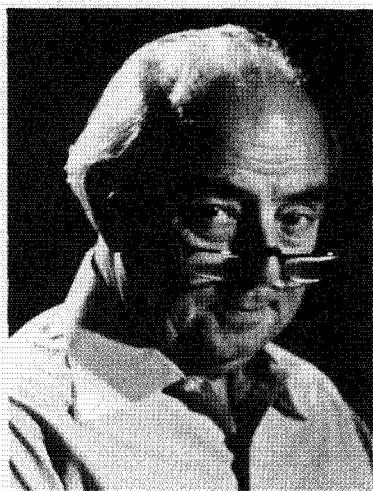


Photo: Jerry Young

John Gabel, since 1974 President of Retirement Plans, Inc., an actuarial consulting firm in Cleveland, is now a Vice President of Meidinger, Inc., with which his firm has recently become affiliated. A native of Detroit, he served in the Merchant Marine during World War II and attended the University of Michigan. He is author of a book of poems, Beach Glass (Cleveland State University Poetry Center, 1979) and has been President of the Poets' League of Greater Cleveland since 1975.

Committee consisted of Bob Feller, Robin Roberts, Joe Cronin, and John Galbreath. Since then there has been a steady procession of committee members, especially of players, who must be active members of a Major League team. For some reason, an inordinate number of players on the Committee have been successful pitchers. In addition to Feller and Roberts, they have included Allie Reynolds, Bob Friend, Jim Bunning, Jim Perry, Tom Seaver, Ken Holtzman, and, presently, Jon Matlack (an alternate), and Steve Rogers. A philosopher or psychologist may be able to explain this propensity of pitchers for the job better than I. Of course many of the player representatives come from other positions, such as Mark Belanger, who is now on the Committee for the American League. The current owner representatives are Gabe Paul of the Indians and Bill Hagenah of the Chicago Cubs.

I have always enjoyed my meetings with the Pension Committee: the members tend to be good-natured and humorous, probably because they are successful men, at the top of their profession. Whenever the players get together there is usually a good bit of banter. Here's a typical snatch that sticks in my mind. Several years ago the players voted to endorse the enterprise of a former Major League pitcher who had gone into the souvenir business selling baseballs autographed by the Major League stars. Robin Roberts, approving the endorsement, said, "I always liked the guy — I always used to get him out." "Yeah," rejoined Bob Feller, "everybody likes him for the same reason — that's why he's selling baseballs."

Considering that most of the players have been praised and pursued since they were thirteen or fourteen, by coaches, colleges, girls, professional teams, and promoters, it is to their credit that they keep any sense of perspective. Yet most of them work conscientiously at the committee job. Making decisions about the millions of dollars involved in the Benefit Plan is a heavy responsibility, especially since many of them lack business training or experience. To be sure, some are quite knowledgeable, like Steve Rogers on the present Committee, who also works with his father in oil investments. Jim Bunning, in fact, was a stock broker.

All corporate retirement programs in effect promise to provide a sum of money on the occurrence of some event, such as retirement or death. The sum may be a single payment or a pension; it may be a fixed amount of money or a fixed percentage of salary, or it may vary with the profits of the corporation

or the investment returns of the retirement fund.

A retirement program may serve several purposes. It may be a device for transferring income proportionally according to need (payment over a remaining lifetime, so that more money is paid to those who live longer). It may be a sinking fund allotted by a business or institution for the replacement of employees in much the way a fund is maintained to replace worn-out machines. It may provide incentive toward either performance or continued employment. It may be a means to build an estate. Or it may be a device for compensation deferral, anticipating a lower tax rate after retirement than during the employee's working years. Often it serves a combination of these purposes. The last mentioned — compensation deferral — is particularly important for athletes, who tend to have high incomes and hence high tax rates for a few years, followed by many years at a lower income.

Virtually all retirement programs in this country, including the Baseball Plan, are pre-funded. That is, money is set aside (outside of corporate assets) before it is needed to pay benefits. If a plan meets certain Internal Revenue Code requirements, it is "qualified" for specific federal income tax advantages: the employer's deposits are not considered part of the employee's income and hence are not taxable until they are received in the form of benefits; interest earnings of the fund are not taxable to the fund and are taxable to the employee beneficiary only when received as benefits. The Baseball Players Plan has been "qualified" in this way by the IRS.

Because every baseball player may move back and forth between the major and minor leagues and may be traded among Major League clubs several times at greatly varying salaries, a problem arises: which club should contribute how much toward the retirement benefits? First of all, if benefits for each player were apportioned to his service with each club, the administrative tangle would be monumental. For this reason, all the Major League clubs share the pension costs equally. This being the case, however, if each player's pension benefits were determined by his earnings, some clubs would wind up paying more than their fair share. For example, if club X negotiated a multi-million dollar contract with a league-leading hitter, why should clubs A, B, and C help pay for the benefits that their rival club negotiated for its own advantage? As a solution to these difficulties, the Major League Baseball Players Benefit Plan pays equal benefits regardless of

the players' earnings. The level of benefits is determined entirely by the length of service. Benefit plans for professional athletes in other sports have followed this pattern.

Under the four-year contract that went into effect April 1, 1980, a player is vested in the benefit plan immediately upon serving one day in the Major Leagues. That means that he is entitled to \$150,000 death benefits (doubled for accidental death) for the remainder of the year, even if he is sent to the minor leagues. The amount he or his widow will eventually receive as a pension, however, depends on how many quarters he serves on a Major League team's active roster (a quarter is counted as 43 days during a championship season). According to the present contract, a rookie who stays with the team the entire season and retires at age 50 will have accrued a monthly pension of about \$150. The table below shows the increment with length of service.

Age at Retirement	MONTHLY BENEFIT			
	Years of Service at Retirement			
	4	10	15	20
45	\$ 525	\$1,048	\$1,218	\$1,388
50	745	1,488	1,738	1,987
55	1,022	2,043	2,376	2,708
60	1,389	2,773	3,190	3,605
65	1,916	3,826	4,326	4,824

Retirement programs are normally designed to provide benefits that together with Social Security will permit the employee to maintain his or her standard of living, taking into account the reductions in taxes and other expenses that accompany retirement. Most corporate plans provide for a full benefit commencing at age 65, while permitting earlier retirement at ages as low as 55 with reduced benefit amounts. Social Security benefits are not available to persons younger than 62, at which age they are reduced to 80% of those payable at 65.

Because employment as a professional athlete almost always ends much earlier than the usual retirement age, there is little time to accumulate funds, through contributions or interest, to provide adequate retirement benefits. And the greater number of years remaining in the early retiree's life makes payment of a meaningful benefit over that time prohibitively expensive. (The term "retirement" applied to athletes in this context refers not to the end of their sports careers but to the beginning of benefit payments.)

Athletes therefore usually have to start a new career in their thirties, though the in-

come from it may be substantially less. They are often at a disadvantage competing with others who have a head start of ten or fifteen years. So, at the same time that they must adjust, for the first time in their adult life, to being no longer a star, they must also adjust to a lowered standard of living. Understandably, the athlete may wish to begin receiving benefit payments at as early an age as possible.

But the effect of reducing retirement age from 65 (as in most corporate plans) to ages as low as 45 (as in the Major League Baseball Players Plan) is surprising. As the retirement age drops while the benefit is held constant, the cost is increased dramatically, both because it will be paid over a longer period of time and because the funds deposited will have fewer years to earn interest. As an example, the cost of \$100 of monthly life annuity earned by an employee age 30 but to commence at varying ages is as follows:

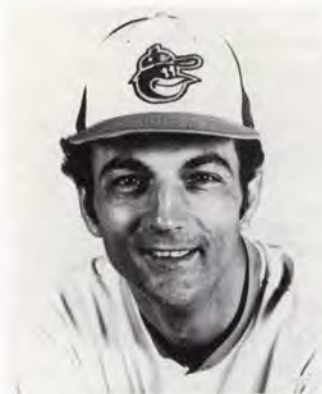
Retirement Age	Single Sum Deposit To Provide A Monthly Life Annuity Of \$100
65	\$1,187
60	1,948
55	3,037
50	4,564
45	6,669

Based on a 6% interest assumption and mortality in accordance with the Group Annuity Mortality Table for 1951.

In spite of the penalties of early retirement, the baseball plan members tend to begin receiving benefit payments at an average age of about 50. They probably accept the reduced benefits to augment second career earnings, and regard tax deferral as a secondary consideration.

The original baseball players plan that went into effect in 1947 would be termed modest by today's standards, though it was not so in 1947. The plan provided life insurance while the member was active, and, upon retirement (which could be as early as age 50), a monthly benefit of \$10 per month for each year of service up to 10 years. The maximum payment was therefore \$100 a month commencing at age 50 and continuing for life. When compared with the benefits provided by plans negotiated by major unions during the late 1940's, the baseball benefits were generous. Some of those early settlements provided for benefits of as little as \$1.25 per month to commence at age 65 for each year of service.

The original Plan was adopted on a unilateral basis by the then 16 Major League



Left, from top: Current player representatives to the Baseball Players Pension Committee Mark Belanger and Steve Rogers, and owner representative Gabe Paul of the Cleveland Indians. *Above:* Bob Feller of the Cleveland Indians, one of the original members of the Committee.

clubs. The Players Association was in its formative stage, and while the players had made requests for benefits, the plan that was adopted was administered exclusively by the clubs. It covered all Major League baseball players, coaches and trainers who were on club rosters on or after the last day of the 1946 season (managers were added at a later date). The plan required both club and player contributions, the latter ranging from 27 cents to \$2.70 per day depending on length of service.

In 1954 an agreement between the players and the owners created a Major League Baseball Players Pension Committee with the same makeup (two players and two

owners) as the present committee. That agreement also provided for an increase in the level of club contribution to the plan related to the proceeds of the television rights to the World Series and the All Star Game and also to the net gate receipts from the All Star Game. Player contributions were continued at the uniform rate of \$2.00 per day during the season.

In 1957 the Pension Committee adopted a new Plan, the basis of the existing one, though it has since undergone a number of improvements, both for players presently active and for those whose active service ended under earlier provisions. The most recent ne-

gotiations, in 1980, increased benefits especially for the earlier categories of participants and their widows, and also for the first time provided for immediate vesting instead of requiring four years' service in the Major Leagues. The contribution to the Plan during the four-year period beginning with the 1980 season will be at the rate of \$15,500,000 for each season. Players no longer have to contribute to the Plan, but they can make an optional contribution which is invested in a mutual fund and held until they retire or otherwise withdraw the contribution.

Like many pension plans, the Baseball Plan divides its benefits between fixed and variable portions — the first for security, the second, as a partial hedge against inflation. The fixed portion is a guaranteed sum (for retirement at age 50, about \$75 a month per year's service). The variable benefit level is adjusted each year to reflect either the increase or decrease of the investment results as these results either exceed or are less than an assumed 4½% earnings.

The accrual of the fixed benefits and that of the variable benefits are in approximately equal amounts during the first 10 years of service. During any service beyond ten and up to a maximum of twenty years the member continues to accrue a fixed benefit in a reduced amount but does not accrue additional variable benefits. The Plan is, therefore, weighted toward service during the first ten years; relatively few participants achieve service beyond ten years. At the end of his baseball career, a member may elect to receive a severance allowance of up to \$10,000, with a proportional reduction of his fixed benefit.

The Major League Baseball Players Benefit Plan was 34 years old as of opening day, 1981 — older than most of its participants. It was the first such plan in America and is still in some ways unique, especially in the substantial level of its deposits and assets, and in its flexible adaptation of financial and actuarial principles to meet the needs of young professional athletes and their families.

FICTION: John Gerlach

THE WOMAN WHO RAN BEHIND BICYCLES

— I knew a man named Roland, who was reading on his porch, said X, when a boy passed on his bicycle, his mother jogging behind. Roland couldn't have said immediately how he knew the woman was the boy's mother. She didn't look like most mothers. She ran with the grace of a long-legged girl. Maybe the touch of gray in her hair made him think she was the boy's mother and maybe the wobble of the bike as if the training wheels had just been removed made him think she was trailing the boy to see he didn't fall. She wasn't his sister, she was his mother. She wasn't merely following him so she'd have somewhere to run, she was following to help.

— I'm going to be quiet during this one, said Y.

— While Roland cut the lawn, X continued, he thought about them. He wondered if the mother was embarrassed, or if she thought no one would recognize what she was doing. And what about the boy, did he mind the mother following him? Roland had never seen them before, so maybe the boy had picked a distant neighborhood where no one would recognize him. Not many boys would have wanted their friends to know their mothers ran around behind their bicycles in case they fell.

Roland was sure about just one thing: the woman had only one child. A woman with others wouldn't be so bent on preserving a single one. Women who had a lot of kids talked as if one or another were expendable. This was a woman determined to keep the one she had.

He wondered if the boy was ever lonely, playing by himself, his mother constantly nervous for his well-being. Had his mother followed him around every day of his life, watching to see that his toys didn't cut him, that he always had enough toilet paper? Sometimes he thought about the boy while he made his breakfast or waited for his bus, but the memory of him seemed to fade. Gradually he stopped thinking about the boy and his mother at all.

Then one afternoon he went to a back-yard party given for a friend who was leaving town. He saw a woman with a white headband and white tennis shorts holding a whiskey sour and talking to an engineer he knew. The party wasn't formal, but the headband stood out. No one else was wearing a headband. He was sure the woman was the one he'd seen running behind the bicycle. The engineer was doing all the talk-

John Gerlach teaches English, and is also an Assistant Dean, at Cleveland State University. He has published a bibliography of film criticism and articles on American literature, as well as fiction in such periodicals as The Ohio Review, The Prairie Schooner, and The North American Review. Recently William Gass selected one of his stories from Akros (the University of Akron literary magazine) for the Fiction/Ohio Best Fiction Award.

The story printed here, told by two narrators, X and Y, is one of four such stories in a larger collection to be titled Family Pictures. Gerlach makes this comment about X and Y: "Beginning as designations for competing narrative voices, aspects of the growth of a story, they never develop into named characters, located in this or that place, yet, they impose a presence beyond their voices."



ing, and she seemed only to ask questions. She didn't look like she was enjoying herself.

A woman took Roland aside. "That's Mrs. Connor," she explained. "Her husband ran out on her over the winter and left her with the boy and the mortgage. He took their car, their savings account and the silverware. He was an industrial photographer and he went to Mexico with a girl he met at an exhibition of new equipment. He hasn't been heard from since."

Roland wondered if the woman had taken to running behind the boy as a consequence of her husband's leaving, so the boy too wouldn't simply ride out of her life, or whether following after people was an old habit. Maybe she walked behind her husband with his socks in the morning or called him at work to remind him about the grocery list. Under these circumstances a man could find himself in Mexico.

A little girl in a blue dress shot in front of Roland. He noticed several other children running around on the lawn.

"Is the boy here?"

The woman pointed to the lower limb of a tree, where a boy was suspended by his legs. Whether or not it was the same boy he didn't know. The only thing that he remembered was that the boy had worn a baseball cap. He had no cap now, but then he was hanging upside down. No boy could hang that way forever. Sooner or later he would fall on his head. Evidently his mother's care lapsed when she went to parties. He went over to the boy and asked him if he wanted to come down.

"I'm all right here," the boy said.

"Sooner or later you'll fall."

"All right," the boy said, and he let Roland pick him off the limb. He asked Roland if he was any good at baseball, and Roland said he once was, he had been a great ballplayer and had played in Fenway Park in Boston. The boy said he had two mitts and they could throw a ball around in the driveway. He took off and reappeared with the mitts, a ball, and his baseball cap. Roland wanted to see if he still had his curve, but the boy couldn't hold onto anything, not even an underhanded lob.

"You played in Fenway Park?" the boy asked, running into the bushes to retrieve the ball.

"Yes," Roland said. "The Yankees were in town."

The boy stood with his mouth open.

The Yankees had been in town, but Roland himself had been only nine years old and his team was part of the pre-game Little League show. He had batted once, striking out on three pitches.

"We have to go now," a voice behind Roland said.

"He was a major leaguer, Mom."

"That's nice. We have to go now."

— His mother, said Y, paddled his rump, sent him down the driveway on his bicycle, and trotted behind him, the little white tassels on the back of her socks bobbing as she herded him up the street.

— They drove off in a car, said X, a ten-year old Ford with rusted fenders. Roland wouldn't have been surprised to find the boy on his doorstep the next day, mitt in hand, though he knew the boy had no idea where he lived.

A week later a man who worked where Roland did and who had also been at the party met Roland and told him something about Mrs. Connor. The man, a bit of a rake, was in the habit of confiding to Roland about his conquests, both his own and those of his friends, in hope of getting something about Roland's love life. Roland was known to take trips to the Caribbean and to Majorca, and the man had twice accidentally run

across Roland in the company of different and equally stunning women. The man first thought that Roland had bought himself the most expensive whores he could find, but neither woman acted like one. Roland never said anything to anyone about his love life.

"You know Molson in Comptroller's?" the man asked Roland. "He took the Connor woman out a couple times. He said she was sour as rotten apples, but he'd known women in her condition who were like that, and if you could get past the outer shell, underneath the meat was soft and white. And one night she let him get started on her. Like working on cold wet rice, Molson said. She kept worrying about her kid walking in, and then she started bawling and the kid did walk in. Molson said it would be a long time before he'd try her again."

Roland discovered that Mrs. Connor's number was in the telephone book under her husband's name. Roland called and said he'd seen her at the party. She maintained she didn't know who he was. He identified himself as the man who had been throwing the baseball with her son. She said she didn't remember him and hung up.

The next day he wrote her a letter. First he explained that he didn't intend to annoy her, and if she chose not to respond to his letter he wouldn't bother her again. He told her he knew the engineer she'd been talking to, and he identified several others at the party so she would know he was willing to make himself known. He wanted to take her out for dinner; she could choose the restaurant and bring the boy if she wished, or she could come alone.

A week later he got a letter from her inscribed with graceful but not excessive swirls. She apologized for hanging up on the phone. She had remembered him but was surprised that he'd called. She appreciated his consideration in writing and would accept his offer. She would like to go with him to a restaurant she named and she would come alone, in her own car. Roland could pick the night and the time, but she preferred that he didn't respond by phone. He should write another letter.

He found his response difficult to compose because he didn't know her well enough to tell her more about himself, and he didn't want to comment on how he was looking forward to their meeting. He restricted himself to a note about the time.

She appeared at the restaurant promptly, without the headband. He noted how sunburned she was, probably from all the running. No one was seated near them, and she talked freely. She explained that her husband had left her, but the boy still couldn't accept that his father was gone. Other men coming to the house to see her disturbed him, so she'd asked Roland to write and not to phone or come to the house. The boy had remembered Roland and had talked about him constantly, but she felt that if the boy thought Roland was presenting himself as a father substitute, he might be confused. Her own feelings about her husband were different. If he ever appeared in the house she would use a recently purchased twelve-gauge shotgun to blow a hole through his middle. The way she told her story did not indicate that she was joking.

— I'll bet Roland choked in the middle of an olive and had to be helped by the waiter, said Y.

— Roland indicated that he understood. He had no desire to make her life more difficult. She seemed pleased, and there was a moment of shy silence that might have been awkward, but which each of them chose to prolong. She ate all her dinner plus several helpings of bread.

The next day Roland was shaving when the doorbell rang. It was Saturday and he was planning to cut the lawn. The little boy was at the door with two mitts, a bat, and a ball, and his bike was parked on the sidewalk. He apologized for interrupting and asked if Roland would like to go up to the park to hit some fly balls. Roland went to the basement for one of his own mitts and a softball. Possibly he could talk the boy into using it.

The size of the ball made little difference. Fly balls, whether batted or thrown, fell about the boy, and ground balls went between his legs or bounced off his chest. He hit only one of every five balls pitched to him, whether the balls were thrown straight or with an arc. He pursued each missed ball with determination if not enthusiasm, and when at bat chased the ball the few times he hit it.

Through the workout Roland had been looking for the boy's mother. He expected to see her jogging around the edge of the field or perhaps sitting in a car, wearing dark glasses and pretending to read a newspaper. He knew she'd said something to the boy because the boy hadn't found Roland's house by accident. He was curious, but he decided not to put the boy on the spot.

That evening he wrote Mrs. Connor and he immediately got a response. The boy had talked about Roland incessantly, the letter said. She had told the boy his name, and he must have looked up the address himself. She had no idea where he'd been that afternoon. The boy had been euphoric for the last two days and now she understood why. She thanked Roland for taking care of her son and promised that the boy would never impose on him again. Roland wrote her another letter, inviting her to dinner, same time, same place. He said it wasn't necessary to mail a response back to him; he would be at the restaurant and she could join him if she wished.

He waited in the restaurant lobby for half an hour. He felt like going out for a cheap hamburger, but he decided to go in and eat in case she came by. As his food appeared she came in, and she was clearly upset. The sitter, she explained, hadn't shown up, and she'd had to get another. She became very quiet, perhaps because there were people at all the tables around them or perhaps because she was still thinking about the sitter. She tried to answer his questions, but couldn't keep up the conversation. A stranger observing them would have considered them a couple long since resigned to their marriage. After dinner he put her in her car and waited for her to drive off.

The rusted Ford didn't move. He went over and found her slumped over the steering wheel, sobbing. She didn't hear when he called her name. He rapped on the window, softly as he could, and still the sound startled her. She rolled down the window, took out her handkerchief, blew her nose and said everything was fine. She smiled at him, rolled up the window and drove off. Two days later there was a letter from her in his mailbox.

— If he has any sense he will burn it, said Y. But he doesn't. He opens it. He reads it.

— She had to apologize for what she did. She felt like a fool. A check was enclosed for dinner.

— She said he was kind and loving, but she was a turkey.

— The next week, said X, he found himself in the same restaurant. He didn't know why he'd gone, he didn't expect her to be there. He said to himself he wanted to go back for a good meal.

— She was there. The little gobbler was there.

— Just after he ordered, said X, he saw her across the room. She had taken a table by herself and was looking at the menu.

— He doesn't have to get up. He could ask for a newspaper and read during the meal. For God's sake he doesn't get up and go to her table.

— The restaurant was after all one that she'd picked out, and perhaps she ate there frequently. He'd never asked how often she came. Whatever the reason, she was now relaxed.

— He delays, said Y, until the waiter brings her coffee and she settles in, and then

he tiptoes over, and touches her on the shoulder. She shrieks, and two burly men in black suits escort him out.

— He concluded that she might be waiting for someone. He would have preferred to be elsewhere, perhaps at home with a sandwich in front of the television, but he was now at a table near hers in the restaurant.

His meal came, and while he was eating, he saw a patch of white before him on the other side of his table. She was standing across from him and asking if he'd join her for dessert. He accepted. Neither of them talked about why they were there. She mentioned casually that she was moving to Colorado next week and asked if he would like an after-dinner drink.

— Here's a fellow with the bucks to send himself around the world, a fellow with the pick of the crop. He gets a prune in a headband. Is he a boy scout? And tell me how he's taking her move to Colorado. Is he glad to get rid of her or does he plan to jet out on weekends?

— He no more knew what to make of her than you do. She was merely a woman who'd run into his life behind a bicycle. Within a week she was going to fly out of it. They had their after-dinner drink and parted.

— The boy showed up again, didn't he, asked Y. Leaned on Roland's doorbell. Had a sack with some shirts, his mitt, and a pillow. His mother had been spooning his Grapenuts into him and shadowing him on the playground. He wanted to move in with Roland. Or maybe that wasn't what brought them together. Maybe in the middle of the night there was this blast that shook the shades and tipped Roland's stereo from its stand. The husband had come home. He had walked in the Connor home with a week's growth on his face, wearing a dirty raincoat and sneakers. Hadn't had a bath in a month and his breath was papered over with two rolls of peppermint. He told his wife the whole thing was a big mistake, he didn't know what had happened, he'd been out of his head. He'd been crazy to leave her and the boy, and not one second had passed since he left that he hadn't thought of them both. He went down on his filthy patched knees, clasped his hands and closed his eyes. She blew a hole through his middle the size of a watermelon.

— Not quite.

— Maybe Roland was out on his porch, said Y, when this little girl rode by on her bicycle. Jogging behind her was the former Mrs. Connor. The girl was now her daughter. She'd remarried. She met a man at a church social walking with a napkin behind the little girl to catch the ice cream melting from her cone. However it is, Roland sees them again.

— Three weeks later he did see her, said X. He was out driving on an errand and he saw her running in the streets. And then in the grocery store the woman he'd seen at the party gave him an earful. Mr. Connor had come back. Whenever Mr. Connor talked to the woman, he referred to Mexico as if it had been a business trip. Mrs. Connor, on the other hand, never said a thing to the woman about his return. She didn't look happy, but she wouldn't talk. There was never a sound from the house. Not a word of argument, not even the clatter of dishes at dinner time. Like living next to a tomb, the woman said.

— Mrs. Connor was biding her time. Every night she went to bed with a sharp object in a tiny pocket in her nightgown just above her left breast. She was waiting for him to make a move.

— Roland was not pleased to be listening to the woman in the grocery store. He'd come for peppers and carrots. The woman went on, oblivious to the feelings that must have been registering on his face. And then, the woman said, she hardly saw Mr. Con-

nor at all. The only person she ever saw behind the rumbling power mower was Mrs. Connor, in shorts and a white headband. The woman knew Mr. Connor was there because she saw him leave for work and come home. Roland said he had to be going because his ice cream was melting, and the woman took the hint.

Then one evening while he was minding his own business he was summoned by a knock on the door. The house had a doorbell, but the summoner, a tall man in a white suit, had knocked. Roland had never seen him before and assumed he was passing around a petition or some kind of political literature. The man said his name was Mr. Connor.

Roland pointed out a chair. At first Mr. Connor mentioned a story about the President that had appeared in the papers that day, and then he commented on how well Roland kept up his house, in particular the flowers in front.

— I'll bet Roland wished he were out on a cruise with those two expensive-looking women, their yellow bikinis taut over brown flesh, the wind in their long hair. He could have been heading for Nassau, but he spent his summer on the porch watching kids ride their bicycles, and now he was going to pay for it.

— Mr. Connor had learned about Roland from his boy, and he wanted to thank Roland for helping take care of him. Mr. Connor said that the boy was at a stage where he needed a father, and Roland's efforts had been helpful. He had become curious about how the boy met Roland, and he had talked to his wife about it. His wife, it seems, was embarrassed by the subject. He made a few inquiries among his friends and neighbors, and the answers led him to Roland. He was pleased about the boy, he repeated, but what had Roland been doing with his wife?

Roland said he'd done nothing more than take Connor's wife to dinner. Mr. Connor was fortunate to have a very fine wife and son. He suggested that Mr. Connor spend more time with them starting now. At this point Mr. Connor colored, the beet red that precedes apoplexy. Even so his words were calm. He was glad he and Roland understood one another. He would take care of his wife. Roland should take care of his flowers. He was a very busy man, and he was sure Roland was, too. They had taken enough of each other's time.

Roland became very cautious about responding to noises at his front door, but he had no more visits from Mr. Connor. Sometimes when he was sitting on the porch he would hear a bicycle pass, but he never looked up.

He met a young girl who worked as a dental assistant. He saw her often in the evenings, and on those nights when he didn't see her they got into the habit of calling one another on the phone. They seemed to be coming to an understanding. One night the phone rang, and he was so sure it was her he answered in a very warm and familiar way. It was Mrs. Connor. She was at the airport and she wondered if he might come to see her. She was leaving her husband, leaving town, and would never have the chance to see him again.

Although he wondered why he was doing it, he made the trip out to the airport in forty-five minutes. Planes rumbled in and out. He found her dressed in a blue suit which made her look like a young executive on a layover. Her eyes weren't red, but he knew she'd been crying. The boy was sitting in one of the airport chairs several rows away, also dressed up but not very comfortable. He gave Roland a glance and stayed put. He had been seated there, Roland guessed, so he would not overhear. Another jet rumbled in for a landing and the airport seemed to rattle. Mrs. Connor looked directly at Roland while she talked. She spoke smoothly and very precisely, not as if she'd rehearsed what she was saying, but as if she were very sure of what she was doing and so the words came easily. She had a small amount of cash and was taking herself and the

boy even further away than Colorado.

— If I were Roland I'd ask to see the ticket.

— She said that she'd found out her husband had come to see him months ago, and she could guess how he'd acted. She didn't want to hear the details. She was sure that Roland thought of her as a curse. What she thought about him was something altogether different. He had been kinder to her than anyone else she had ever met. She felt closer to him than anyone she had ever known. She put her arms around him and sniffled briefly on his chest and then kissed him with such a mixture of the firm and the soft that Roland found himself participating. The public address system announced a departing flight was boarding and she rose. Because he hadn't been listening he had no idea where the flight was going. She put her hand to his cheek and then went for the boy. He followed them to their gate and waved goodbye and waited until the plane took off.

— More to the point, said Y, behind which of the plants in the hallway had Mr. Connor concealed himself?

— Roland, as I said, heard nothing from Mr. Connor. From Mrs. Connor he also got nothing not even so much as a postcard.

— How about the cuddly little dental assistant? Did she grill him about where he was?

— If she did, he must have patched it up. He threw himself with vigor into the affair. He went to Minneapolis to meet her parents. He went around with her as she picked out the ring, the silver pattern, and the dishes. Then he backed out. He got himself a new job and moved out of town, leaving behind a check large enough to cover their purchases. He went to Charleston, South Carolina. He began travelling again. His summer vacations he spent in Japan, South America and India, and often in the middle of winter he would fly to London or Paris or a resort in Switzerland.

— Would Roland have been giving any thought to the great white-banded albatross?

— From time to time. He remembered her running behind the bicycle, he remembered her at the restaurant, and he remembered the airport. He wondered what had happened to her.

— You've thoroughly established the implausibility of their next meeting.

— X paused. One summer, he began, Roland was in Nice, sitting on a bench on the Promenade des Anglais. He enjoyed contemplating the perfect line between the sky and the sea, and he liked to look at people as they strolled. They came and went, and he watched each of them. A boy passed, coasting on a racing bike, and behind him ran a woman wearing a white headband. By the time Roland stood up, they were already receding into the distance.

That evening in the hotel he packed his clothes. He planned to be up early and on his way down the Italian coast. But the next morning he went back to the same bench. He stayed for nearly two hours after the bus he'd planned to take had left, and then he caught sight of the boy he had seen the day before, approaching again on his bike. Behind the boy was the woman in the white headband. As she came closer, puffing and staring at the ground, not at any of the people who were looking at her and not even at the sea and the sun, he could see her clearly. She passed, and he stared off at the sea.

A noise startled him. The boy on the bicycle had turned around and was ringing the bell on his handlebar. The woman was behind him. The boy turned around and pedaled off and the woman sat on the bench beside him.

— It is possible to have sunstroke after sitting for several hours in the sun anywhere in the world. Are you sure the woman wasn't a Swede, maybe, training for the Olympics?

— She was sweating profusely, as anyone would after running in that heat. She said hello as if the airport had been yesterday.

— If this were a story from real life she would invite him home to dinner, he would buy the most expensive bottle of wine he could find and show up at her apartment doused in his best perfume, sixteen roses in his arms. She would introduce him to her husband, a wealthy Frenchman with a very narrow sense of his property.

— I think we will leave them there on the beach, said X, for there the story properly ends.

— You can't do this. They'll both get baked.

— I'll let you imagine the rest. He takes her by the hand, they sit on the bench, they look at each other, and for a while neither speaks. They have found each other in Nice, on the Promenade des Anglais, where the sea and the sky make a perfect line.

Alice Rubinstein interviewed by Carole Kantor

MAKING DANCES

The Art and Craft of Choreography

A piece of choreography doesn't come out of working like a dog. A piece comes out of being alive.

Alice Rubinstein, artistic director of Footpath Dance Company, talks about her art with the same intensity that she uses in shaping movement. She doesn't depend on rules or principles to structure her dances. Footpath was founded in 1976 by Rubinstein and five other women, who, starting with the techniques of Martha Graham and Erick Hawkins, embarked on a course of personal experimentation to search out and develop new ideas in movement. The company now consists of five women and a man; its studio is a converted beauty shop near Shaker Square in Cleveland. The past season Footpath made a two-week tour of South Carolina and another in Michigan; it performed at several Ohio colleges and Karamu House in addition to mounting a regular series in Cleveland. Since it began, Footpath has performed at a total of 40 institutions in 10 states and Canada. It has performed 23 works, 12 of which are in the current repertoire. With the exception of two pieces, all are by Alice Rubinstein. They cover a wide range of subjects and moods, but all are designed to evoke strong feelings, and all grew by Rubinstein's spontaneous process of choreographing.

I used to get into this beginning, middle and end business when I started choreography and that was the first step to failure. Wherever I am in time and space, whatever movement makes me move at that time, that I start with. Sometimes a piece is finished before I start.

The first dance I ever choreographed for the company was a dance called "Drive." It came from a very deep place; it came from the loss of my mother. I took out my grieving in a very aggressive, assertive way — by starting a dance company, by using the human drive. The whole dance was driven from the personal point of view into movement. But if you were to see the dance, you would not think that it is an emotional state, by any means. It's made out of the vocabulary of movement.

Carole Kantor, Managing Director of Footpath Dance Company, has worked in dance for twenty years. A specialist in European and Middle-Eastern folk dance, with her husband Paul she directs Shalhevet, the Folk Dance Ensemble of the Jewish Community Center. She received a B.A. from Barnard College and an M.S. from Rutgers University. She has worked as an interviewer for two oral history projects and has served as a trustee of the Association of Ohio Dance Companies for the past four years.



Then, I was working on a subconscious level, so I didn't spend my time at home thinking about what I was doing. It was there. I would just come to the studio and throw movement that was difficult. And when the dancers could just about get the movement, I would throw something on them that was even more difficult.

Sometimes Rubinstein's ideas come from what she sees in particular people. An old woman is still taking dance classes. Though she is 70 years old, she wears a big bow in her dyed hair.

I thought, "My goodness, this woman is stuck someplace in her life." And I started creating this dance about this beautiful old woman who sits and reviews her life. That dance was choreographed very easily — I set up four stages in a woman's life. And I would just go into the studio and work with each individual dancer on the stage of life I wanted her to portray. The movements came very easily to me.

Movements may come easily, but, like any creative artist, the choreographer must draw on a lifetime of sensitive observation and knowledge of human nature (perhaps unconsciously stored in the memory and feeding the imagination).

The dancers in that piece have to project more than just the movements. The piece has a story form. Can a woman who has had relations with a man, who has been somewhat promiscuous — can she portray an innocent girl of sixteen? There I had to give the dancers images to make it work. Can a woman who has never had a child relate to motherhood? It was not making the movement that was difficult. It was the characterization.

Whatever knowledge and training it is based on — and Rubinstein has worked in dance since the age of three — when the time comes to create a dance, the mind does not have to be conscious. The movement is there. It just needs to be opened up.

In other dances I have no idea what I'm doing. But there is movement. I go to the studio and I work with the dancers. And we'll just play around with movement until I see a phrase that works. And that becomes the beginning of a dance. Very rarely do I set movement before I go into the studio. Very rarely am I at a loss for movement. I think the biggest problem for me, choreographically, is making sure I have all the elements of what makes a piece work.

In making a piece there is always torment. I can find movement that impresses me with its innovation. But to put a piece together you need more than ingenuity. You must make things fit. You must make the mood and its changes.

Putting everything together is seldom a conscious and systematic process; more often it depends on the ability to recognize the unifying element among the myriad possibilities that present themselves. For example, a composer of electronic music gave Rubinstein a new piece of his music. He saw it as something very religious, symbolic of something on a higher plane, but her reaction was "concentration camp" — not a World War II camp but the concentration camp of the mind. That music gave birth to the dance work "Madness Unfolding":

The music is slow and it builds to a higher and higher pitch. So the music told me what to do. I didn't have to have some kind of pattern. The piece wasn't actually completed until after I thought it was finished. While thinking about this 17-minute-long piece, I



Alice Rubinstein leads a class in modern dance technique.

started walking back and forth in the room and I realized that's what I wanted. I wanted a non-dancer, a pedestrian, in the middle of all this dance movement. The movement represents the human mind. And the human being made it complete. The person who walks in space for 17 minutes, back and forth, is trying to decide whether or not to go crazy. The movement is her mind. When her mind decides that it can't handle all the different parts of itself, she allows madness in. Relief follows. She has found what she needs to do.

So in that piece the music brought me to it. In other pieces, it's a phrase of music, a phrase of dance. There's no one way.

During 1979 and 1980 Rubinstein worked in collaboration with the composer David Kechley on two abstract pieces inspired by images of nature, called "Night Stirrings at Stillwater Pond" and "Streams of Hooved Wings." She created the aura of the animal world, through pure movement — there were no animals actually represented in it.

I didn't try to imitate a thing. I saw the beauty of seaweed floating. So I found that in movement. Or the antlers of a deer. I found that, but without two antlers sticking out



Images of night and day begin the first movement of Rubinstein's nature series, "Night Stirrings at Stillwater Pond."



Miya Hisaka (top) and Sharon Neumann in a moment from Rubinstein's "Streams of Hooved Wings." (Photo: Michael Edwards)

on the sides of a head. I was looking for movements that I had never done before. And I think I accomplished what I wanted.

When I find a phrase or a motif sometimes I make a whole dance out of it and sometimes I use it only once. I figure that if I've found one phrase that works well, I can find a lot of other things. So there is no need to repeat. Looking at my 20-odd dances, I see there are certain design qualities I've used a lot. A certain style is coming out and it worries me. I've always said, "If you're a good choreographer, you don't have to have a certain style." Either I eat my words or realize there is a limit to what the body can do. I'm not sure yet.

But Rubinstein realizes that every choreographer, even in the relatively free world of modern dance, has affinities for certain movements and tends to develop his or her own techniques. Just as a writer must write in some language and accept the limitations of that language, so every dancer must dance in some style. So she advises young dancers to choose carefully.

If you study at the Graham studios you learn one style. If you then go to a Limon studio you're going to look like a fool. They're going to see that your legs are very articulated but they won't see you in your best form which is contraction and release. If you've been trained to emote and you go to a studio that doesn't believe in any emotions on the stage, you're going to look like an absolute fool. So, in modern dance the best way to be trained is in the technique that you think you are going to want. Not that you shouldn't experiment, but you should be trained in as clear a way of using your body as possible. The most important thing for me, when I look at dancers, is to see a person who is aware of her/his body no matter what her/his shape may be. Last year I auditioned 30 people for the company. I found that they were almost all poorly trained because they never really got a good base on how to let movement go through their bodies.



William Spencer, Lori Massie, and Marshall Lucas of Columbus' Ballet Metropolitan in Rubinstein's "Canto di Scultura." (Photo: Eric Shinn)

Thus, even though modern dance is freer than classical ballet, it requires equally intensive and specialized training. As most readers will know, modern dance originated in the early part of this century when some dancers felt a need to break out of the rigid forms of ballet. Agnes de Mille and Martha Graham claimed that they developed their new styles to portray the free American spirit, which needed a less constrained form to adequately represent it (cf. Graham's "Appalachian Spring" and De Mille's "Rodeo"). In general, nineteenth-century ballet tended to portray stories in an often stilted mimetic manner, whereas modern dance has tended to express emotions more abstractly, and to celebrate movement for its own sake. In contemporary dance, however, "modern" pieces often do have a story, and choreographers, following the great example of Balanchine, use classic ballet movement to create storyless dances. Many choreographers, such as Nureyev, Martins, and D'Amboise, use both modern and ballet forms. A distinction remains, however, namely that ballet has a precise, traditional vocabulary of movements, whereas each modern dance troupe develops its own expressive language. Of this distinction Rubinstein says:

It's the biggest problem and it's the biggest asset. In ballet you are trained to know exactly what a movement is and the name of the movement. You may be a good dancer or a lousy dancer, but you'll still know what a *battement* is. In modern dance it's a free-

wheeling form. You can be the greatest dancer in the United States and come to my studio and look lousy, because you're not trained exactly the same way. You may not be trained to move through space with as soft a body attitude, underlaid with an internal strength.

Rubinstein collided head-on with the problems of the two dance forms when she accepted a commission from the Columbus Ballet Metropolitan to create her newest dance, "Canto di Scultura."

This was a more difficult piece than most because I didn't have a shape or form yet. Most of the time I find a movement that takes me right into the dance and then I make the dance around it. But this time I had a story form before I had a form of movement. Because it was a commission for a ballet company I had to stick to the scenario and find the right music. I did find a piece of music but then I decided that it was getting me very classically oriented. So I started working without music. And working like that takes maybe three or four months to complete a piece. You're not productive every day.

Working with ballet dancers after training modern dancers was for Rubinstein like suddenly having to conduct her life in her high school Spanish. While ballet dancers work mostly with the body upright, using a standard vocabulary of steps, turns, and leaps, modern dancers often move on the floor. Modern dance, in its numerous personal techniques and styles, focuses on the movement and position of the torso as much as on the movement and position of the limbs. She began to worry about whether the ballet dancers would be able to execute the movements designed on the Footpath company members. The Footpath females can do both very feminine and very masculine works and Rubinstein's choreography always uses that versatility. Female ballet dancers, in contrast, are trained to be feminine in their movement and interpretation.

Working against a deadline, Rubinstein found her direction and began to shape the work.

The image of the dance is going through a museum backwards. The first section is completely contemporary in shape and form: chain links and how the links of bodies form shapes, and how energy can flow very fluidly and very abruptly. There's no "side-step together," no leaping in this section at all. I thought maybe I'd do this section in total darkness, with lights as part of the dancers' costumes. Their movement would make the shape and design. So the audience would see shapes and light movement through space, not necessarily human bodies.

As section one ends, the lights go off on the dancers' costumes and the light comes up on the dancers. Section two is forms moving through space and relating to each other as they do. This is an impressionistic section with sharp rather than fluid motions. It has a sense of humor in it.

In the third section the form is very classical and the movement is also classical. The movements are big, flashy, and masculine for both the males and the females. There are lots of leaps, beats, and double and triple turns. It ends with a frenzy of movement in classical designs. Lights go out. End of dance.

"Canto di Scultura" was first performed March 14, 1981, at the Second Annual Ohio Choreographers' Showcase in Columbus. Rubinstein was very pleased with it though she felt it had turned out quite differently from her first visions of it. For the first section, "night time in sculpture museum," she had originally thought of attaching light strips to the dancers as part of the costumes. But when she discovered that no such device existed, she decided to use flashlights instead. This opened up a whole field for visual invention and humor. The flashlights held by each dancer

Rubinstein coaches members of the Ballet Metropolitan in a movement from "Canto di Scultura." Photo: Eric Shinn)



illuminated first a face and then a shoulder. Next the audience saw a stomach rising and falling with each breath. In section two, figures clung to each other, moved together, connected with each other, forming tableaus. Section three exploded with energy as the sculptures became instruments of pure movement.

When Rubinstein rechoreographs "Canto di Scultura" for the Footpath Dance Company, the new version will, needless to say, be much different from the way Columbus' Ballet Metropolitan did it. Rubinstein will use her own technique, and her dancers' mastery of it, to the fullest. Setting the dance for a ballet company, she adjusted to their vocabulary and adapted her ideas to fit their language of movement.

"Canto di Scultura" is thirteen minutes long. It took four months, at an average of four hours rehearsal time a day, to perfect it. Meanwhile the Company had to rehearse old works and prepare for current performances. This meant switching emotions, adjusting timing. Rubinstein's work is fraught with temptations to despair. Pieces may fail if the dancers can't carry out the choreographer's wishes, or if the space is too small, or if the funds are not sufficient to provide the needed time, space, dancers, and materials. Sometimes she stops to think whether or not she wants to expose the audience to her vision. Some things might be too painful for the egos of the dancers or the sensibilities of the audience.

It aggravates me. I get depressed sometimes. Obviously not depressed enough to quit. If I had to spend my life doing what I'm expected to do, then right now I should open up an Italian restaurant, because I know my lasagna is the best in the world. But I have to do what I feel is good for me, for the dance company and for the dancers involved in the company. If I choreograph pieces that are easy for them all the time, they're not going to develop themselves.

Oh, yes, they're plenty pissed when they're exhausted. And yet I think they like it better. Their favorite pieces are the hardest pieces. If I can't develop these dancers, then I shouldn't be directing a company.



William Spencer, Mark Rhodes, Peggy Meleski, and Lori Massie of the Ballet Metropolitan in a scene from the second movement of Rubinstein's "Canto di Scultura." (Photo: Eric Shinn)

Trying to please and develop an audience for an art that is still considered rather avant garde can be a delicate process. When your success is measured at the box office you must move gradually in expanding the audience's horizons. Many of Rubinstein's dances remain unmade because she feels the public isn't ready for them yet.

A concert is successful if people are touched emotionally or poetically. If there is a story it should be told in the choreography. If there is no story, the audience must be able to see pure movement. Audiences should not be concerned about being ignorant. They should not worry about whether they are entertained. Most people leave their homes on a Saturday evening for social reasons, not self-improvement.

Rubinstein wants to make her audiences laugh, cry, have a deep thought, or spend time in a world of fantasy. They should leave the theatre refreshed. A Footpath concert generally begins on a light note, moves into a serious piece, and then works its way to the conclusion with an entertaining piece.

Audiences can learn to appreciate movement as an art — to become literate about movement — but they need to be educated. TV and film media could provide that education through frequent short programs about dance. Especially modern dance would benefit if audiences were prepared to know what to expect from each concert.



Members of the Footpath Dance Company in "Darwin's Dance," a lighthearted, jazzy dance that has become the company's signature piece.

Rubinstein herself feels that she is continually learning, and perhaps that is why she perseveres in her exhausting and exhilarating art. Although one can obtain formal training in choreography, one can't really develop proficiency in it till one simply does it. The choreographer needs to experiment and mature within the art. Life's experiences have to be a part of you before you can begin to fulfill an audience's needs.

Choreography is a lifetime process. One analyzes, throws away, works with better dancers, is depressed, is happy, mixes it all up again and starts over. Choreography is much more than time, space and rhythm. Until you feel the depth of yourself — really feel, not just fantasize — you can't give anything of depth to anyone else.

Bonnie Jacobson

THREE POEMS

Wanting Yellow You Curse the Sallow Season

For the sun is there to get to
 inside the cloud
 And the yellow in the forsythia Inside Inside
 Damn the winter forsythia
 zippered
 in dark leather Damn the absent Hand
 You enter the museum the art show
 the hand-
 colored photo of a cow Why her great
 eyes are yellow Who
 put the cat
 inside the cow The print is signed
 You still don't know But now
 rattling home inside
 the pod of rapid transit car are
 7 coats Inside the coats 7 souls
 inside the 7 souls 7 cats
 Now your forsythia leaps on the sky with blazing claws!



Bonnie Jacobson, a former commercial artist, was recently graduated from Case Western Reserve University, where she studied creative writing with Robert Wallace and Mary Oliver. Her poems have appeared in the *Deciduous Review*, *Bits*, and *Prairie Schooner*, and they have also appeared on billboards and in buses in this area as winning submissions to the 1980 Billboard Poetry Contest and the 1981 Poetry in Transit Contest, both sponsored by the Poets' League of Greater Cleveland. Her chapbook *On Being Served Apples* was published earlier this year by Bits Press.

Dr. Hollander Said Brush Religiously

Had he, on a morning this pink,
 or on a silver evening, or after a
 Sunday lunch of cold salmon,
 bent to his bathroom sink and seen
 those porcelain planes widening to the Sinai?
 Was the bulb above, the ancient sun?
 The mushroom drain, a stand of watered palm
 where prophets drink,
 crying Vanity, crying Vexation of spirit?
 And did he suffer pain of mortality,
 and did they fill his mortality
 with dazzle of the infinite, so that
 even the sand shrank to a sink
 and the sun became a bulb
 and the stand of palm, a hooded drain
 where all carious spit?

Fear Itself

FDR said it foremost
 having used as his ghost
 writer Emerson, Emerson
 (also Thoreau & the Duke of Wellington)
 having brought home his Bacon, Bacon
 having reaped Montaigne, Montaigne
 Having absorbed Publilius Cyrus, Publilius
 when timorous
 (of death in particular)
 having plucked it from the vernacular
 for, as immortal Seneca has said
 (with all the generous dead)
 The best ideas are common property.
 He also said, What fools these mortals be.
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BACK MATTER

Serendippyness

Mr. Guralnik's article in this issue tells us about word-coinage in a way that is new to those of us unfamiliar with the editing of dictionaries. Stimulated by the article, I have been on the watch for coinages. While reading *Newsweek* the other day, I came across the following sentence in a story describing the production of General Motors' new J car: "GM's timing is serendipitous — in part because Detroit is finally getting some official help to reduce Japanese imports, which account for most of the 28 percent share of the U.S. market held by foreign automakers" (May 11, 1981, p. 56). What arrested me in this sentence was the use of *serendipitous* and the fact that this was the second time in one day that I had encountered this word or one of its relatives. Earlier I had seen it in a story in the *New York Times* about Moreton Binn, president of Atwood Richards, the biggest firm engaging in barter in this country. Narrating Mr. Binn's entry into that business, the writer says: "Serendipity apparently brought Mr. Binn, then president of a New York marketing and public relations firm . . . to Atwood Richards in 1974. That October, on a business trip to Boston, Mr. Binn sat next to the chairman of Cooper Laboratories, a concern that had acquired Chemwood and its subsidiary, Atwood Richards, in 1971."

What was striking about these two occurrences of a very unusual word is how easily its use could have been avoided. In the first instance, *lucky* or *fortunate* would have done as well. In the second, *chance* would have been just as meaningful to most readers. What made these two journalists pick this rare bird and what does their use of it say about our current cosmology?

Although the origin of this word is carefully documented — in a letter dated 28 Jan. 1754 from Horace Walpole, son of a former Prime Minister, to his friend Sir Horace Mann in Florence — its development in the current vocabulary is not nearly so clear. The letter in question was not published until 1833, and very little notice of the word seems to have been taken until half a century had passed.¹ A query about its meaning and origin was printed in the pages of *Notes and Queries* for February 27, 1875, and although the editor (Edward Solly) answered, the same query recurred a number of times thereafter. For this there was a reason, since no dictionary of the time included the word. Not Richardson's (1875), Webster's *Unabridged* (1874), *Stormonth's* (1895), or Worcester's (1896) had it. It finally appeared at about the same time (1909), both in Webster's *International*, where it was placed in the "Lower Section," below a line which separates rare words and variant spellings from the main vocabulary, and in the Supplement to the *Century Dictionary*, the lexicographic wonder of this side of the Atlantic. It was not until September, 1912, that the *Oxford English Dictionary* published the relevant fascicle (Senatory-Severall), which, in addition to a full citation from Walpole's letters, quoted a book by Solly dated 1880.

Walpole's letter is garrulous and allusive. In it he thanks Mann for the present of a portrait of the Grand Duchess of Tuscany, Bianca Capello, painted by Vasari or Bronzino. He proposes to have it framed with the Medici arms on one side and the Capello arms on the other with a label bearing her story in Latin to be composed by the poet (and his friend) Thomas Gray. He continues:

I must tell you a critical discovery of mine *a propos*: in an old book of Venetian arms, there are two coats of Capello, who from their *name* bear a *hat*, on one of them is added a flower-de-luce on a blue ball, which I am persuaded was given to the family by the Great Duke, in consideration of this alliance; the Medicis you know bore such a badge at the top of their own arms; this discovery I made by a talisman, which Mr. Chute calls the *sortes Walpolianae*, by which I find everything I want *à point nommé* wherever I dip for it. This discovery indeed is almost of that kind which I call *serendipity*, a very expressive word, which as I have nothing better to tell you, I shall endeavour to explain to you: you will understand it better by the derivation than the definition. I once read a silly fairy tale, called *The Three Princes of Serendip*: as their

¹Macaulay, reviewing the Letters, says only: "He coins new words, distorts the senses of old words, and twists sentences into forms which make grammarians stare." *Critical and Historical Essays* (London, 1891), II, 116.

highnesses travelled, they were always making discoveries, by accidents and sagacity, of things they were not in quest of: for instance, one of them discovered that a mule blind of the right eye had travelled the same road lately, because the grass was eaten only on the left side, where it was worse than on the right — now do you understand *serendipity*? One of the most remarkable instances of this *accidental sagacity* (for you must observe that no discovery of a thing you are looking for, comes under this description) was of my Lord Shaftsbury, who happening to dine at Lord Chancellor Clarendon's, found out the marriage of the Duke of York and Mrs. Hyde, by the respect with which her mother treated her at table.

This account, as is often the case in etymology, does not fully explain the meaning of the term; that is, it does not provide unambiguous directions for using it. It contains both obscurities and misdirections. The talisman (or charm) is just another name for the ability he is describing. The term *sortes Walpolianae* is formed on the analogy of *sortes Virgilianae*, *Biblicae*, *Homericae*, a kind of drawing of lots or divination accomplished by opening at random the works of Vergil, the Bible, or the *Iliad* and applying the resulting text as a prophecy to the situation in question. These obscurities are not made less by the French expressions that dot his writing: *à propos* (in reference to the portrait), *à point nommé* (in the nick of time). If the reader of this passage combines what Walpole has said about the finding of the coats-of-arms with the illustrations offered, he will likely find himself misdirected. For Walpole was indeed searching for something when he leafed through the book of heraldry and found the arms of the lady in the portrait. We must not suppose that he was simply doing research on the question of her pedigree and that he took down the most likely reference book. He was, he seems to be insisting, simply leafing aimlessly through a book he had acquired and just "at the right moment" turned up the information he realized he would need. He had the sagacity to connect the two items (the portrait and the arms) which accident had put in his way.

But what of the "silly fairy tale"? Even in the incorrect version he gives of a book he either read or had read to him as a child, the cases are not parallel. The princes were travelling, made some observations and drew intelligent inferences from them, in the manner of Sherlock Holmes. If we consult the actual book,² we discover that it was not a fairy tale but an Oriental tale, of the genre of the *Thousand and One Nights*, with inserted Italian novellas, in which three princes banished by their father the king are travelling incognito in a strange country and meet a man whose camel is lost. Each prince contributes a characteristic of the animal's description — that it is blind in one eye, has a tooth missing and is lame — and the camel's owner, persuaded that they have indeed seen him, follows their directions. But on his failure to locate his beast, the owner applies to them again and they provide the additional information that the camel was laden with butter on one side and honey on the other, and was being ridden by a pregnant woman. On his further failure to locate his property, the camel owner accuses the princes of having stolen the animal and has them imprisoned. Luckily the camel is found and they are released with an apology from the Emperor who asks them how they knew so much about an animal they had not seen. They explain how they combined observation and intelligence to produce such a startling effect. The rest of the book consists of stories of no relevance to the question.

It seems clear that Walpole illustrated his definition with an example which does not exemplify it and that he compounded the difficulty with his second example, which is also contradictory. If Walpole's own action — he was looking for or at something and found something else — defines *serendipity*, then the story of the princes of Serendip is not relevant because they were not looking for anything, merely travelling and playing practical jokes on camel drivers. The third illustration is not detailed enough to be precisely evaluated. If Shaftsbury went to Clarendon's house to find out one thing and discovered he was in the company of a future queen, then he fits Walpole's own scheme. But if he went there merely to dine, noticed something amiss and drew the right conclusion, then he was like the Princes. It is plain that these two senses are, if not in opposition, in serious disagreement. A look at some dictionary definitions may help to tell us what professional lexicographers have made of it. They seem to agree on the belief that there are five components to the definition: 1) it is an ability 2) to make discoveries that are 3) useful and 4)

²The story is reprinted with much surrounding material about the tale and the word in T.G. Remer, *Serendipity and the Three Princes* (Norman, Okla.: Oklahoma University Press, 1965).

unsought 5) by chance. The following table shows how various dictionaries have treated these five ingredients:

Dictionary/Date	1	2	3	4	5
<i>Century</i> (1909)	happy faculty	of finding	interesting items of information	unexpected proofs of one's theories	by "accidental sagacity"
<i>Merriam Webster</i> (1909, 1934)	gift	of finding things	valuable agreeable	not sought for	—
<i>OED</i> (1912)	faculty	of making discoveries	happy	unexpected	by accident
<i>Merriam Webster</i> (1961)	assumed gift	of finding things	valuable agreeable	not sought for	—
<i>American College</i> (1958)	faculty	of making discoveries	desirable	unsought for	by accident
<i>American Heritage</i> (1969)	faculty	of making discoveries	happy	unexpected	by accident
<i>Webster's New World</i> (1970)	apparent aptitude	of making discoveries	fortunate	—	accidentally

None of the dictionaries in this table defines *serendipity* as the *occurrence* of an unsought discovery; they all say that the term refers to a power — a faculty or gift that a person may possess. Yet popular usage, some examples of which are quoted below, often treats *serendipity* as an *event* or as the *opportunity* for such a discovery.

It is also noteworthy that the dictionaries follow Walpole's illustrations and his etymology in limiting *serendipity* to discoveries that are not only accidental, but *unsought for*. The term therefore can not be truly manifested in scholars, inventors, scientists, and other researchers who are seeking something and who find it in an unexpected way. It can only apply to people who are not looking for anything at all, but merely looking *at* things in general, or who at most are looking for something quite unrelated to the serendipitous discovery. Yet the term is actually often used about a researcher who simply finds by accident what he or she has been seeking.

The editors of the Yale Edition of Walpole's correspondence, for example, have noted that Fleming's discovery of penicillin was described as "a triumph of accident and shrewd observation" or *serendipity*.³ Fleming had, however, been engaged in studying anti-bacterial agents that would not harm animal tissues and had isolated the antibiotic lysozyme when in 1929 he found that a pernicious mold had been attacking his cultures of staphylococcus. Instead of grumbling about the poor level of cleanliness in his laboratory, he realized that he had stumbled on something, a process that has occurred many times in the history of science.

During the 1940's and 50's, the word was popular with writers on science, but was deemed esoteric or recondite in the extreme by book reviewers.⁴ The sociologist Robert K. Merton noted in 1945 that this "outlandish" term was being used to describe a certain type of research which he called the "Serendipity Pattern" and defined as the "unanticipated, anomalous and strategic datum which exerts pressure on the investigator for a new direction of inquiry which extends theory."⁵ The word continued to appear in scientific and medical contexts generally with the implication that it precisely described the practice of research. Ernest Jones in his biography of Freud

³Horace Walpole's *Correspondence with Sir Horace Mann*, ed. W.S. Lewis (New Haven: Yale, 1971), X, 34.

⁴Orville Prescott, *NY Times*, June 14, 1949, p. 29; Harvey Breit, interviewing David Guralnik, on the appearance of *Webster's New World Dictionary*, *New York Times Book Review*, March 22, 1953, p. 8.

⁵*Social Theory and Social Structure*, 3d. ed. (N.Y.: Free Press, 1968), p. 159.

calls the theory of dreams "a perfect example of serendipity," as Freud, when he arrived at the theory, had been working on the meaning of psychoneuroses.⁶ By the early 1960's, the public was willing to believe that scientific research was all lucky guesses and happy accidents, but a counter-trend began to develop. An editorial in *Science* (June 14, 1963) called the importance of serendipity in scientific research a popular misconception. The writer conceded that on occasion, "a chance observation had led to unexpected enlightenment" but insisted that "progress has come because experimenters were seeking it." Perhaps the limit in this direction was reached by a writer in the *Psychoanalytic Quarterly* (May 1963) who asserted that the "confirmed serendipitist" is digressive in tendency and always getting sidetracked. Serendipity is not "the happy adjunct of genius whereby important scientific discoveries are made. On the contrary, it is a crippling neurotic symptom and constitutes an impairment of the ability to learn."⁷ So much for serendipity as the handmaiden of science!

Without attempting to determine whether this dispute has any resolution, one may observe that this word, when it rose to popular consciousness, provided a convenient explanation for that most mysterious of processes, the nature of intellectual discovery. The notion of finding one thing while looking for another, which simplifies the complexity of research egregiously, applies to everyone's daily experience and seems to explain something that needs explanation. Moreover, it implies a model for producing discoveries. The foolishness of such a model was properly reproved by the writer of the *Science* editorial, but the notion has persisted in the current sense of the term, at a much lower intellectual voltage, of a place where good things can unexpectedly be found.

The profusion of shops and businesses that have adopted this word as their name testifies to its appeal, part of which must be in its sound. Despite its five syllables, it is easy to pronounce, with its stress on the third syllable and its combination of dentals, labials and fronted vowels. To many it must also carry with it some of the allure of the *recherché* and the Oriental tale. A look at the Manhattan telephone directory reveals both "Serendipity 3" and Serendipity Publishing Company; Chicago has Serendipity Interiors and Serendipity Association for Health and Health Reforms; Denver has Serendipity House; Cambridge, Mass. Serendipity (plain); Pittsburgh, Serendipity Arts and Crafts, Travel Agency and Unlimited (antiques); Philadelphia houses the Serendipity Club, Shop and Tavern; Miami has Serendipity (a restaurant), Serendipity Gifts, Realty, Wall Coverings and Products (unspecified); San Francisco offers Serendipity II, Shelter Systems, and Travel Service; and last and richest of all Los Angeles has not only Serendipity Gallery, Serendipity Singers, Serendipity plain, Serendipity Press, Antique Shop and Design Center, Preschool and Day Care, Serendipity Too, Productions and Coiffure, but the unusual Serendipity [sic] Gallery Palos Verde. Interestingly enough, writers to *Notes and Queries* had begun to notice the intrusion of such boutiques much earlier in this century: The Serendipity Shop selling rare books, prints and other collectibles near London opened in 1903; another one was on Museum Street, Bloomsbury, in 1922, and yet another in Mayfair in 1930.

The chaotic semantic developments I have outlined contain an interesting though obvious lesson about the way that language works: etymology cannot dictate meaning — usage does. Even if Walpole had been more precise in his definition and his examples, the changing needs of the users of the language would have ignored him and violently wrenched this word from its original sense to put it to work in a new way. Today, whether in research or in shopping, serendipity is no longer the *ability* of an individual but an *opportunity* resulting from a chance conjunction of occurrences. So all the dictionaries are wrong, and their error comes from respecting etymology. The derivative forms the word has produced, however, tell us that it is more or less here to stay, for the formation of these relatives reveals the variety of syntactical needs the word answers. Thus, I earlier noted *serendipitous*, and Mr. Guralnik's files add *serendipiter*, *serendipitist* and *serendipitously*. And I have coined *serendippyness*, which means "excessive ado made about a nonce-word." I hope dictionaries will soon pick it up.

— Louis T. Milic

⁶Sigmund Freud: *Life and Work* (London: Hogarth Press, 1953), I, 384.

⁷Pp. 165-6.

Productivity: Another View

After World War II, the U.S. emerged as the world's dominant economic power. Over the past twenty years, the U.S. has experienced a steady economic decline while the countries of Western Europe and Japan have realized steady growth. As recently as 1972, the U.S. standard of living ranked as the world's highest but it has now slipped to fifth. The U.S. inflation rate in 1979 was higher than the average of all industrial countries for the first time.

Many economists ascribe these reversals to a decline in U.S. productivity, a term which reflects a blend of many diverse components but generally measures the hourly output of industry as a whole. The downward slide of the American economy has prompted a great deal of examination of the nation's industrial malaise, emphasized by contrasts of American economic problems with relatively flourishing economies in Japan and Western Europe.

In the 1970's, the U.S. lost 23 percent of its share of the world market — \$125 billion in lost production and two million industrial jobs. In metal-working machinery, the U.S. and West Germany had equal shares (approximately one-third each) of the world market in the 1960's. Today West Germany enjoys a 40 percent share compared with 21 percent for the U.S. Disparity in productivity rates inevitably becomes part of such comparisons. Most discussions of the term allude to the output of workers and convey the corollary impression that reduction in productivity rates means that American workers are somehow goofing off. On the contrary, although industry-wide productivity is declining, the American worker remains the most productive in the world.

In the first issue of GAMUT (Fall, 1980), TRW Vice-President A. William Reynolds properly assigns responsibility for American productivity problems to management. His conclusion, however, in which he finds a solution to the problem in a series of suggested procedural marketing reforms and improvements, seems inadequate. In my view, the problem is more basic. Three key weaknesses require consideration: failure to plan on a national scale; preference for short-term profits instead of long-term development; and unimaginative relations with labor.

In the first place, every developed country in the world except the U.S. has adopted some form of national industrial planning. B.F. Goodrich Company's Chairman and President, John D. Ong, said recently that the U.S. stands out clearly as an example of a country that hasn't tried to conduct a coherent national policy for economic development. The majority European view regards planning as indispensable to a modern society, whether it be capitalist, mixed public and private, or totally public. England has its diminutive Industrial Reconstruction Corporation; in West Germany the planning agency is a powerful Reconstruction Loan Corporation under the Ministry of Economics; in France, it is the Commissariat au Plan, an organization of 300 planning specialists working in partnership with the French Treasury; in Italy planning is conducted by the Ministry of the Budget and Economic Planning under the Interministerial Committee on Economic Programming, which is chaired by the Prime Minister; and in Japan, while there is a formal Japan Economic Planning Agency, the planning process is dominated by the Ministry of International Trade and Industry (MITI) and the Bank of Japan. Bare listing of these agencies does not begin to describe their operational complexities and responsibilities, which cover, to a greater or lesser extent, all elements of the industrial equation.

The only developed Western countries that have failed to use centralized planning — the U.S. and to a lesser extent Britain — have experienced economic stagnation, while those with strong coordinating agencies — France, Italy, West Germany and Japan — have had sensational growth. While the extraordinary growth records of the listed countries cannot be attributed solely to planning, neither can planning be considered other than a very significant factor in that growth. Japan's record is the most spectacular, averaging over 10 percent annual growth with almost no inflation or unemployment, but with labor tranquillity, political stability, and rising living standards for almost every sector of the population, all with strict environmental controls.

Commentators have noted Japanese historical traditions of paternalistic industry, the hard-work ethic, and the relatively trivial military expenditures as reasons for Japanese economic success. These are indeed important considerations. But the overriding reason for that success can be found in their central and creative planning by government with labor and business as partners.

Differences in the two economies are widening the gap between U.S. and Japanese industries. Investment in capital equipment is around ten percent of the U.S. Gross National Product compared to 20 percent for Japan. The figure for West Germany is around 15 percent. American industry is becoming more labor-intensive in contrast to German and Japanese expanded investments in equipment. The average American industrial plant is about 20 years old — twice as old as the average Japanese plant.

The second fundamental reason — perhaps most important — for the decline of U.S. industry and its level of productivity lies in American companies' goal of realizing maximum short-term profits. Managerial salaries, bonuses, advancements and even tenure reflect short-term bottom-line figures. Good quarterly or semi-annual numbers garner quick rewards for the manager who records them. Quality, service, and long-range R&D (research and development) which promise long-term prosperity for the company are generally sacrificed in the interest of achieving those short-term results. It is a frustrating system for those occasional managers who recognize the need for R&D expenditures or the purchase of equipment designed to insure a healthy long-range future for the company.

Unfortunately, training of future managers emphasizes the individual rewards to be reaped from short-term achievements. MBA's, whether trained at Harvard, or Stanford, or in between, take this approach to business problems. Focusing on the short-term objective discourages investment in new technology and innovative R&D (U.S. inventors applied for 64,000 patents in 1975, down from 76,000 in 1970 and declining). It prevents adequate employment and fosters the misrepresentation and cheapening of the product. Though it is a rare business chief executive who has not at some time spoken out in grandiloquent terms in behalf of a future vision (while berating labor unions or government for restrictive policies), still, in its overall orientation, management almost uniformly sets its sights on the short-term.

In contrast, Japanese management is willing to look 5 to 20 years ahead and to forego a substantial percentage of current profit in its perception of consistent future industrial progress. It voluntarily invests in good quality control, service, and advanced design that will result in additional market penetration and larger profits later. In numerous exchanges of opinion with their American counterparts, Japanese businessmen reject assertions that governmental interference or tax policy or other similar justifications of this nature explain U.S. industry's problems. They point instead to the preoccupation of their American colleagues with short-term goals as the obstacle.

Further confirmation can be found in a recent biography of John Z. Delorean, a former Vice-President of General Motors, one of the world's largest corporations. He makes the same point based on inside knowledge of the firm's workings. Time after time, says Mr. Delorean, GM opted for increased current profits at the expense of realizing future advantage. Japanese penetration of the American auto market with their small cars is one result. GM's current model pricing practices indicate continuation of the same policy. GM's fourth price increase on 1981 models was announced in late March on the same day the auto industry reported an unexpectedly steep drop in the rate of new car sales.

BUSINESS WEEK for February 23, 1981, reports on the efforts of one giant firm to overcome the perplexing problems which confront the company in the competition for markets. Interestingly enough, the subject company is Mr. Reynolds' TRW. A year-long internal company debate stimulated by a 23-page paper written by TRW Chairman Ruben F. Mettler centered on his conclusions that meeting the challenges facing the company would require a fundamental shift in corporate structure, operating philosophy and financial objectives. In its first move toward such modifications, the firm doubled capital spending appropriations for 1980 and developed a plan under which division managers would be judged on a 10-year, rather than annual, basis. TRW had been pressing managers for better annual results which had precluded contemplation of long range objectives. Company executives, however, maintain that division managers continue to feel insecure if their short-term bottom-line figures don't impress. "They can talk all they want, but the emphasis here is still on short term earnings," one executive is quoted as saying. A very small number of other firms attempted policy alterations but the overall management outlook has been little affected.

A third main element in productivity is the status of labor. The adversary attitude of American business toward labor is not conducive to raising productivity figures. Most companies maintain an authoritarian style of management over an increasingly educated and independent labor force. Labor deeply resents the proliferation of consulting firms which advise corporations on the use of methods which will serve to defeat union organizing drives, as well as how to render already organized plants "union-free". Another common company practice is the institution of sweeping change in procedures or relocation of plants without consulting the workers on the job.

In Europe and Japan, on the other hand, unions have been accepted as a permanent fixture in business life. A vastly different type of management approach prevails in those countries, stressing consultation, teamwork, participatory discussion before decisions are made at all levels. Studies have shown that Japanese firms reduced the rates of rejected products and absenteeism by the almost unbelievable amounts of 300 to 500 percent in a few years after introducing their management techniques of cooperation in place of adversary labor relations in plants they took over in the U.S. Industrial analyst Rensis Likert, founder of the Institute for Social Research, cites statistics which show a 10 to 40 percent difference in productivity reflected in all aspects of work — cost, quality, material savings, labor satisfaction and fewer strikes, as a result of the different managerial attitudes.

Working men and women are justifiably dubious of the effect on their jobs and lives of technological and other procedural changes, since they know from experience that management is so blinded by short-term profit goals that human beings get minor consideration in the production equation. In this context, the individual(s) involved are simply another unit of cost to be eliminated whenever possible. Unemployment with all its tensions is a permanent threat hanging over the American worker, in contrast to lifetime job tenure which is usual for the Japanese worker. The adverse effects on productivity are obvious. This is not to ignore the inability of 7 to 10 million Americans to contribute to productivity since they can find no jobs at all. Japanese workers play a role in decision making, and they can readily see the profits of their labors plowed back into their work places, not only into the pockets of stockholders.

Some slight indications of progress in this area are becoming visible. George A. Moore, Jr., Bethlehem Steel's Vice-President for Industrial Relations, for example, said recently that "the kind of management where you dictate to people is no longer valid; you've got to explain and get a consensus." Widely and successfully used by U.S. industry's overseas competitors, the quality circle (a procedure wherein workers on a production team are themselves responsible for maintaining and increasing quality) is making some appearances in several U.S. plants. The experience of some small firms like Donnelly Mirrors in Michigan and R.G. Barry Company of Columbus, Ohio, are being studied by larger companies. But, generally speaking, lack of real reform in labor relations remains a key problem in U.S. productivity.

Genuine progress in U.S. industry toward correcting productivity problems is still hardly visible. The fast track to the top in management is open chiefly to the financial or marketing specialist. Experienced on-line production executives are not readily elevated to top corporate posts. The idea is now prevalent that detailed knowledge of the firm's product or services is not essential for top company officers. More and more production is foreign territory to the executive suites.

Corporations plead lack of capital, but how can one believe this when companies spend billions of dollars every year to buy out other concerns in a sidewise movement which results in the production of not one additional item? Investment in new facilities would be a more creative use of these huge sums.

Thus far in this discussion, all citations have come from management. An overall plan for U.S. industrial progress entitled "Rebuilding America" has been proposed by the International Association of Machinists and Aerospace Workers (IAM), whose president, William W. Winpisinger, is a former Clevelander. The leaders of this union are a particularly able and perceptive group. Offered legislatively as the "Rebuilding America Act of 1981," the plan is written in six sections: Rebuilding Inner Cities, Rebuilding Foreign Trade, etc. One section titled "Worker Productive Parity" contains an economic and social clause which is the heart of the proposal and which includes the commitments to the following goals:

1. Economic planning for full employment and real economic growth.
2. Development of domestic markets.
3. Real per capita income gains for workers.
4. A civilian Economic Development Fund for job creation and worker training, supported by Federal funds.
5. Development of safe, renewable, non-nuclear low cost energy systems and a commitment to nuclear non proliferation.

The "Rebuilding America Act" also includes the following proposed rights for workers:

1. Freedom of association; the guaranteed right to organize and form free and independent trade unions for purposes of collective bargaining with employers — private, government or any combination thereof — over the terms of their wages and compensation, hours, safety and health and other working conditions.
2. Participation in formulating economic and social plans in their respective places of work.
3. Access to enterprise and government information relevant to costs, pricing, and other policies, including the right of workers and trade unions to participate in planning and making decisions on expansions, transfers, nationalizations, redundancies and the introduction and deployment of new and labor-saving technology.

If adopted, these provisions would serve to take us a large part of the way to improved rates of productivity on which our prosperity and quality of life are dependent.

One would be remiss in any examination of this kind today if one failed to allude to proposed vastly increased expenditures for the military. The resources, labor, skills, R&D and so on, which would be employed in the huge armament program must necessarily distort virtually every ingredient of our economy — from availability of skilled labor for both military and civilian production, to profit goals, supply of energy and capital, to the ability of American industry — let alone humanity — to survive at all.

Roy A. Leib
University Heights, Ohio

Mr. Leib describes himself as "a semi-retired businessperson with a great interest in politics." He is owner of the Royal Metal Company, a Cleveland firm that deals in aluminum particles used in exothermic products for the steel and casting industries.

Root of evil

Editor, *The Gamut*

Sir:

Re your "Back Matter" item in *Gamut* #2 — "Like all animals, human beings seek food, shelter, sex, and safety; but the person who looks for no satisfaction beyond these is a stunted creature."

I think that for a person *not* to be that kind of stunted creature, the process should be started early in the education of childhood.

Riches and other material possessions, solely, do nothing for the building of children's moral character — tending instead to make them materialistic and mercenary and to have but slight regard for right when justice, fair play, and moral right are opposed by the "sanctity of material values."

I differ from Marcel Proust's conviction that "We exist only by what we possess."

By ideas bent —
John Spanur
East Cleveland, Ohio

On Being Provincial

Not long ago a British art historian who had been visiting museums in the Midwest told me of his pleased surprise at finding such splendid collections "in provincial cities like Detroit, Toledo, and Cleveland." Immediately I bridled with indignation. How dare he call us "provincial"! But of course he was right. Every city in Ohio is "provincial." My art historian did not mean the epithet as a slur: it was a statement of fact. Moreover, I would not have it otherwise.

To be sure, cosmopolitan centers like New York, London, and Paris offer riches that smaller cities cannot match—a greater diversity of people and a wider selection of restaurants, plays, concerts, and museums. Most important, sheer numbers favor the assemblage of a necessary minimum of people interested in any given endeavor, so that the chances are greater in New York than in Akron or Columbus for banding together with like-minded souls to form a thriving society for, say, the Advancement of Crumhorn Music. New York probably has no greater proportion of poets and readers of poetry than Cleveland or Youngstown, but because it has simply *more* of them it can support regular poetry readings such as the famous YMHA series. Certainly the world is richer for the existence of cities like New York and London, and we all benefit on occasion from the fruits of their brute numerical superiority.

Yet the world would also be poorer without its thousands of provincial cities and towns like ours. How dreary if our only criterion were approximation to New York styles and values! Plato suggests in the *Timaeus* that variety—the actualization of all possibilities of being—is itself a good. Thomas Aquinas expressed a medieval version of this Doctrine of Plenitude when he said that, though an angel may be better than a stone, it does not follow that two angels are better than one angel and one stone. Neither would two New Yorks be better than one New York and one Cleveland (or one Kansas City or Santa Fe). Every place has its own special character, in which we should be able to delight. Let us cherish the snail-darter towns as well as the great-blue-whale metropolises of the world! Perhaps it is because I am an outsider—I grew up in Alabama and lived a number of years in New York—that I so keenly enjoy the special flavor of Cleveland, its industrial squalor, decaying elegance, and crude, still unquenched energy.

It is possibly the fault of improved transportation and communication that people in the smaller population centers have lost a sense of their own potential for independent achievement. When one has only to turn on the tube to see people who are The Best at almost anything, it tends to paralyze one's own efforts to be Better. Yet there is no reason that The Best cannot happen in one's home town. J.S. Bach produced tolerable music in the provincial city of Leipzig; Newton's scientific pursuits were not hampered by his residence in the college town of Cambridge. The population of Greater Cleveland, declining though it may be, is still larger than that of London, Paris, or Vienna in 1800, or of Athens in 300 B.C.; yet those small cities did pretty well in science, commerce, and the arts.

A few hundred years ago smaller cities seem to have had less of a sense of inferiority toward the great centers; one reads of proud towns like Bristol, Nuremberg, or Lyon without sensing that their citizens always looked to some Bigger Apple.

But if mass communication has turned our eyes from our own potential for a while, it may be that we are learning to use it now as a means to cultural independence. Why go off to the metropolis when Where It's At is as close as the nearest library, post office, or computer terminal? The new theaters, dance companies, and art centers springing up around the country are evidence that people are at last beginning to see that high achievement may be pursued at home.

Thus technology now frees us from dependence on the metropolis toward which it once lured us. Let us, then, practice enlightened provincialism—which means, not rejecting other places and other ways, but rather accepting our own, with its own special virtues. Hooray for Cleveland, and also for Minneapolis, St. Louis, Denver, San Diego . . .

Of course narrow provincialism is still as crippling and ridiculous as it ever was. The failure of Americans to learn the languages of other countries not only hobbles our foreign trade, it impoverishes each of our lives and indeed courts national disaster by cultivating ignorance of the ways the other people of the world think.

There is, moreover, a new, insidious kind of provincialism spawned by mass communications: it is self-limitation not to a particular place, but to a narrow spectrum of ideas independent of any geographical location. I like a Big Mac as much as the next fellow, but I am aghast at people I know who travel to San Francisco, New Orleans, Baltimore, and Quebec, and, instead of reveling in the culinary plurality of these places, rush to find the identical fast foods they eat in Cleveland. That's merely foolish; but when such diatopical provincialism extends to mental nourishment it becomes tragic. A hundred years ago Oliver Wendell Holmes satirized his fellow Bostonians for regarding their city as the "Hub of the Universe," and he advanced the proposition that "The axis of the earth sticks out visibly through the center of each and every town or city"; he laughed at the residents of the small town of Hull, Massachusetts, who (because of the way they pronounced the word "whole") read Pope's line as "All are but parts of one stupendous Hull!" But such people are no more benighted, and no more ridiculous, than the person who assumes that the axis of reality sticks out visibly through one news program, one daily paper, one occupation, or one code of doctrines. Reader, did you think you would get away without a commercial? Renew your subscription to *The Gamut*, and give subscriptions both to your provincial and to your cosmopolitan friends. *The Gamut* is about everything in the world, all within easy reach in Northern Ohio.

— Leonard M. Trawick

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