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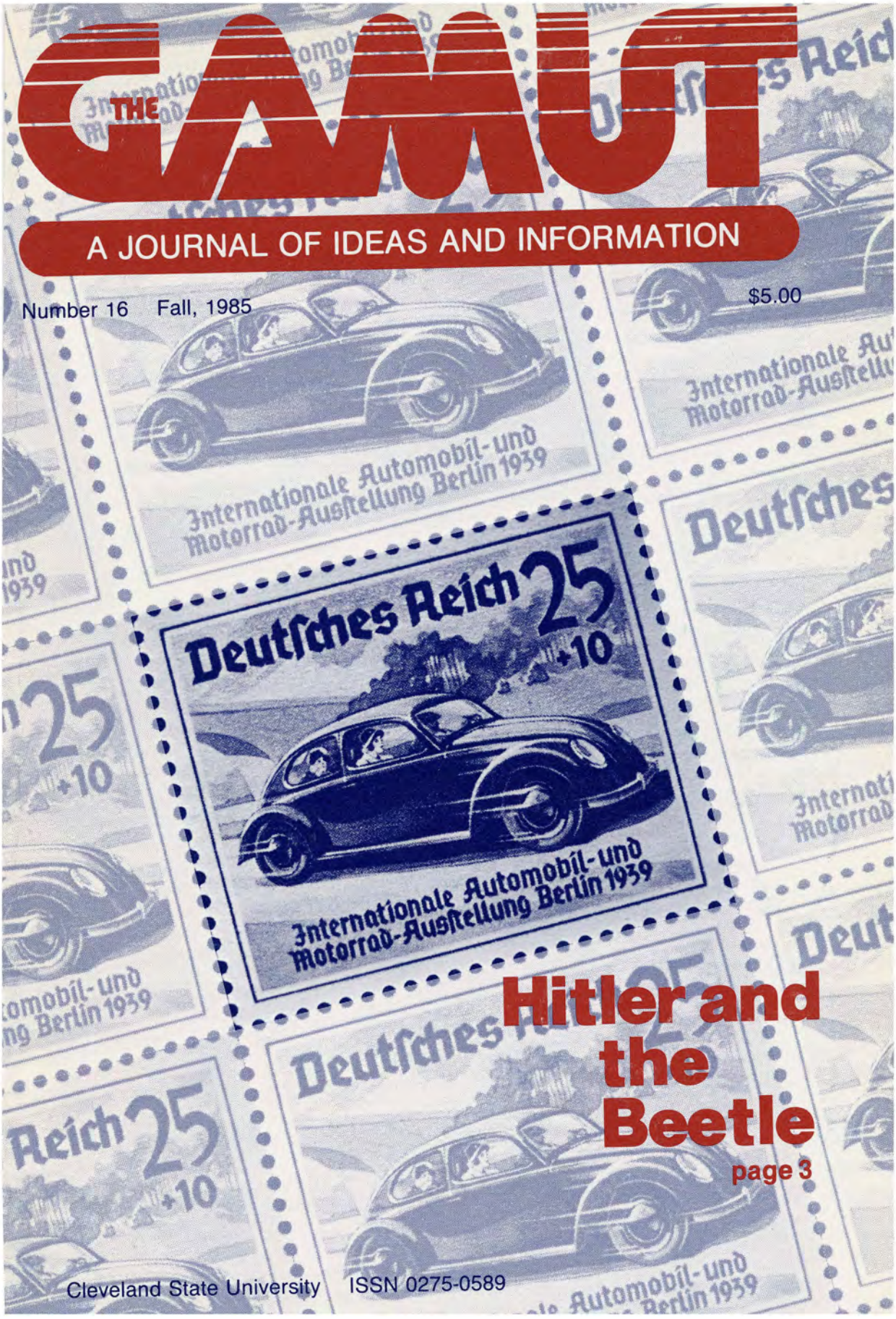

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Klaus-Peter Hinze

Hitler and the Beetle

Many people noted with an inward tear the newspaper reports in June, 1985, that the final Volkswagen "bug" destined for Germany had rolled off the assembly line of the Volkswagen plant in Mexico. Few Americans, especially among city-dwellers, have not had an affair of the heart with one or more of the 20.5 million VW "beetles" that have dotted the world's streets and highways since 1950. College campuses in particular have welcomed the economical and easily parked little vehicles with the air-cooled, rear-mounted engine and the awkward trunk under the hood. Many have felt sentimental about these dear little wagons, like Woody Allen in his film *Sleeper*, but probably not one owner in a thousand is aware of the origin of this machine as the result of a collaboration between Adolf Hitler and the German designer Ferdinand Porsche in Nazi Germany of the '30s.

The 1938 Automobile Exhibition in Berlin was reported by Otto D. Tolischus in the *New York Times* in these words:

> Now Hitler has decided that the Germans are to be the second [after the Americans] on the list of peoples who no longer put bankers' salaries and motor cars in the same class . . . Der Führer is going to plaster his great sweeps of smooth motor highways with thousands and thousands of shiny little beetles, purring along from the Baltic to Switzerland, and from Poland to France, with father, mother and up to three kids packed inside and seeing their fatherland for the first time through their own windshield.[1]

By the time the American reporter wrote these words, years of hard work had been put in by an odd mixture of interested parties to usher in what was to become the world's most popular car.

Politics and engineering mingle strangely in the origins of this round midget of an automobile so aptly called "the beetle" (German *Käfer*), a name which was to become its endearing nickname and its trademark, coined by the person most vehemently active in its development, Adolf Hitler.

It is impossible today to determine exactly the extent to which Hitler was personally responsible for the original idea and the ensuing instrumentation of the VW project. There are touching accounts by Nazi journalists of how the Führer had felt sorry for the factory workers he had seen riding bicycles to work through rain and slush and how he had determined as early as the middle twenties to present his people with an automobile which would end their misery. Serious historians today, however, admit that "we are faced with a disappointing paucity of source material."[2] Unfortunately, there is no way to arrive at the indisputable truth of this matter since all relevant documentary material kept in the Chancellery, the archives of the Ministry of Economy and of the Labor Front, and the construction offices was destroyed or is still lost. This much has been ascertained: it was the ingenious car designer Ferdinand Porsche (1875-1951) who, as early as 1932, one year before Hitler took power, con-

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Klaus-Peter Hinze approached this subject with the affection of an old acquaintance—he has owned and driven no less than four Volkswagen "beetles." Dr. Hinze, professor of German and comparative literature at Cleveland State University, looked into the history of the "people's car" while teaching a summer term at a college in Weingarten, West Germany. His education has been cosomopolitan: advanced degrees in English literature and philosophy at Freie Universität (in Berlin, where he was born), and an M.A. and Ph.D. at Washington University in St. Louis. The amount and variety of the material on the origins of the Volkswagen gave rise to a deeper interest in the subject. He says, "I became fascinated by it. I may even want to write a book on it."

structed a car called "Type 32," which looked like a father to the later beetle in its streamlined chassis and its four-cylinder rear engine. There can be no doubt that Hitler recognized the ingenuity of the design and appropriated the concept for carrying out his own plans. Porsche, though always apolitical and uninterested in Fascist theory or intrigue, agreed to make his talents available to the Nazis in order to see his idea materialize. Starting in 1934, Porsche received generous financial support to develop, test, and prepare the Volkswagen for mass production.

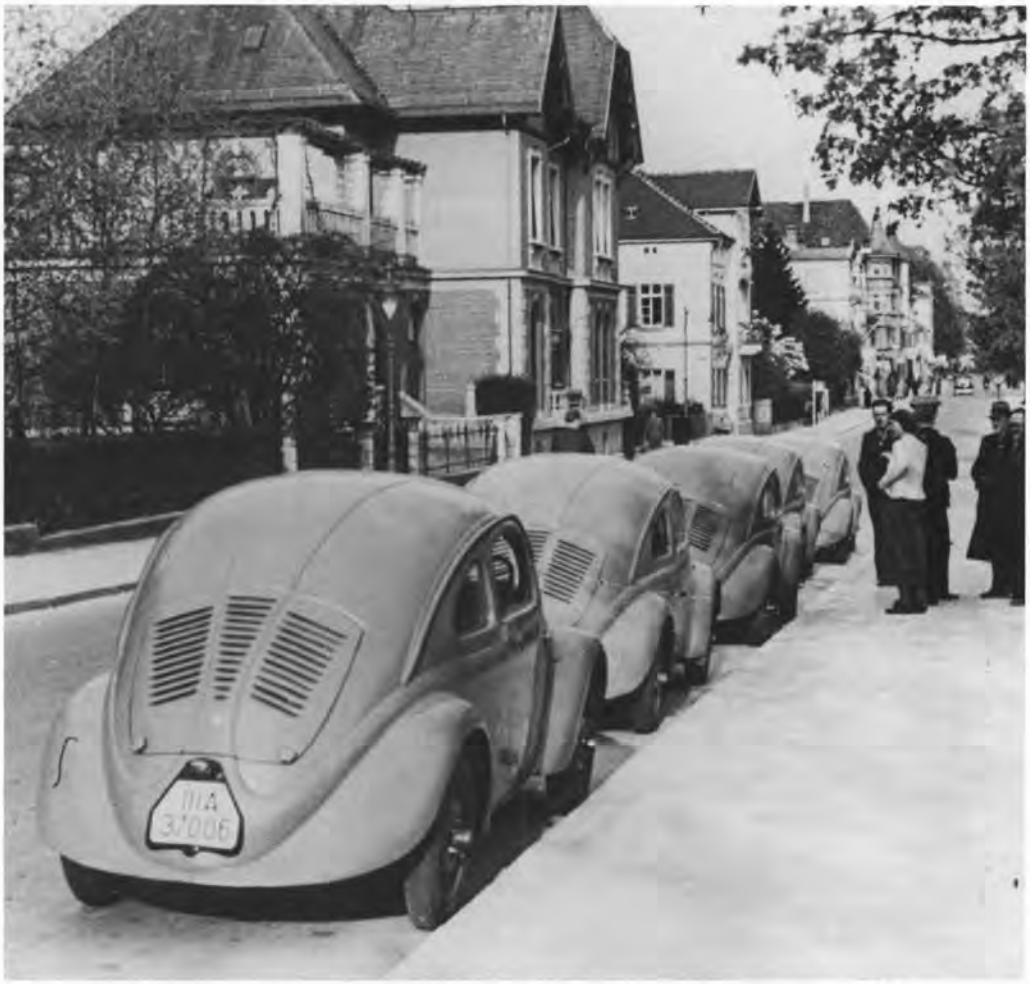
In the VW archives in Wolfsburg, West Germany, among thousands of printed and handwritten pages relating to the history of the Volkswagen, there are two pages of conference notes and a sketch of a streamlined, beetle-shaped car penned by Adolf Hitler. Veit Harlan, the well-known Nazi film director, confirms in his autobiography that Hitler was indeed the first to use the pet name. Harlan quotes Hitler as saying: "It shall look like a June bug. We only need to observe nature to find out how it manages stream-lining."[3] Hitler's notes, which unfortunately have not been freed for publication,[4] were probably written for a first meeting with Porsche and the director of the Daimler-Benz Motor Co., Jakob Werlin, at Hotel Kaiserhof in Berlin around February, 1934.[5] Earlier, Porsche had composed a memorandum for the development of an efficient, inexpensive, reliable compact car which got Hitler's immediate and enthusiastic endorsement. In all later disputes between the designer Porsche and representatives of the German car industry, Porsche had Hitler's complete support. The "wagen" for the "volk," the little people, was to be "a fully functioning vehicle, which could compete on an equal level with any vehicle designed for general use."[6] This was the essential point which made the Volkswagen different from all previous compact cars. At the time, small cars were generally tinny vehicles, sometimes with only three wheels, holding two passengers at most. Porsche's memorandum contained all essential technical details, including economic considerations. It was to be a car "for all the German nation, . . . especially the young people."[7]

Construction of the Volkswagen was at first under the control of the auto industry. In a contract drawn up between Ferdinand Porsche and industry officials, part of the preamble reads as follows:

Ferdinand Porsche (1875–1951), designer of the Volkswagen "beetle."

> The Reich-Association of the Automobile Industry . . . and Dr. . . . Ferdinand Porsche agree to the following contract in order to . . . further the motorization of the German nation on the basis of collaboration using the best forces of German automobile concepts and all appropriate support for the best of the German nation.[8]

From the first, however, serious differences between Porsche and the industry developed because the designer was unwilling to compromise on the quality of construction. The industry, of course, expected to make a profit from the sale of the compact car. Industry officials counted on producing the car in their plants, thereby increasing the use of their facilities and their profits. But the car was to cost—and Hitler insisted on this—less than 1000 RM, then approximately $396. In the opinion of industry executives, this price was too low, making any profit impossible. The auto industry, which had been forced to put all its patents at Porsche's disposal, was marking time, waiting to see whether the project could not be made more profitable. Not daring to voice open dissent against the Führer, they tacitly made work difficult for the designer, thus retarding the



1936 prototype models of the Volkswagen or ''People's Car.'' These first models lacked such amenities as heating, fog lights, and rear windows!

plan's execution. But Hitler, who had been advertising his Volkswagen project since 1934, was now pressing for results.

Without informing the executive council of the industry association, Porsche proudly presented Hitler with the first manufactured Volkswagen in Munich in 1935. Industry officials realized that their resistance had been stymied and began to complain about Porsche, accusing him of false optimism and attempts to delude the populace into believing that a low-cost car would be available in the immediate future. Undaunted, Porsche continued his research and the actual production of the car in his lab in Stuttgart. He had completed two more test cars by the time of the 1936 automobile fair, and Hitler publicly acclaimed ''the genius of the . . . Volkswagen designer.''[9] The three test cars made possible a propaganda campaign for the ''People's Car,'' emphasizing Hitler's role as the benefactor of the lower classes. An abundance of articles and photos praising Hitler was published in 1936, the year of the Berlin Olympic Games. Of course, Hitler was neither a true socialist nor a philanthropist who concerned himself with the well-being of the working class. On the contrary: what he sought was their votes, their support, and especially their money. As early as 1936 he had determined that the car would eventually be produced by party-owned construction plants. Moreover, he was determined that this car, and all production facilities relating to it, would fit in with his plans for re-armament.

In October 1936, the first three test cars of the series VW3 were tested on 50,000 kilo-

The VW 38, prototype of the "Strength through Joy" car, was a star at public events. In this 1938 photo, a line of them parade in front of the Brandenburg Gate in Berlin.

meters of highways and mountain roads. The 24 horsepower produced by the 1000 cc engine achieved a speed of just under 100 km/h (about 62 mph). As expected, some shortcomings were found, but in general the automobile industry recommended further development of the vehicle. In 1937 Porsche (in cooperation with the Daimler-Benz and Reutter & Co. firms) manufactured thirty improved sample cars of the VW 30 series. These cars were tested under extreme conditions in the Black Forest, in the Alps, on highways and even in cities like Berlin, in order to display them to the public. Together the cars covered over 2.4 million kilometers. The results were very encouraging. Porsche had ironed out all known problems. With an engine output of 24 horsepower at 3000 rpm, this car achieved a speed of up to 105 km/h. A final decision was made in favor of the air-cooled four-cylinder box engine. Much attention was given to the new suspension with maintenance-free torsion beams. The "beetle" was born.

In late 1937, tensions between industry officials and Ferdinand Porsche, built up over several years, finally exploded. Hitler now went ahead with what he had envisioned since 1936: he severed all connections between the VW project and the auto industry, putting the blame for the failure of the collaboration squarely on the industry's shoulders and arguing that their profit-mindedness had caused the collapse of the partnership. He declared: "I heard at the time: 'That is not possible!' I can only give one answer to that: 'Whatever is possible in other countries will also be possible in Germany!' I hate the word 'impossible.'"[10]

Early in 1938 a new company for the "Preparation of the Volkswagen" (Volkswagen Ltd.) was founded. It was placed under the general management of the German Labor Front, Hitler's own creation, a substitute for all the forbidden trade unions. Having used the auto industry all he could and sensing opposition from that quarter, the dictator next turned to the people for support. The

Labor Front controlled all the savings capital of the former trade unions which had been greatly increased by compulsory monthly deductions from the wages of all workers. Their forced donations were to finance the plant in which the car was to be produced, which they would then purchase with another intensive savings program. The incentive—the promise of a car for each family—raised hopes which were never to be fulfilled.

Germany lacked most of the natural resources necessary for auto production, including steel and rubber. The chemical industry developed "ersatz" rubber, textiles, and safety glass and plastics. Furthermore, to prevent the loss of hard currency, the importation of luxury goods was curtailed. To divert the workers from the rigors of saving in the face of low living standards and a depressed economy, a special division within the Labor Front was founded. This division, entitled "Strength through Joy" (*Kraft durch Freude* or *K.d.F.*), not only organized vacation trips and excursions but also a structured savings program which required each citizen to save at least five marks each week toward the car. Workers were issued savings booklets and stamps by the organizers of this ingenious system, which collected funds from up to 300,000 savers weekly until 1940. During the war the number even increased by 15,000. On August 2, 1938, the *New York Times* correspondent sent home this account praising the clever savings program:

> . . . every German can begin today to save for the purchase of this car, which will cost 990 marks, and which Chancellor Adolf Hitler has named the "Strength through Joy Automobile," by paying a minimum of five marks weekly into a savings fund administered by the Labor Front.

He concludes:

> Despite this price miracle [the nearest low-priced car cost twice as much] the ingenious savings scheme is nevertheless designed to provide the greater part of the capital for the construction of the Volksauto factory, so that the production of the Volksauto may be financed mainly by its prospective purchasers."

It should be noted that the majority of these workers earned less than 300 marks a month, but with "joy in their heart" and with the hope of someday owning one of these mira-

Designer Porsche shows Hitler, Goering, and other Nazi officials a miniature beetle; the photo was made for a 1942 New Year's greeting card.

1939 poster tells workers, "You must save 5 marks a week if you want to ride in your own car."

cle cars, they paid and continued paying, although the day of delivery would never come: not a single car for civilian use was ever produced in Hitler's factory.

When the Nazi government took over organization and production in 1938, Hitler announced that "construction of the magnificent Volkswagen plant could be started."[12] Fifty million marks were immediately put up by the Labor Front for the construction of a pilot plant near Braunschweig, where highly skilled technicians were to be trained. Porsche traveled to the U.S. to study the latest techniques in assembly-line mass production in Detroit and other cities, and to purchase machine tools from the Cincinnati Milling Machine Co.—also at the expense of the Labor Front. A more dubious purpose of his visit was meant to serve Hitler's scheme of repatriating German citizens: Porsche was to canvass American car plants for German-American workers skilled in the trade who would be willing to return to the fatherland and work for the Volkswagen Company.

Plans were ready to turn Hitler's vision of party-owned and controlled car production into reality. A deserted area on the outskirts of Luneburg Heath was to be transformed overnight into the facility which would mass-produce VW's. On the opening day of the 1938 Berlin auto fair an astounded *New York Times* correspondent reported:

> The factory will be built on the new Midland Canal, twenty-five miles from Brunswick, in North Central Germany. Besides the plant, a hotel, gymnasium, and sports grounds, assembly hall and a great tower will be built.
>
> Thousands of dwellings will be constructed to house the workers, because the plant will stand in the open countryside.[13]

The Volksauto, often nicknamed "Baby Hitler," was officially re-named "KdF-car," i.e., "Strength through Joy-car." The city in front of the factory, planned and built by Hitler's favorite architect Albert Speer, was to receive the same name, "KdF-Stadt," a name that was used in the American press until 1946.

When Hitler in June of 1938 laid the foundation stone for the first KdF-car factory, he summarized the history of the Volkswagen and his "official" intention:

> When I came to power in 1933 I saw one problem that had to be tackled at once—the problem of motorization. In this sphere Germany was behind every one else. The output of private cars in Germany had reached the laughable figure of 46,000 a year. And the first step toward putting an end to this was to do away with the idea that a motor car is an article of luxury . . . .What I want is not a car for 200,000 or 300,000 persons who can afford it, but a car which 6,000,000 or 7,000,000 persons can afford.[14]

In July of 1939 experimental production in the new factory was begun. Two hundred fifty thousand persons had paid for their cars in full, which meant that 240 million marks had been collected from this group alone. Production for 1940 was set at 100,000 cars, for 1941 at 400,000 cars. But not a single car for civilian use ever left the production line. From the start the factory built military vehicles; from September of 1939 on, the factory was converted to produce jeeps, bombs, and other weapons. While the town and the plant had been mainly built by "guest workers" from Italy, Poland, and later from Spain, the factory was now manned by slave workers from German-occupied countries and prisoners of war. In May of 1944 the plant reached a production peak of "1800 jeeps, 1000 amphibious jeeps,

Bombed-out Volkswagen factory in KdF-Stadt (Strength-through-Joy City), 1944. Production resumed within weeks after Allied occupation.

1200 V-1 bombs, 100,000 mines and the repair of 30 Junkers-88's a month.''[15]

In June of 1944 the plant was heavily bombed by the American Air Force; one third of the buildings were destroyed, yet production of vehicles and weapons continued until the American Ninth Army invaded the territory. It was only a few weeks after Germany had been defeated and occupied that Volkswagen jeeps were again produced in the main plant—this time for the war against Japan: ''Improved through American technique, the German automobiles known as Volkswagen are coming off the assembly lines in KdF-stadt, Germany, to replace motor vehicles being redeployed to the Pacific area . . . German workers under the supervision of American engineers are building ten units a day.''[16]

In 1946, the Volkswagen Plant was put under the control of the British Military Government in whose zone it was situated, and produced military vehicles such as jeeps and ''light cavalry'' cars of Type 87 for the British Army. But it was also in 1946 that the first ''real'' Volkswagen beetles were produced, and in 1949 the Allied Military Government handed over full control of the Volkswagen plant to the Federal Government of West Germany. Eventually, all the survivors who had paid for their KdF-car in Nazi Germany were proportionally compensated.

In 1960, the major part of the Volkswagen firm became publicly owned (i.e., 60% of the capital came into the hands of the people). Each German citizen was permitted to purchase two or three Volkswagen shares for the nominal price of approximately $25. The remaining 40% of the firm's capital stayed in the hands of the Federal Government and of the State of Lower Saxony.

The post-war history of Ferdinand Porsche's ''miracle car'' indeed reads like a miraculous success story. Under the management of engineer Heinrich Nordhoff, sister firms in many countries in Europe, Africa, and North America were founded. Manufacturing plants were built in Brazil (1960), Mexico (1964), and finally in the U.S. (1976). New models were added to the production of the

After World War II the Volkswagen "bug" became a naturalized part of the American Way of Life. Above: Goofy clowns around with Disneyland's beetle "Herbie." Below: The beetle was the perfect vehicle for the college fad of "car-stuffing."

beetle almost every year, and its quality and strength have become legendary. But now our supply has been cut off. On January 1, 1978, the last beetle produced for the United States came off the assembly line of the Volkswagen plant in Emden, Germany. If we wish to purchase the original bug-shaped car, we must apply to Mexico, Nigeria, or Brazil, the only places left where it is still being produced. But Porsche's fabled design *is* still being produced, virtually unchanged. Apparently the *Käfer* is the most durable of Hitler's few constructive contributions to the modern world.

I would like to express my gratitude to Dr. B. Wiersch and Ms. D. Nickel for their assistance at the Volkswagen Archives, Wolfsburg, and to my wife Dr. Diana Orendi-Hinze for editing the English version of this article. The photographs illustrating this article, and permission to use them, have been generously provided by Volkswagenwerk A.G., Wolfsburg, W. Germany.

NOTES

[1]"German Car For Masses," *New York Times*, July 3, 1938.

[2]Paul Kluke, "Hitler und das Volkswagenprojekt," *Vierteljahreshefte für Zeitgeschichte*, 8 (1960), 341. For the chronological survey I followed Kluke's article, which has served as standard reference on this subject.

[3]"Adolf Hitler und der Maikaefer," *Der Spiegel*, no. 36, August 29, 1966.

[4]Information from Volkswagen Archives of May 3, 1985.

[5]Kluke, p. 345.

[6]Kluke, p. 345.

[7]Kluke, p. 346.

[8]Photocopy of the original contract in the VW Archives.

[9]Kluke, p. 355.

[10]Otto D. Tolischus, "Nazi Hopes Ride the 'Volksauto,'" *New York Times*, October 16, 1938. A lengthy excerpt of Hitler's speech can be found in *Kraftfahrzeug-Handwerk*, 13/11 of June 11, 1938.

[11]Otto D. Tolischus, "Five Marks a Week to Buy Reich Autos," *New York Times*, August 2, 1938.

[12]"Hitler 'Volkswagen' Remains a Mystery," *New York Times*, May 2, 1937.

[13]"Germany to Rush Vast Auto Plant," *New York Times*, February 19, 1938.

[14]"German Car for Masses," *New York Times*, July 3, 1938. This article uses the English name, "beetle," for the first time.

[15]"Reich 'Willow Run' Taken by 9th Army," *New York Times*, April 22, 1945.

[16]"Americans Improve German Jeep Model," *New York Times*, July 13, 1945.

Ron Haybron

Packaging the Seasons

The 445-day "year of confusion" (46 B.C.) was only one of many oddities in the checkered history of the calendar

My briefcase contains a largish black book titled *Monthly Planner.* In it, each month is spread out over two pages, with a square allocated to each day's appointments and important events. I constantly refer to this book and grab it whenever the phone rings, anticipating a new item to be fitted into my schedule. I am just one of the many people who live with a constant need to plan their time and schedule the future; it was for such purposes that calendars came to be.

It is difficult to conceive of a human society that could manage without some sort of scheduling equivalent to my black book. Even for the most primitive of our forebears, there were regularities of life to be anticipated. Although it is conventional to associate the development of calendars with the imperatives of agriculture—the need to coordinate the time of planting with a season—it is likely that the hunter-gatherers who went before the farmers also would have adjusted their wanderings to the seasons. Since the movement of game animals and the ripening of natural foods are dependent on the rhythms of the seasons, it seems inevitable that a strong sense of time and of regularly recurring events must have become a part of the human consciousness long before the beginnings of food-raising in fixed locations.

Certainly once the wanderers had settled to the tilling of fixed plots of land and began to produce a surplus of food that made possible more civilized pursuits, a systematic way to keep track of time and plan for the future became essential. Agriculture is only the most obvious of the ways calendars served our forebears. Early on, they were also necessary to mark the observance of feast days and religious rites. Commerce requires accurate planning; so does the conduct of war. In fact, most social interactions demand coordination of future events, and hence some form of calendar.

To track the flow of time, primitive humans had to rely on nature's landmarks: the cycle of day and night, the regular phases of the moon, the alternation of the seasons. It seems likely that the earliest attempts at time-keeping would have consisted of counting days (or "sleeps" in some cultures). Such a method can be used to record the passage of time, albeit not very conveniently, but it is essentially useless for the main function of a calendar—allowing the timely anticipation of future events. What is needed is a recurrent pattern of greater duration, such as the cycle of the moon's phases.

And indeed, nearly all early peoples—the Egyptians, the Babylonians, the Chi-

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nese—used the lunation, the length of time between successive appearances of the crescent new moon, to measure time. Only in historic times was the solar year adopted by the Egyptians as the basic unit. Our modern calendar reflects these origins, and results from a combination of elements in various earlier cultures. When I write in my *Monthly Planner*, I am operating in a framework of weeks and months inherited from ancient peoples, wherein the regularities of nature have been bullied and sometimes ignored to suit the needs of society. The story of our calendar, and especially of its imperfections, is a recounting of this history. Before we attempt to retrace the events which brought us to our current system, it will be useful to review the clockwork of the heavens, from which all the cycles of time originate.

A Few Astronomical Facts

Three basic movements of the heavenly bodies set the rhythms for our measurement of time. These are the rotation of the Earth on its axis, the revolution of the Earth around the sun, and the revolution of the moon around the Earth. Unfortunately for calendar makers (and users), these periods are incommensurate, and the story of the development of calendars is largely a recounting of various strategies to reconcile these motions with one another.

The fundamental unit is the day, and astronomers recognize two types—*solar* and *sidereal*. A solar day is the length of time required for the sun to return to the same position in the sky. A sidereal day measures the time it takes for a given star to return to the same position. If the Earth did not move about the sun, these periods of time would be identical, but this orbital motion makes the solar day approximately four minutes longer than its sidereal counterpart. For the purpose of designing the calendar, it is the solar day by which we measure, and it is that day which we divide into twenty-four hours.[1]

The period of time required for the Earth to complete one revolution around the sun defines a year.[2] In 1980, this interval was computed as 365 days, 5 hours, 48 minutes, and 45.6 seconds, or approximately 365 and 1/4 days. As we shall see, this extra quarter day represents a complication for the calendar maker. If we were fortunate enough to live on a planet which made an integral number of rotations about its own axis while making exactly one revolution around its central star, the problems of calendar making would be considerably simplified.

But why should it matter that the Earth's rotation and revolution are not commensurate? It would be of little concern, if it were not for the tilt of the Earth's axis relative to the plane of its orbital path. This tilt determines the pattern of the seasons. Since the Earth acts like a great spinning top, its axis always points in the same direction (see, however, note 2), thus synchronizing the progression of the seasons to specific locations on the Earth's path around the sun. Exactly one year elapses, for example, between successive spring equinoxes, the exact time when the sun appears to be overhead at the equator and headed north. So if our calendar is to keep pace with the seasons and find spring commencing on the same date every year, we must allow for the exact fractional number of days needed to return to the same seasonal location each year. This can be accomplished only by jiggering the length of the calendar year in some fashion. Let me illustrate.

Suppose we start 1985 on December 31 at midnight. If we then begin 1986 exactly one Earth's revolution later, that year would have to start on January 1, at 6 a.m. (in round numbers). Such a system would be unworkable, since it would not be synchronized with the cycle of days. To get around this difficulty, we use the leap year, wherein three successive years (usually called common years) are 365 days in length, with the fourth (called leap year) containing an extra day (366 days in all) to make up the four accumulated quarter days. This ancient artifice was first devised in Egypt. The process of inserting extra days is called intercalation. For some calendars, those based on the cycles of the moon, it has sometimes been necessary to intercalate whole months to keep in step with the seasons.

As previously mentioned, the earliest calendars seem all to have been based on lunation, the cycle of the moon's phases. This interval requires 29 1/2 days, and forms the original basis of our notion of a month. To adjust for the odd 1/2 day, the ancients adopted calendars with months of 29 and 30

days in alternation, giving a lunar twelve-month year of 354 days. Of course a year based on such a scheme cannot keep pace with the seasons. Some early cultures essentially ignored this discrepancy. Others harmonized the lunar cycle with the solar year, taken in early times to be 360 days, by the insertion at various intervals, of intercalary months. Adding an extra month of 30 days every three years will keep a lunar-based calendar in approximate agreement with the seasons for respectable intervals of time.

Types of Calendars

In early times three types of calendars evolved, each an attempt to establish fixed relationships between the day, the month, and the year, the latter ultimately defined by the regular occurrence of the seasons. These are:

1. *solar calendars*, which adhere to the true length of the year, with months which do not correspond to the period of lunation,
2. *lunar calendars*, which are geared to the phases of the moon, but do not keep pace with the seasons over any extended interval of time, and
3. *luni-solar calendars*, wherein the length of the month is chosen to match the period of lunation to the length of the solar year by means of intercalated months.

Examples of these three basic calendar types are the lunar calendar of the Moslems, the luni-solar calendar of the Jews, and the solar calendar evolved by Julius Caesar and upon which our own modern system is based.

There is an almost endless variety of ways to devise a calendar—I have as yet said nothing, for example, about the length or function of the week—but to reiterate, the purpose of these temporal structures is generally to allow mankind to plan specific events for specific, foreseeable days, with as few complicated calculations as possible. The struggle throughout history to devise calendar systems has aimed at this purpose, but not all cultures have the same goals when they devise a method for keeping time.

Keeping a calendar in step with the seasons always requires intercalations, either of "leap days" or "leap months," depending on the system employed. Only lunar calendars avoid these complications, but at the sacrifice of synchronicity with the cycle of the seasons. The lunar calendar used by the Moslems is suited to their culture since it originated in countries where the variations of climate from season to season are less marked than elsewhere.

Beginnings: The Egyptians

Our calendar is a revised version of one instituted by Julius Caesar. We could also with considerable justification label our system Egyptian, since Caesar essentially adopted the Egyptian priests' scheme of reckoning dates after conquering their land. The early Egyptians, like the early Greeks, Babylonians, Indians, and Chinese, based their calendar on the phases of the moon. They devised a system of 12 thirty-day months (the lunation is completed on the thirtieth day), yielding a calendar year of 360 days. But Egyptian agriculture depended on a singular and highly regular phenomenon—the annual rising and overflow of the Nile, which naturally irrigated the narrow strips of soil on each side of the river and allowed intensive farming in this virtually rainless land. Eventually the Egyptians discovered that the yearly flood tended to occur at the same time as the yearly appearance at dawn of Sirius, the Dog Star (Alpha Canis Majoris). The coincidence of the three events—sunrise, the first morning appearance of the brightest of stars, and the arrival of the flood—impressed the ancient astronomers and apparently led to the realization that the natural cycle of the year was approximately 365 days.

From their observations of the concurrence of these events, the Egyptians devised a calendar based primarily on the solar year. It had twelve months of 30 days each, plus five extra feast days at the end of the cycle, to render a year of 365 days. Each month was divided into three "weeks" of ten days each. The year had three seasons of four months each: flood, sowing, harvest. Clearly this calendar was keyed to the agricultural events which governed Egyptian life.

The growth of power and prosperity of Egyptian culture is attributed by some scholars to the advent of this accurate system of time-keeping. According to Henry W. Breasted, the adoption of the solar calendar "was thus the beginning of a great movement in human life which carried over the thought of man from the world of nature to the world of human life."[3]

The demands of agriculture spurred the ancient Egyptians to devise an accurate calendar. Above: the Nile god Hāpi, to whom rich sacrifices were made just before the annual flooding was expected.

Yet, as we are aware, the 365-day year was not entirely accurate. The extra quarter-day meant that Sirius arose a day later every four years, and eventually the calendar was quite out of step with the natural seasons. The priest-astronomers were well aware of this discrepancy and were able to allow for the error in the calculation of the Nile floods and other dates without changing their basic calendar. But such incongruities were not in keeping with the notion of a calendar. In 238 B.C., Ptolemy III proposed that an additional day be included with the five year-end feast days every four years to keep the calendar in step with the River and the seasons. This day was decreed, but the priests who managed the calculation of dates apparently resisted his attempts to usurp their prerogatives, and the advent of the first leap year had to await a more powerful advocate.

Julius Caesar's Calendar

For the ancient tribes of northern Europe, the year began with the spring moon in March or perhaps at the vernal equinox, and ended about 300 days later near the end of December. Their calendar consisted of ten months with the period now corresponding to January and February left out of consideration. This old tribal system was adopted at the founding of Rome in 753 B.C. and prevailed until the reign of the second king of Rome, Numa Pompilius.

Numa "modernized" the calendar around 713 B.C., adding two months to span the blank winter period and changing the lengths of the older months to end up with a year of 355 days. His scheme was roughly based on the lunar cycle, but the months were all chosen to have either 29 or 31 days except for one of the new months, *Februarius*. This preference for odd numbers was based on the belief that even numbers were associated with death. Apparently February was considered to be bad luck anyway, corresponding as it did with the end (death) of the year and being devoted to the infernal gods. Besides, this scheme yielded a year with an uneven number of days, and perhaps provided more potent protection from bad luck.

With these changes the months and their length in days became:

Martius, 31	*Septembris*, 29
Aprilis, 29	*Octobris*, 31
Maius, 31	*Novembris*, 29
Junius, 29	*Decembris*, 29
Quintilis, 31	*Januarius*, 29
Sextilis, 29	*Februarius*, 28

Martius took its name from the God of War and apparently implied that the season for warfare had begun for another year. *Aprilis* comes from the Latin *asperire*, meaning "to open," and indicated that the season of budding and new growth had arrived. *Maius* was named for the goddess of growing things, *Maia*, and *Junius* took its name from the word for youth. The next six months had names marking their position in the old, ten-month calendar. Thus *Quintilis* is fifth, *Sextilis* sixth, *Septembris* seventh, and so on, whereas *Januarius* and *Februarius* represent, respectively, Janus, god of beginnings, and *februa*, purification (related to English, *fever*).

The resulting year approximated the lunar year (354 days); to keep it in rough agreement with the seasons, an extra month, *Mercedonius* (or *Mercedinus*), was intercalated every two years. This month was 22 or 23 days long and was inserted after February 23. (Recall that the lunar year is about eleven

days shorter than the solar year. The odd day was necessary to keep in step with the phases of the moon since the lunation is not exactly 29 1/2 days long.) When *Mercedonius* had run its course, the remaining 5 or 6 days of February were then permitted to lapse and the cycle of months continued.

To assure that the complicated time-keeping calculations were properly carried out, Numa founded a College of Pontiffs, five worthies whose job it was to declare the dates, ceremonies, and festivals of the year and keep track of the requisite intercalations. For nearly four and a half centuries this body supervised the calendar, but the power was manipulated and abused both for political and economic gain. For example, it became common to declare "full years" (those with *Mercedonius* included) when friends of the Pontiffs held political office. This process of intercalation was so regularly abused that by the first century B.C. a traveler going from town to town could find himself moving from year to year as well. In addition, irregularities of intercalation had thrown the spring equinox three months out of step with its traditional date of March 25. From the middle of the second century B.C., the beginning of the year was shifted from March 25 to January 1, so that the practice of commencing new political terms on that day gave new importance to that date and essentially re-oriented the calendar.

In 63 B.C., Julius Caesar was elected to the post of Pontifex Maximus, head of the College of Pontiffs. From his experiences in Egypt, which he had conquered, he was aware of the superior calendar which had been devised in that country. Accordingly, he commissioned the Alexandrian astronomer Sosigenes to correct the faulty Roman calendar and turn it into a stable, reliable system. The new system was instituted on January 1, 45 B.C.

The first step in the Julian reform was to move the vernal equinox back to its traditional location on March 25. The shift was accomplished by intercalating three extra months in the year 46 B.C., bringing its length to 445 days and causing it to be called the "year of confusion." The new calendar was based on the solar year of 365 and 1/4 days distributed over 12 months. The ten days thus added to Numa's calendar were distributed over the months, but there seems to be a difference of opinion among historians as to which months originally had how many days. "Doubts have been suggested as to the exact lengths assigned by Julius Caesar to the several months. Some writers say that under his calendar the month-lengths were 31 and 30 days alternately, with the exception of February, which had 29 days in common years and 30 in leap years. They add that when the name of *Sextilis* was changed to *August*, the crafty emperor Augustus, desiring that the month named after him should escape the ill-luck which the Romans so constantly associated with even numbers, took a day from February and added it to August, and that then, to avoid an uninterrupted session of three long months, he reversed the lengths of the four following months, September to December."[4] Each fourth year was a leap year of 366 days with an added day after February 24 (not 28, as now). This intercalated day was regarded as a part of the 24th, so that the leap year was still 365 days in length, one civil day thus being composed of two natural days.

The Julian calendar represented a considerable improvement over the system it replaced. In particular it exhibited an important characteristic not present in our modern system, namely that it was perpetual, with exactly the same structure from one year to the next. Political and religious events always occurred on the same day of the week

Table 1: Martius 710 A.U.C.*
(March, 44 B.C.)

Modern Calendar	Roman Calendar	Modern Calendar	Roman Calendar
1	***Kalendis***	16	XVII *ante Kalendas*
2	VI *ante Nonas*	17	XVI *ante Kalendas*
3	V *ante Nonas*	18	XV *ante Kalendas*
4	IV *ante Nonas*	19	XIV *ante Kalendas*
5	III *ante Nonas*	20	XIII *ante Kalendas*
6	*Pridie Nonas*	21	XII *ante Kalendas*
7	***Nonis***	22	XI *ante Kalendas*
8	VIII *ante Idus*	23	X *ante Kalendas*
9	VII *ante Idus*	24	IX *ante Kalendas*
10	VI *ante Idus*	25	VIII *ante Kalendas*
11	V *ante Idus*	26	VII *ante Kalendas*
12	IV *ante Idus*	27	VI *ante Kalendas*
13	III *ante Idus*	28	V *ante Kalendas*
14	*Pridie Idus*	29	IV *ante Kalendas*
15	***Idibus***	30	III *ante Kalendas*
		31	*Pridie Kalendas*

**Ab urbe condita* (from the founding of the city, i.e., Rome).

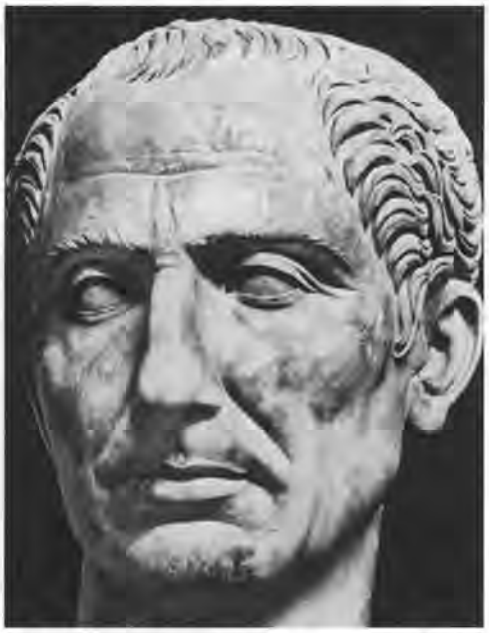
every year. But the system was not so well suited to the other job a calendar is required to perform, to measure equal intervals of time within the year, because the subdivisions of the month were retained from the older system and they were too unequal for easy calculations of short intervals of time.

In that old system, events were dated by reference to the *Kalends* (the word from which calendar derives), *Nones*, and *Ides*. The *Kalends* was the name for the first day of the month. For the months March, May, July, and October, which had always been full-length months of 31 days, the *Nones* were on the 7th and the *Ides* on the 15th. The other eight months had their *Nones* on the 5th and *Ides* on the 13th. Dates were determined by counting backwards from these days. For instance, what we would call March 23 would for the Romans have been *ante diem 10 Kalendae Aprilis* (the tenth day before the *Kalends* of April). To complicate these calculations even further (from our perspective), the Romans computed such intervals by counting both the day from and the day to the time of reference. To clarify this point Table 1 displays the scheme by which the days of the full months were enumerated. Note that the days preceding the reference days were labeled *Pridie*: *Pridie Nones*, *Pridie Ides*, and so forth.

The details of this system seem very awkward to our way of thinking. Yet even with its strange way of enumerating the days of the month, the Julian calendar provided a scheme in which the future work of the army, the courts, and indeed the entire civil apparatus of the State could be planned and coordinated.

The Romans did not use a subdivision corresponding to our week, at least in any significant way. In the ancient literature, there are references to a period of eight days which seems to have separated successive market days, but this interval was not an integral feature of the calendar.

Caesar was assassinated on the Ides of March in 44 B.C. and *Quintilis* was renamed *Julius* in his honor (our modern July). During the years after his death, the College of Pontiffs confused the leap year rule which was specified by the Julian system. In applying the rule that an extra day should be inserted in every fourth year, they used the Roman system of counting such intervals and ended up intercalating a day every three years. Naturally this caused the calendar to begin diverging from the seasons.



Julius Caesar adapted the Egyptian calendar for Roman use; it is the basis of the calendar we use today.

Augustus Caesar corrected the accumulated error by cancelling the leap years between 8 B.C. and 8 A.D. and by directing that henceforth the leap year calculation was to be done as originally specified. For these efforts, among others, the Senate honored him by renaming *Sextilis*, which we now know as August. At that point, the calendar had assumed its modern form with respect to the names of the months and their lengths. But one of the most important aspects of our contemporary style of allocating time—the week—remained to be introduced into the Roman system. That innovation, with all the complications it engendered, was due to the good offices of Constantine.

Origins of the Week

The oldest evidence of a time interval between the day and the month suggests that the earliest "week" was five days long. Such a division of time seems to have been observed by, among others, the Mongols, the Chinese, and the Norse. There is evidence that the Viking calendar consisted of twelve months, each of thirty days, and that each month was divided into six "weeks" of five days. Other peoples used various lengths of

time for a week. The early Romans observed an eight-day market week. Some ancient peoples used weeks of four or six days. The Egyptians divided their thirty-day months into weeks of ten days.

The seven-day week is of Semitic origin but its advent seems to precede historical record. It came into Palestine from the Assyrians, who allotted the seven days of their week to the major heavenly bodies—the sun, moon, and five planets then known, Mercury, Venus, Mars, Jupiter, and Saturn. These bodies were believed to govern in their turn each hour of the day, and thus formed the basis of ancient astrology. Even before that, however, there had been a seven-day week in that region, which may have been derived originally from the length of each phase of the moon.

But it was with the Jews that the seven-day week assumed its significance to timekeeping, and it is to those roots that our modern dependence on that unit can be traced. Seven was a special number in the Jewish tradition, and the seven-day week assumed its central importance to our culture in the Fourth Commandment. Ever since, the proper observance of the Sabbath has required that the seven-day week be at the heart of the Jewish and Christian calendar. The Jewish week named only the Sabbath ("day of rest"); the other days were numbered.

The names of our modern days are derived from two sources, the ancient Saxons and the Romans, but the fact that they are named after the seven primary heavenly bodies dates back to the old Assyrian tradition mentioned above. The names of Tuesday through Friday come from the Norse gods whose names were also associated with the planets: Tiv's day (Mars), Woden's day (Mercury), Thor's day (Jupiter), and Frigg's day (Venus). Saturday comes from the Roman Saturn's day, also rendered as Saterne's day by the Saxons. Sunday and Monday apparently evolved from *Dies Solis* (day of the sun) and *Dies Lunae* (day of the moon).

As part of the Emperor Constantine's interest in Christianity, the seven-day week was introduced into the Julian calendar in 321 A.D. The Jewish/Christian week allowed Constantine's soldiers a day for rest or worship, something that may have aided morale and led to his significant victories.

It is perhaps unfortunate, from the viewpoint of subsequent history, that Constantine seems to have acted more from sentiment than from a spirit of enlightened calendar reform. He apparently did not realize that he was destroying one of the chief advantages of the Julian scheme, its perpetual nature. Within it, the scheduling of festivals, ceremonies, and civil affairs could be accomplished long in advance with no confusion. But with Constantine's week, it was quite another matter. The common years of 365 days now contained 52 and 1/7 weeks. That meant at the end of each year, a day was borrowed from the first week of the next year. Further, an event could not simply be scheduled for, say, the 15th of January each year, since eventually that day would fall on the Sabbath and require that the planned activity be moved to another day. The difficulty of scheduling future occurrences, which had been trivial with the uncorrected calendar (even though the *Kalends-Nones-Ides* method of counting days possessed its own brand of inconvenience), was now complicated by the seven-day week. Since the first day of the new year continually appears on a different day of the week, a new calendar must be made for each year. Altogether there are fourteen different calendar patterns, deriving from the fact that New Year's Day can occur on any of seven days and provision must also be made for leap years.[5]

Of course, there is another important aspect of Constantine's modification of the calendar: the institutionalization of a universal day of rest and worship. For all the critics who decry his introduction of the week with its inherent complications, more accept this inconvenience as the price of the social benefit of the Sabbath.

Had Constantine been a true calendar reformer, rather than simply an admirer of Christian practices and beliefs, he might have made still another correction in the reckoning of time. The Julian plan for leap years contained a tiny flaw, which by 325 A.D. had permitted the vernal equinox to slip to March 21, four days from its original date. He did not see himself in that role, however, so the correction was not made until over a thousand years later, in 1582.

The Gregorian Reform

The tropical year, in decimal form, is 365.2422 days in length. The Julian year was taken to be exactly 365.25 days long, and therefore is longer than a full cycle of the seasons by 0.0078 of a day. This difference accumulates to about one day in 128 years, not a great error, but one which was quite noticeable by the thirteenth century, when Roger Bacon wrote a treatise describing the divergence of the vernal equinox from its original place in the calendar (by this time it was on March 14).

In 1545, the Council of Trent authorized the Pope to correct the calendar error, but it was not until 1582 that Gregory XIII instituted the needed reform. In correcting the Julian error, the Pope and his scientific advisers faced four problems. First, it was mandatory to bring the calendar back in step with the seasons. Second, the leap-year rule needed amendment, to prevent, or at least minimize, the dislocation with the seasons which would otherwise recur. Third, it was desirable to standardize the beginning of the year. Although Caesar had accepted January 1, the Church had adopted March 25, the Feast of the Annunciation, in the sixth century, and in the intervening years, the Christian countries had picked a variety of starting dates for the year.

And then there was the problem of the wandering date of Easter, originally a fertility rite connected with the coming of spring. Its date of observance and those of certain other religious holidays were fixed by the Council of Nicaea in 325 A.D., under the auspices of Constantine. According to the rule, Easter was to fall on the first Sunday after the first full moon occurring on or after March 21 (which marked the equinox at the time of the council). The interest in the phase of the moon derived from the desire to give pilgrims to Jerusalem the best light for night travel.

But this use of the lunar cycle to select the date for the Christian spring festival set the holiday adrift in the solar-based calendar. The earliest date on which Easter could therefore occur was March 22, and the latest April 25. This enormous range caused great inconvenience to everyone concerned. And of course, by the time Gregory and his advisers went to work on the problem, March 21 was ten days from the equinox, thus further disconnecting Easter from its seasonal base.

To solve the first problem, the Pope was advised to drop days from the year 1582. It might have been logical to drop the full fourteen through which the calendar had drifted since it was instituted, but instead he elected to remove only ten days, moving the vernal equinox back to its date at the time of the conclave at Nicaea, when the Easter rule had been adopted, March 21.

For the second reform, he formulated a new leap-year prescription, changing the rule for century years. Specifically, only century years divisible by 400 would be treated as leap years: all others—1700,1800,1900—would be common years of 365 days. This arrangement of dropping three days in four centuries makes the Gregorian calendar year average 365.2425 days (365d, 5h, 49m, 12s), still 0.00003 days longer than the tropical year. This difference of 26 seconds a year will accumulate to a day in 3,323 years[5]—essentially correct for foreseeable human history.

The third item on the agenda, the date of the new year, was settled as January 1. The wandering date for the observance of Easter was left according to the formula of 325.

The new calendar, called Gregorian by some, but also referred to as the New Style, went into effect in 1582 in all Roman Catholic countries. In that year Thursday, October 4, was followed by Friday, October 15. The scientific advantages of the new calendar were not so persuasive in the Protestant countries, where fear and distrust of Catholicism prevented acceptance of the Gregorian reform for many years. Germany and Denmark didn't adopt it until 1700; Great Britain and the American colonies made the change in 1752, Sweden in 1753, Japan in 1873, China in 1912, and Russia twice—once in 1918 and again in 1940 after some intervening experiments with an indigenous system. The Eastern Orthodox countries also adopted the calendar in the 1920s.

The acceptance of the New Style Calendar by Britain and her colonies was formalized by a decree of Parliament wherein September 2, 1752, was followed by September 14. Even though special laws were passed to prevent injustices such as landlords charging a full month's rent for the truncated September, there were riots by people demanding that the authorities "give us back our eleven

days.''[7] The changeover created many difficulties over business matters such as the collection of debts which fell due during the ''lost days'' and the discharge of contracts which spanned the period. The confusion generated and hardships suffered are reflected in the complex tables showing how to calculate wages and explaining the legal position of services fixed according to specific calendar dates which were published in the newspapers of the time. Because of this shift, a generation of Americans, George Washington among them, had two birthdays. By the old-style (Julian) calendar, his fell on February 11; with the new style it became February 22. At this same time, England and her colonies moved their New Year's Day to January 1, from March 25 where they had observed it since medieval times. This change upset the timing of many annual payments and complicated hirings, rents, and apprenticeships. Some authors have attributed the riots and protests that accompanied the calendar reform to the ignorance of the common people, but there was a good deal of legitimate concern over the disruption of commercial and legal affairs.

Although some British subjects were vehemently opposed to the shift, others dealt with the change humorously. In ''Poor Richard's Almanack,'' Benjamin Franklin advised,

> Be not astonished, nor look with scorn . . . at such a deduction of days, nor regret it as for the loss of so much time, but take this for your consolation, that your expenses will appear lighter and your mind be more at ease. And what indulgence is here, for those who love their pillows to lie down in Peace on the second of the month and not perhaps awake till the morning of the fourteenth.[8]

Still others were moved by the impending calendar change to suggest alternate schemes. The Reverend Hugh Jones, a Virginia clergyman with a scientific bent, proposed a calendar of 13 twenty-eight day months with Christmas a separate day at the end of the year, and a leap year day each four years. In Jones's design, the intercalated days were extra, so that the days of the week always appeared on the same date. His thinking on this topic was strongly affected by the conviction that God had originally created the solar system so that the year would consist of exactly 52 seven-day weeks. (To Jones, the seven-day week was divinely ordained.) At the creation, the cycle of lunation was exactly four weeks; but the load of waters which produced Noah's Flood had disturbed the original divine harmonies, yielding the modern, imperfect scheme which required the calendar corrections he proposed. Thus did Jones reconcile his belief in God's rationality with his understanding of scientific principles.[9]

September, 1752

SUN	MON	TUE	WED	THU	FRI	SAT
		1	2	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

This is how September looked in the year when Protestant countries finally changed from the Julian to the Gregorian calendar. Rioters chanted, ''Give us back our eleven days!'' George Washington wound up with two birthdays.

Weakness of Our Calendar

Because our calendar has evolved in response to beliefs and usages many of which are now outmoded, it suffers from a number of deficiencies which modern reformers still dream of correcting:

- The year does not begin at some natural point in time, such as an equinox or solstice. (This is not so much a deficiency as an irrationality.)
- The twelve divisions of the year are unequal in length and irregular in sequence. Since there can be months of 28, 29, 30, and 31 days, each beginning with any one of the seven week days, there are twenty-eight different types of months.
- As previously mentioned, because we have two types of years—common and leap—and each can begin with any of the seven week days, we must cope with fourteen different yearly calendar patterns.
- In all months, each day occurs at least four times. In a twenty-nine-day month, one week day will occur five times; in a thirty-day month, two week days occur five times, while in a thirty-one-day month, three week days occur five times. This makes for great complications in calculations relating to the performance of businesses, payrolls, and the like. Since our year cannot be divided into equal quarters or halves, and since the months are of irregular length, our week, the most artificial of the units we employ, is the largest consistent measure.
- Days and dates are not synchronized, so that if a periodic event is scheduled by the date, for example July 4, the day varies, and if the event is scheduled by the day, such as Thanksgiving, which is set on the Thursday of the fourth week of November, the date of celebration varies. For Easter, regulated by both the moon and sun, there are 35 possible dates. The Jewish Passover feast is similarly irregular.

Because of these inconsistencies, there have been a number of attempts to modernize the calendar. For example, the government of Revolutionary France legislated a new calendar into existence on April 7, 1795 (on the Gregorian system). The plan adopted was exactly that of the ancient Egyptians, with only the names changed. Starting in 1793, the year would begin on September 22, approximately at the autumnal equinox. There were twelve months of thirty days, each month divided into three ten-day "weeks." The last day of each of these periods was to be a day of rest. Since the 12 thirty-day months added up to only 360 days, the year was rounded out by the addition of five days of festivals and vacations, falling after the end of the twelfth month and before the start of the new year. Every fourth year, a "Day of the Revolution" was added to keep the calendar in step with the seasons.

In addition to this sweeping reform, the government of the Republic attempted to impose a decimal system of counting time. The day was divided into ten hours, of one hundred new minutes. Each of these in turn was divided into one hundred new seconds. This part of the reform didn't last long, and the whole scheme was finally dropped by Napoleon who went back to the Gregorian system on January 1, 1806. Apparently the abandonment of the seven-day week stirred the greatest resistance, as the day of rest was firmly embedded in the habits of the people. There must have been a great deal of grassroots grousing about the Revolutionary scheme's 41 or 42 rest days per year, compared to the Gregorian calendar's 52 or 53.

The Revolutionary calendar was introduced primarily for symbolic reasons "in an age which advocated the total obliteration of the old order in the name of progress and modernity."[10] It was designed and intended to strip the Catholic Church of one of its major mechanisms of control over social life in France. That such de-Christianizing effects could accompany calendar reform was clearly understood in the unsettled times preceding the Revolution. In an almanac published in 1788, Sylvain Marechal had proposed to eliminate the saints' days and abolish the seven-day week and the Sabbath. The royal government's response was to order the "almanac torn up and burned," branding it "impious, sacrilegious, blasphemous, and tending to destroy religion."[11]

The motives behind the Republican calendar weren't entirely negative. Even though it was impelled by a desire to reduce the influence of religion in the life of France, its design was based on the principles of reason and science, which were the revolutionaries' guiding ideals. The commission appointed to effect the task aimed "to substitute for visions of ignorance the realities of reason, and for sacerdotal prestige the

truth of nature.''[12] In addition, there was an impulse to exalt the rural life and agriculture of France: the days of the year were named for domestic animals, farming implements, grains, fruits, plants, etc.

The experience with the Republican reform emphasizes both the symbolic nature of calendars and the arbitrary basis of their existence. The calendar met furious resistance from Catholics, and some authorities attribute its ultimate failure to the desire of the people to retain a system based on religious sentiment. But as Zerubavel notes: ''Simply because its users had witnessed its birth . . . the new calendar could never be viewed as absolutely valid, natural and inevitable.''[13]

Beginning in 1929, the U.S.S.R. also did some experimenting with its calendar. The seven-day week was discarded (after all, its roots are found within our Judeo-Christian heritage) and replaced by one of five. The new months consisted of 30 days divided into six of the new weeks. Each week had four days and one ''Free Day'' off. This day was not common, but was staggered so as to optimize the use of industrial machinery for maximum production.

This wandering day off meant that family members might seldom have a day of rest together. Further, the short week seemed to disorient workers. So the central government modified the plan in 1932, introducing another new week, this one with six days, and with a common day of rest. The new months were replaced by those of the Gregorian calendar, but the week days were numbered, not named. The five-day week was, however, retained for some heavy industries, and people in rural areas continued to live by the traditional, seven-day week with its old names. The mild social chaos which resulted from this strange melange of weeks finally drove workers to make concerted appeals to the Soviet government for a more workable system. In response, the Presidium of the Supreme Soviet decreed the return to the Gregorian calendar in 1940, seven-day week and all.

In spite of the failures of the aforementioned efforts to produce a better calendar, there have been other reformers whose schemes were expected to correct the deficiencies of our current system. Modern attempts at calendar reform aim to organize the year so that the days of the week occur on specific dates from month to month and year to year. This can be accomplished only by removing one day from common years (two from leap years) and treating these as ''stabilizing'' days. The notion seems to have first been published by an Italian priest, Marco Mastrofini, in 1834. With one day out, the number of regular days in a common year is reduced to 364, which is divisible by 13, leading to proposals for thirteen-month calendars (each month with 28 days) with the extra stabilizing day inserted at a convenient spot as a feast day.

Such a calendar was advanced in 1849 by August Comte. In it, the thirteen months each began on Monday and ended on Sunday, with each of the seven week days occurring four times. The annual and quadrennial stabilizing days were inserted as the 29th and 30th of the last month of the year. Months were named after the world's great leaders, such as Moses, Homer, and Aristotle. Likewise, the fifty-two weeks bore the names of the lesser greats and the days of the week were named after other outstanding personalities of history. Despite the awkwardness of the naming convention, this calendar was attractive to many in industry for its regularity. Desiring time standardization and the elimination of cumbersome calculations induced by the Gregorian calendar, some companies adopted it for internal use. As of January 1, 1942, 1,062 U.S. and Canadian companies were operating under this system.

Unfortunately, the thirteen-month scheme was considered too radical by many. Seeking an alternative, Gustave Armelin, a French astronomer, designed a new twelve-month calendar in 1884. Using Mastrofini's notion of stabilizing days, Armelin took the thirteen-week quarter of 91 days as his basic unit. This quarter was divided into months of 31, 30, and 30 days in length. The years and quarters begin on Monday and end on Sunday. The annual stabilizing day is inserted as January 0: the extra leap year day as the 31st of the new thirty-day December.

Armelin's design was taken over and slightly modified to become the World Calendar, which was first proposed in 1900. This plan has four quarters of 91 days, divided into three months, two 30 days long, and one with 31 days. The year begins on Sunday, January 1 (the names of the months are not

World Calendar is displayed by Sue Feit of the Franklin Institute. Extra "World Days" are marked by "W" at end of June and December.

changed, only their lengths). The 365th day, called Year-End Day or World Day, is appended each year after December 30. Leap-Year Day is inserted between June 30 and July 1 every four years according to the Gregorian prescription.

This calendar is perpetual and possesses a simple quarterly and half-year structure, but it still has three different kinds of months. January, April, July, and October begin on Sunday and have 31 days; February, May, August, and November begin on Wednesday and have 30 days; March, June, September, and December begin on Friday and have 30 days. The intercalated, stabilizing days are neither named nor counted. Under the sponsorship of the World Calendar Association, whose membership includes people from all of western Europe and the Americas, the World Calendar was presented to the United Nations in 1956 to be considered for adoption by the entire world. The plan was rejected in committee, but the issue is presumably not dead, at least among members of the Association.

Other Styles of Calendars

Other cultures and ways of thought have produced calendars quite different from the one we accept as natural. For example, the system used by the Mayans, and later adopted by the Aztecs when they conquered the Yucatan peninsula, represented a distinctive philosophy about time-keeping. This system was more sophisticated and accurate than either the Roman or Julian calendars, yet there was no effort to correlate it exactly with the length of the tropical year.

The famous pre-Columbian Aztec stone calendar of Mexico, about twelve feet in diameter, is so accurate that it was recently used to predict an eclipse. (Courtesy Encyclopedia Britannica.)

Instead, the Mayans devised a scheme for accurately keeping track of the passage of days and for calculating dates far in the future or past with great precision. Their calendar was especially suited to the prediction of astronomical events, such as the positions of Venus and Mars.

To specify a date in the Mayan calendar required giving two names and three numbers since it consisted of three simultaneous systems for counting days. First there was the sacred almanac, called the *Tzolkin* by modern archaeologists. This was a cycle of twenty named days which repeated indefinitely, in a manner analogous to our week. These days were also numbered from one to thirteen; when the cycle of numbers was exhausted it was also repeated. In all, there were 260 distinct name-number combinations in the *Tzolkin*.

The second counting system applied was roughly comparable to our notion of a month, although it was not related to the period of lunation. This system spanned a 365-day period with 18 *uinals* of twenty days, plus a short, unlucky *uinal* of five days. The *uinals* were named, and days were numbered according to their position in the *uinal*. Finally, to completely specify a date, the Mayans stated the number of years which had elapsed from a starting date of 3300 B.C. Altogether, a date in the Mayan calendar consisted of the named-and-numbered day of the *Tzolkin*, the name of the *uinal* and the number of the day in it, and the number of 365-day years which had elapsed since the start of the calendar. For example, Venus passed between the Earth and the sun on February 4, A.D. 452. The Mayan date for this inferior conjunction is recorded on a monument as *6 Ahau, 13 Muan*, end of *Katun 14*. The first number-name group is from the *Tzolkin* and the second corresponds to the *uinal* and the number of the day in it. One *Katun* represents twenty 365-day years.

The Mayans made no attempt to correct their calendar for the extra quarter-day of the tropical year; that is, they did not intercalate days to keep the seasons in step with the dates. Instead they moved their seasonally determined events from date to date. They were quite aware that their calendar did not correlate exactly with the "true" year and were capable of correcting it, yet they did not. When Cortez invaded Mexico in 1518, he noted that the Aztec calendar was ten days off the European reckoning. But it was actually the Julian system, corrected later in the century by Gregory, that was in error.

While the inhabitants of Mexico enjoyed a very accurate calendar, the Indians of North America managed with a much more primitive system. Like many "uncivilized" peoples, they relied on a loose system of names for the lunar months and simple, pictographic records to order the years.

Among primitive people, years are not numbered but are instead designated by reference to some well-known or especially notable event, such as the appearance of a comet, a war, a plague, and the like. (The Chinese, however, use a cycle of twelve names to label their years—rat, ox, tiger, rabbit, dragon, snake, horse, sheep, monkey, hen, dog, and pig. These correspond to the positions of Jupiter in the Zodiac. We are currently in the year of the ox.) The well-known records of the Native Americans are all of this type; sequences of pictographic representations of important happenings covering periods of from sixty to as much as two hundred years. For instance, one of the Dakota calendars (several versions have been found) was a series of pictographs painted in a continuous spiral on a buffalo hide. Each year was marked with a single picture; these calendars extended over a period of about a hundred years.

Besides recording the sequence of years, Native Americans divided the year into moons, named for a natural phenomenon or seasonal occupation, such as blackberry month, sowing month, lambing month, and so forth. This is a common usage among primitive people; series of month names so chosen have been found in most parts of the world. Of course, the fact that the period of lunation is not commensurate with the length of the seasonal year meant that some rough form of intercalation was required. Some month-name series were found to span twelve lunations. For these, a month was repeated when needed. Others contained thirteen lunar months and these were corrected by dropping a month. Since these corrections were not generally supported by accurate astronomical data, the intercalations tended to produce lively debates. The Dakota frequently had disagreements about which month name to use.

As distinct from these rough methods, which have been attributed to all of the North American Indians, a Winnebago calendar stick was recently discovered which seems to indicate a precise understanding of the relation of the lunar month to the length of the tropical year.[14] This stick, which was fashioned from wood in the early nineteenth century, is believed to have originated outside the traditions found in Mexico and may relate to concepts of calendar making which began in Asia and were brought to North America twenty thousand years ago. Although Native Americans had no system of writing or even advanced arithmetic, this calendar stick was apparently used to keep track of the date within the year with great accuracy.

Future Calendars

The preceding discussion describes some of the efforts humans have expended to devise ways to keep track of the seasons and schedule time, within a fixed astronomical framework dictated by the orbital parameters of the Earth's motions and, to a lesser extent, those of the moon. As we have seen, this situation is quite complicated when closely viewed. But perhaps we will come to think of it as simple when compared to a future which includes the astronomical particulars of other worlds.

Recently there has been a renewal of interest in an expedition to Mars. In the summer of 1984, a sizable group of scientists, engineers, and other interested parties met for a week-long discussion of a trip to the Red Planet. The discussion was predicated on the fact that such a visit will be a lengthy one. Having reached our sister planet, the voyagers will be forced to settle down for a long stay—at least one and a half Earth years. That is because the relative positions of the two planets will be unfavorable for an earlier return, and thus the question arises: will the sojourners use their Earth-based calendar and time reckoning, or will they adopt a Mars-based system?

In general, the motions of Mars which relate to time keeping and calendar building are similar to those of Earth but by no means identical. The rotation period is 24 hours, 37 minutes, and 22.6 seconds. (This is the period of a sidereal day and is called a *sol*; the solar day is a few minutes longer.) Thus, an Earth-based watch will quickly fall out of step with the day-night cycle and become useless for predicting simple things like the time of sun-rise, unless elaborate corrections are made.

The Martian year is 668.6 sols in duration, almost two Earth years, and the inclination of Mars' axis to its orbit will exhibit the round of seasons we experience on this planet (in respect to the location of the sun in the sky), but with each season nearly twice as long. Since the fraction of a day left over at the end of a Martian year is nearly two-thirds rather than a quarter, differently phased leap years will be required.

On Mars, the period of measure corresponding to our month will be quite arbitrary, because the two moons of Mars, Phobos and Deimos, are very close to the parent planet (3671 miles and 12,502 miles respectively) and hence revolve around it quite rapidly. The former completes an orbit in about a third of a day and the latter in a day and a quarter. Phobos rises in the west and sets in the east.

Contemplation of a Martian calendar illustrates quite clearly how our own system has resulted from the phenomena of nature and the needs of human culture. There is no natural unit corresponding to the month on Mars, because the motion of the satellites does not define it. At the same time, there is

no week because there are no people whose activities or needs require it. As we move out into the cosmos, it seems likely that our methods for keeping time and dates will always represent a blend of the cycles of nature and the rhythms set by the human spirit.

As we have seen, the mission of calendar reformers is to devise the most streamlined and convenient means possible of allocating the days of the year to simplify the conduct of our affairs. Not everyone would give up the rich historical background which is conveyed by the structure of our present system. But for those who want to go slowly in the direction of efficiency, there is support in the realities of the motions of the Earth. The length of a day is quite variable on a small scale owing to the movement of the atmosphere, the waters of the oceans, and perhaps the liquid component of the Earth's core.[15] Besides, the braking action of the tides has been gradually lengthening our day: evidence for this exists in the fossil record. In the end, there may be no perpetual calendar.

NOTES

[1]More precisely, we use the "mean solar day." The Earth does not move around the sun at a constant rate, since its path is elliptical and its distance from the sun varies slightly from one portion of its orbit to another. This produces a slight systematic variation in the length of time required for the sun to return to a given position. Further, the inclination of the Earth's axis with respect to its orbital plane introduces a similar small variation. These effects combine to produce a total variation of up to one-half minute per day, either way. The "mean solar day" has a duration equal to the length of an apparent solar day, averaged over a year. It is the mean solar day we divide into twenty-four hours.

[2]Astronomers recognize three types of year: sidereal, tropical, and anomalistic. The sidereal year measures the time required for the Earth to make one orbit around the sun, referring to the location of the distant stars. Its length is 365.2564 mean solar days. The tropical year is the period of revolution of the Earth with respect to the location of the vernal equinox, one of the imaginary points in the sky where the Earth's equatorial plane intersects the plane of its orbit around the sun. The tropical year is 365.2422 days long: it is shorter than the sidereal year because of the slow wobbling of the Earth's axis, which causes the north pole to move slowly—the period of one cycle is 26,000 years—and produces the so-called precession of the equinoxes. The tropical year is the one we consider in calendar-making, since it measures the period of recurrence of the seasons. The anomalistic year measures the time between two successive perihelion passages of Earth. It is 365.2596 days long and differs from the sidereal year because the perturbing effects of the other planets cause the major axis of the Earth's elliptical path to slowly rotate around the sun. This year has no bearing on our calendrical considerations.

[3]Elisabeth Achelis, *Of Time and The Calendar* (New York: Hermitage House, 1955), p.41.

[4]Table I was taken from Alexander Philip's *The Calendar: Its History, Structure and Improvement* (Cambridge: Cambridge University Press, 1921), p. 17.

[5]For tables and a prescription on how to determine a long-ago day of the week for either the Gregorian or Julian calendars, see Appendix B of Bhola D. Panth's *Consider the Calendar* (New York: Columbia University, 1944), p. 131.

[6]The calendar adopted in 1582 according to the Gregorian reform has since been further refined to better conform to the actual length of the tropical year. The years 4000, 8000, 12,000, and so on are now common years. This calendar is now accurate to one day in 20,000 years. In 1923, the Orthodox Oriental Churches met at Constantinople and devised a slightly different scheme for leap years. Their calendar is accurate to one day in 44,000 years.

[7]J. B. Owen, *The Eighteenth Century, 1714-1815* (London: Nelson, 1974), p. 74.

[8]Irwin, *The 365 Days* (New York: Cromwell, 1963), p. 98.

[9]John D. Neville, "Science, Genesis, and Apocalyptic Visions," *Historical Magazine of the Protestant Episcopal Church*, 50 (1981), 19-27.

[10]E. Zerubavel, "French Republican Calendar: A Case Study in the Sociology of Time," *American Sociological Review*, 42 (1977), 868-877.

[11]G. G. Andrews, "Making the Revolutionary Calendar," *American Historical Review*, 36 (1931), 515-532.

[12]Andrews, p. 530.

[13]E. Zerubavel, *Hidden Rhythms* (Chicago: University of Chicago Press, 1981), p. 94.

[14]Alexander Marshack, "The Lunar-Solar Year Calendar Stick from North America," *American Antiquity*, 50 (1985), 27-51.

[15]John Wahr, "The Earth's Rotation Rate," *American Scientist* (January-February 1985), p. 41.

Nancy McAfee

Philip Johnson's Play House

Post-Modern Architecture for Cleveland

Along a decaying stretch of Euclid Avenue in Cleveland, Ohio, just west of University Circle and Case Western Reserve University, where drivers used to see only a square, yellow-brick Sears Roebuck store and its parking lot, they now come suddenly upon a startling complex of buildings fancifully combining a dome, a crenelated tower, circular windows, Romanesque arches, and Italian Renaissance porticoes. Despite its diversity, the structure is unified by the repetition of roof pitches, gables, arches, window designs, and red brick. It is the new Cleveland Play House, an expansion of a fifty-year-old facility to a complex several times the original size. Architect Philip Johnson's assignment for this building was formidable: he was to combine the original, vaguely Romanesque, 1927 Play House, containing two theaters, with the 200,000-square-foot Sears building, add a third theater and public spaces, and unify the result into a whole. A lesser talent might have merely added on and connected with glass and steel, designing a hybrid of mixed images. Johnson himself noted, "I did not have to build six buildings to connect two buildings, I could have done a six-foot corridor in vinyl."[1] But Johnson's building is an entirely new entity, coaxed out of the disparate spaces and requirements dictated by the commission. In the midst of a worn-out neighborhood awaiting revitalization, the building is a remarkable sight. It is in harmony with its surroundings and with the conservative aesthetic preferences of Cleveland.

The building is intended not only to house theaters but to be itself a theatrical space. Johnson's ideas about such spaces were the guiding force behind his design. He has said, "The theater . . . is a place where you should feel good. You should be elevated by your surroundings in order to make it a celebration."[2] Johnson wanted the public spaces of the Cleveland Play House—the lobbies, the entrances, and the actual theater, as well as the exterior—to be theatrical, to prepare patrons for the magic of the theater. The units he added to the existing Play House, which was designed by Philip Lindsley Small and Charles Bacon Rowley in 1927, flow together, transcending their individual forms. Vistas unfold at every turn as passages connect the buildings of the complex together, alternating open areas with closed volumes. The massive space of the domed, colonnaded rotunda yields on one side to a smaller, octagonal lobby dominated by the geometry of a dramatic black-and-white terrazzo floor. A related floor design is repeated in the still smaller circular adjoining space that serves as a transition to the original building housing the Drury Theater. A long, rectangular lobby at the other side of the

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Although Philip Johnson, designer of the new Play House complex, and Nancy McAfee, his admirer and interpreter, were both born in Cleveland, she was not aware of his work until she moved to Houston. Her interest stems from a visit to a private house he designed: "The spaces flowed so beautifully and were so visually pleasing that I experienced an immediate conversion." She has also lived and worked in New York State (where she earned an A.B. at Cornell University), New Jersey, and Japan. She came to the field of art history via a long career as a studio artist, working in watercolor, paper, and fibers. She says she has been "fascinated by the aesthetics of architecture for twenty years—ever since student summers spent in Europe among the monuments of antiquity." She is currently a candidate for the master's degree in art history at Case Western Reserve University.

Architect Philip C. Johnson

domed rotunda, serving the Kenyon C. Bolton Theater, is also marked by the drama of a black-and-white floor. The theater-goer is lured into these spaces by the prospect of variety, detail, and elegant materials.

The exterior presents a comfortable, yet striking unit, combining Johnson's new, eclectic forms with those of the original structure and successfully concealing the massive Sears building. Surrounded by its ample grounds and parking facilities, landscaped with a grant from the State of Ohio, and beautifully detailed down to the elegant concrete pylons ringing the front traffic circle, the resulting mass looks coherent from Euclid Avenue.

A key element in the new complex is the almost totally unaltered presence of the original building, and the obvious influence it had on Johnson's design. The 1927 Play House, with its simple, rectilinear shapes, minimal detailing, and spare facades articulated by the interesting colors of its brick-clad surface, was praised for its dignified character when it was built. Johnson has shown his respect for these qualities by using the original building as a point of departure, thereby preserving an element of history for the new structure. Although other periods of architecture are referred to, the restrained materials, design motifs, and the dependence on mass and texture to articulate the entire new complex constitute a tribute to the original Play House design. Johnson's regard for the integrity of the older structure, as well as his use of other historical motifs, make this building a striking example of Post-Modern architecture, a style marked by a revival of historical precedents.

The circumstances surrounding the choice of Philip Johnson to design the Play House addition for his home town are well known. He grew up with the Play House and has called this project a "labor of love." Because Johnson is one of America's most prominent architects, and because his work has always been sufficiently innovative to generate considerable controversy, his Post-Modern design for the Play House building came under national scrutiny from its inception.

The Play House commission came at a time when a flurry of controversial buildings was coming off the drawing boards of Johnson's New York firm of Johnson/Burgee Architects (now renamed John Burgee Architects with Philip Johnson, to reflect Johnson's "retirement," at age 68, from the more mundane tasks of the firm). Johnson's latest building designs, beginning in 1981 with the AT&T skyscraper on Madison Avenue, have attracted critical attention because they are filled with historical allusion to classical architecture and are a marked departure from the "glass box" structures that have been the dominant trend in American architecture for the past four decades. His buildings have been labeled by critics as "Post-Modern" and widely noticed because Johnson was one of the first in the world of commercial architecture to use this style for an important corporate building. The significance of the AT&T building for widespread acceptance of the Post-Modern style was unmistakable. The design of the Cleveland Play House, while on a much smaller scale than the AT&T building or his Gothic glass "cathedral," completed in 1983 for Pittsburgh Plate Glass's corporate headquarters, manifests design kinship with these larger buildings. Its importance in the architectural world has thus been assured.

Some critics have given the new Play House pejorative labels. It has been called Philip Johnson's "play house," "a Romanesque village," and criticized as a mere pastiche of various classical buildings. Because it and Johnson's recent skyscrapers are clearly departures from his previous work, some critics have suspected a certain capriciousness on Johnson's part; some even sug-

Top: Johnson's Play House seen from Euclid Ave. Right: the original 1927 structure, incorporated into the new complex.

gested an attempt to jump on the Post-Modern bandwagon.[3] Much of this criticism implies that the Play House building is a whimsical accumulation of historical references tacked together, and ignores the overall success of its design. Perhaps the temptation to criticize the work of this successful self-proclaimed maverick is overwhelming. Perhaps the distance of this building from established ''Modern'' tradition makes it difficult to critique seriously. But the building is successful because it has solved the specified problems of the commission. It is also successful as a statement in the vocabulary of the important new Post-Modern style of architecture, as well as aesthetically satisfying. For these reasons, it deserves serious consideration in the context of architectural history.

The Post-Modern Style

Two exhibitions at the beginning of this decade have helped to codify our understanding of what is generally meant by the term *Post-Modern*. The 1980 Venice Biennale marked the first official recognition and labeling of this architectural movement. That exhibition, entitled ''Post Modern Classicism,'' featured twenty building facades designed by the world's most prominent architects, with a mind-boggling diversity of historical references, such as columns, pediments, loggie, and arches. The international prestige of the Biennale brought Post-Modernism wide recognition.

In 1981 the Smith College Museum of Art held an exhibition entitled, ''Speaking a New Classicism: American Architecture

Now.'' It displayed models and renderings of contemporary architecture, including the Cleveland Play House, that featured adaptations, transformations, and manipulations of classical elements. The Smith exhibition defined a reference to a classical motif quite broadly, as had the Biennale, allowing for both direct quotations from history, such as Doric columns, and indirect historical allusions such as a design in the ''style'' of the sixteenth-century classical Italian architect, Andrea Palladio. It accepted buildings with classical motifs used structurally (such as the Play House rotunda's dome, which actually serves as a roof), or decoratively, such as the inclusion of a Corinthian pilaster on a facade. Buildings in the exhibition displayed both reverent and ironic references to the architecture of antiquity; there were stone arches alongside stainless steel columns, and an authentic Roman loggia with neon moldings.

This tolerance for loose definitions of *classicism*, or *historicism* (a somewhat broader term), has come to characterize Post-Modern architecture. Consequently, the style is being used to serve many ends. The Humanists—architects concerned with preserving human values, such as the emotional and non-rational in buildings—are using it. The Formalists, interested in the qualities of line, form, texture, and space, are using it; as are the Contextualist architects, wishing to conform to local cultural needs and traditions. There are tenets of its theories which suit every philosophy of design. Because of this breadth, no clear definition of Post-Modern has emerged. It is a style still in transition.

It should be noted that the study of the architecture of the past as the source of inspiration at the heart of Post-Modernism did not suddenly begin in 1980. It has grown slowly over the past several decades as dissatisfaction with the International Style of architecture caused architects to think more carefully about modernism and its alternatives.

The term *International Style* was coined by Philip Johnson in a book he wrote with Henry Russell-Hitchcock in 1932 to describe the architecture then emerging from Germany. This style, which is typified by what we think of today as ''modern'' or ''glass box'' buildings was enshrined in the 1956 Seagram building in New York designed by Mies van der Rohe (1886-1959) and Philip Johnson. The International Style grew out of nineteenth-century ideas about what was ''right'' and ''moral'' in buildings. Adherents emphasized the importance of volume (the size and shape of space enclosed by its walls), regularity, and the similarity of parts as a way of organizing elements, instead of symmetry. They depended as well on the intrinsic elegance of materials, technical perfection, and fine proportions. The shape of internal space and the rationality of its structure and function were the most important concerns. The phrases ''form follows function'' and ''less is more,'' now clichés, were the ruling dicta of this style. The expressive nature of a building's exterior was ignored and details were held to a minimum. In this respect, the International Style was unclassical because elements such as the Greek orders were avoided. The classical tenets of proportion, order, and discipline were still considered important, but their presence was merely latent. They represented the theoretical basis for this design, but were not overtly apparent in the facades of buildings.

The principal ''fathers'' of the International Style were Mies van der Rohe, Walter Gropius, and Le Corbusier. The style began

Mies van der Rohe's Seagram building (1956) epitomized the International Style.

to change almost from its birth, as succeeding generations of Modernists began to oppose or dilute the canons of its original simple idealism. Even the major founding figures of the movement joined in this creative evolution of the style they had originated, producing new themes and enriching their earlier work. Common aims were rooted in Modern theory, but individual solutions were often distinctive and unique, and valued for these qualities rather than for their Modernism.

Beyond the International Style

From 1930 on, the degree to which one was "Modern" was often gauged by the violence of one's clash with established values and traditions. "The newer, the better" seemed to be the byword of these decades. But the imperative of originality weighed heavily on Modernism. John Jacobus, author of an important monograph on Philip Johnson, has suggested that the buildings that resulted from this mentality were, especially at the hands of designers less skilled than the main figures, more illusions of creativity than creative solutions to design problems.[4] What had begun as an ideal of pure design drifted away from its original precepts, laying the groundwork for its own decline.

The main objections to Modern International Style architecture are directed at its lack of humanistic content. In its watered-down versions, it was often seen as too slick and efficient to be comfortable. In addition, people are unable to "read" Modern buildings; that is, they are unable to learn anything about a building from its exterior. The lack of ornamentation that is an essential characteristic of the Modern style left no clues about scale, or proportion, or function. Such buildings have all tended to look alike, and it has been difficult for people to take pleasure in this sameness. The Modern sanitation plant looked like the Modern school, which resembled the Modern library.

In the face of this growing discontent, especially for the man-in-the-street who has long since ceased to be excited by the pure aesthetic that appeals to the elite, traces of historicism began to appear in the work of the '50s, offering an alternative to Modernism. Architects went back to the architecture of antiquity, particularly the classical periods of ancient Greece and Imperial Rome; as well as to the architecture of later periods in history when classical forms were revived, such as the neoclassicism of the late eighteenth century. Columns and arches began to be seen again, as well as exterior decorative motifs, pediments over doorways, deliberate axial symmetry, and the rediscovery of building materials that had been unfashionable for a century. Sporadic in the '40s and '50s, the trend first became popular among the European avant-garde, especially in Italy.

In America, historicism was at first confined to private, small-scale commissions. Before 1980 it was regarded with skepticism among commercial architects, and certainly never suggested for corporate architecture. *New York Times* critic Paul Goldberger suggests that corporate architecture, by definition, reflects corporate values. In the decades preceding the early 1970s, the image of efficiency and modernism projected by the glass box was universally preferred by corporations. In the post-Vietnam era of the '70s, after these same corporations had undergone some hard times sociologically and economically, the values of humanism, warmth, and tradition began to be perceived in the work of corporate image makers. An architectural style which married the prestige of history with the comfort of tradition became more saleable. The glory of the corporation could now be expressed by a building that echoed a previous era—as long as it was also modern enough to convey pragmatism, solidity, and dependability.[5]

Growing commercial endorsement, combined with the nostalgia boom which began in the '70s, and the concern with preserving and renovating older buildings, ensured that the trend toward historicism would gain momentum. This trend continued until it could no longer be ignored or remain without a label. Charles Jencks, a chief spokesman for this style, has carefully pointed out that the growth toward historicism was gradual. While Post-Modernists are committed to changing the present, their architecture is "evolutionary," rather than "revolutionary," because it recognizes that its roots are in Modernism, while it seeks to reverse and/or modify the language of that style.[6] It is not wiping the slate clean to begin anew as the International Style did.

Post-Modernism and Philip Johnson

Although Philip Johnson has been called a Post-Modern architect because of buildings like the Play House, he himself has only recently admitted to being a "latecomer" to this style. Previously, he eschewed any official connection with the movement. Although Johnson, like many creative talents, is not always the most accurate source of information about himself, a 1980 statement reveals how he understands his position vis-à-vis historicism:

> I'm not post modern, just a little bit historical. I don't like to be thought of as a pioneer, because I'm quite reactionary. It's just that reactionary has caught up with progressive now . . . I was an architectural historian before I was an architect, so any post modernism is just an amusing accident. To me, I'm as much a modern architect as ever.[7]

A brief look at Johnson's background bears out his claim of an early predisposition toward the classical, and makes it clear that his current work, including the Play House, is thoroughly consistent with his entire career. Born in Cleveland in 1906 and growing up on Cleveland's east side, he was exposed to an environment full of classically-ornamented buildings. Some of the finest examples of American classical residential architecture line the streets of Shaker Heights and Cleveland Heights, including homes designed by Meade and Hamilton in the tradition of the European "country house."[8] In addition, Johnson as a child traveled extensively with his mother on many "grand tours" of Europe. Although he disavows this influence on his sensibilities, his exposure to fine classical architecture and the monuments of antiquity was extensive.

After graduating from Harvard in 1930, Johnson studied the emerging "new" architecture of Europe, which he would later name the International Style. He examined the work of the founders of that style, Mies van der Rohe, Walter Gropius, Le Corbusier, as well as that of Karl Friedrich Schinkel (1781-1841), a German neoclassicist whose work profoundly influenced his mentor, Mies, and himself. One of Schinkel's buildings, a villa in Potsdam (Germany), is strongly reflected in the Play House design. Both the sensitivity to its surroundings, and the eclectic combination of forms in the Play House echo Schinkel's humanistic philosophy of urban design.

Johnson returned to America in 1934 with this Modern/neoclassical "baggage" as a basis for his venture into architecture as a profession. After a stint as an architectural historian with New York's Museum of Modern Art, he studied architecture under Gropius at Harvard and then served an internship with Mies in New York.

After freeing himself from the direct influence of Mies in 1956, he allowed the classical elements in his philosophy of design to become apparent. A 1961 building, the Amon Carter Museum in Fort Worth, Texas, reflects an emphasis on logic in the form of each space and in accommodation of the space to its purpose—in this case the display of an art collection—which can be understood as classical. There is careful organiza-

Carl Friedrich Schinkel's villa near Potsdam, Germany, influenced Johnson's Play House in its eclectic combination of forms and its sensitivity to the surroundings.

Johnson's Amon Carter Museum in Fort Worth, Texas (1961): careful attention to the movement of people through spaces.

tion of the sequential procession of people through space. Visitors are funnelled up a series of low, sprawling terraces, stepped up toward the building. The approach is pre-determined, and turns the visitor as he climbs, changing his view of the building several times. Classical design elements appear, although in modern disguise: the columns and arches of the facade, even though the arches are squared and the columns inverted and tapered, function in the classical manner as a portico. Careful siting is evident; the building faces a public space and becomes part of that space, functioning as a Greek marketplace civic building might.

Another early trademark of Johnson was the inclusion of carefully chosen, elegant details. This he inherited from Mies, along with a preference for luxurious materials. Marble, granite, and bronze appeal to Johnson more than concrete and steel. Even at the earliest stage in his career, Johnson's use of historical motifs and materials, classical logic and rationality, combined with the vocabulary of the International Style, conferred a unique quality of elegant modernity on his buildings.

Historicism in the Play House

From this early, somewhat latent classicism—expressed more philosophically than overtly—it was a relatively minor step for Johnson to use historical elements more expressively and openly. In the Play House there are many elements borrowed from earlier periods: ancient Rome, the Renaissance, eighteenth-century neoclassicism, and even nineteenth-century Romanticism. Johnson did not merely copy motifs from these periods, however. In each case, the selected motif has been interpreted to suit a particular building. The scale and form have been changed, or the motif has been combined with other design elements which alter its effect. Johnson has been aptly described by his biographer, Paul Jacobus, as "Rarely an inventor, but almost invariably an intelligent user of existing forms."[9]

It seems probable that Johnson visualized a design based on historical elements in the manner of Karl Schinkel. Schematically, the complex is very similar to Schinkel's Hofgartnerei, a villa he designed in Potsdam and built in 1834. Like the Play House, it is an eclectic collection of shapes, pulled together additively and unified by the repetition of arch and column motifs. It is a play of open and closed forms in a sequential arrangement that is, geometrically, almost identical to the Play House. The relationship between the two buildings is unmistakable. The similarity is not accidental. Johnson has said of the Hofgartnerei, " . . . it has haunted me ever since I saw it thirty-two years ago." He praised the villa's uniqueness in "the creation of emotional space, by such casual and eclectic means."[10]

The focal point of the Play House complex is the large domed rotunda which is ultimately based on a Roman temple, the Pantheon, erected by the Emperor Hadrian in the 2nd century A.D.; and on Gianlorenzo Bernini's Baroque church, Santa Maria dell' Assunzione, c.1662, in Ariccia, Italy. John-

Classical analogues of the Play House dome. From top: the Pantheon; Bernini's Santa Maria dell' Assunzione in Ariccia; Brunelleschi's Pazzi chapel in Florence.

son's central form is an interesting combination of the two. Like the Pantheon it is a circular, domed ring wall with a rectilinear portico. The Pantheon's ring wall, however, is divided into three tiers by moldings, while the Play House ring wall is divided into two separate stories, with the second ring set back and smaller in diameter than the taller base story. The rectilinear porch of the Pantheon rises to the base of the dome and is nearly as wide as the ring wall, while Johnson's porch stops short of the height of the base ring and is only about two-thirds as wide. By changing the relationship of the portico to the rotunda, Johnson has de-emphasized the mass of the rotunda to keep it from overshadowing the other forms in the complex, and placed it on a more human scale than its antique Roman counterpart which was intended to inspire awe in the viewer.

The pedimented portico resembles that designed by Bernini in Ariccia in its proportions and basic elements, but Johnson has simplified the detailing. The column bases and capitals are rectangular granite slabs, instead of the more complex moldings Bernini used. The spaces between the columns have been squared off, whereas Bernini retained the arched space. Johnson has also broken the pediment with his large central archway. In this last detail, the portico resembles that on Brunelleschi's Pazzi Chapel in Florence, c.1430, although the latter has much thinner columns than the Play House, and again, much more decorative detailing. The portico in both buildings has the formal function of defining the building's orientation and directing the procession of space from the exterior to the interior. The influence of the Brunelleschi building is also evident in Johnson's placement of round windows in the second-story ring wall. The resulting central form, which Johnson coaxed out of all these historical precedents, is used to change the scale at the axial center of the Play House complex from the small buildings at the left, to the larger buildings on the right.

The octagonal lobby to the immediate left of the Rotunda is reminiscent, in its polygonal shape, of the hexagonal Baptistry in Florence, begun c.1060. The crenelated tower further to the left is presumably a reference to a castle, currently a Johnson favorite. (He recently proposed a residential sky-

scraper for New York developer Donald Trump, combining five of these ''castle tower'' shapes.)

The large forms to the right of the rotunda, housing the Bolton Theater and its elaborate stage equipment, have very spare detailing and feature large expanses of brick wall which render them vaguely Romanesque. The solid massiveness of the facade is relieved by the horizontal bands of light-colored limestone moldings which also unite this section to the others. There is also the interruption of a Roman arched exedra, the indented niche-space, and rows of narrow arched windows (again Romanesque) at various levels, which echo those of the 1927 Play House. At the far right a barrel-vaulted passageway projects at street level from the frontal plane of the complex, providing a stopping point to the progression of shapes from left to right.

The Play House interior is also replete with historical references, beginning, again, with the domed lobby space for which Johnson cites Brunelleschi's Florentine Sacristy at San Lorenzo, c.1421, as the inspiration. The Play House's umbrella-ribbed dome with oculi centered between ribs is similar to the Sacristy dome. The latter, however, is on pendentives, and tops a square space, while Johnson's dome rests via steel buttresses and columns on the cylindrical drum beneath it.

Brunelleschi's small building, his first ecclesiastical design, is noteworthy in the history of architecture for its revival of classical Greek and Roman architecture. His use of standard, regularized rectilinear units, combined with simplicity and discipline, heralded the beginning of the Renaissance pre-occupation with classicism. While the Play House rotunda is not a copy of the Sacristy, it is informed by the spatial relationships and the general structure of the early Renaissance building. The similarities are mainly in the classic regularity and consistency of both spaces.

Johnson also mentions the third-century A.D. Roman church of Santa Costanza as a source for the rotunda interior. The floor plans of the two buildings are similar, with a dome resting on a central ring of columns which are surrounded by an ambulatory. The ambulatory space in Santa Costanza, however, is much more complex than Johnson's.

From top: Play House dome with Bolton Theater area at right; umbrella ribs of Play House dome; Dome of Brunelleschi's sacristy at San Lorenzo.

Patterned terrazzo floors like those already installed in lobby will add drama to main rotunda when completed.

In the Play House rotunda, twelve brick-clad columns, placed at regular intervals, ring the open central space which rises a dramatic 54.5 feet to the top of the dome. Johnson's unusual choice of brick for the columns has a precedent in the first-century basilica in Pompeii. The ambulatory space between the columns and the exterior wall contains recesses for ticket windows and coat rooms. It is lit by the circular clerestory windows by day and custom-designed bronzed aluminum chandeliers by night, and, when the lobby space is finished, will have a lowered ceiling, to provide a contrast with the soaring central space. There will also be a black-and-white, patterned terrazzo floor in the rotunda. (Play House officials explained that the lobby was purposely left unfinished to remind patrons that additional funds were required to complete the building.)

The interior of the Bolton Theater has been likened to an eighteenth-century court theater with its three tiers of plaster-covered "boxes" lining three sides of the auditorium. These actually house lighting equipment rather than patrons. Responding to the specialized acoustical and spatial needs of a theater space, Johnson has provided both elegance and intimacy with the gentle curves of the seating rows, echoed in the (reversed) curves of the boxes, and the shape of the proscenium stage. The stage is clearly delineated from the seating area by a change in materials from the plaster of the boxes, to the dark wood that frames it. The shapes also change from curvilinear to angular at the edge of the stage. This transition effectively divides the audience from the stage and is in philosophical agreement with the idea of a proscenium stage being a framed illusion, a window into another world. Johnson also emphasized this strong break between audience and stage in his New York State Theater at Lincoln Center (1964). For the Bolton Theater, Johnson selected lighting fixtures of bronzed aluminum, variations of which are used throughout the complex. These are typical of the elegantly modern detailing in the theater, which does not conflict with the more traditional design elements.

The new entrance to the smaller Drury Theater typifies Johnson's concern for the way people proceed through a space. The steps from the lobby lead upward through the doors, and then into the seating area, articulating the anticipatory drama of the theater-going event. This approach surpasses the standard entrance procedure with patrons arriving uneventfully in the hall at the level of the seats at the rear.

Throughout the Play House interior, overscaled geometric shapes abound, from floor designs to windows and doors, creating excitement and a sense of continuity, a sense of *place*. Doors at either end of the promenade space feature rectangles divided vertically into four doors, topped by other rectangles of equal size, divided in two and intersected by a perfect circle. The circular top is then echoed in the vaulted ceiling. The design is a striking exercise in the rational combination of geometric units.

Play House entryway: "a striking exercise in the rational combination of geometric units."

Johnson considers his Play House design "a theater unique in the world," and indeed it differs markedly from other contemporary theater buildings, such as that at the Kennedy Center in Washington, D.C., or Johnson's theater at Lincoln Center. The differences can be explained by Cleveland's need for a smaller-scale building and by the necessity of accommodating already existing structures at the Play House. The differences can also be explained by Philip Johnson's evolving style, which makes this, one of the country's newest theater complexes, also one of the best examples of Post-Modernism. Architect Peter Eisenman has described Johnson's never-static style:

> It is Johnson's nature to be always one step ahead, astride every situation while others are off balance. And it is this capacity to understand and pinpoint where that balance is at any given time that gives Johnson the opportunity to remove himself from the center, to be on the edge, and to be able to jump aside to yet another delicate periphery when the center has caught up *to his* former position. Thus, it is . . . a temperament and an insight that makes him impatient with the status quo.[11]

What Philip Johnson has done in the Play House design is to create something new out of remnants of the past. Some have called this use of historical reference an effort to comment upon the influence of history on the urban modern environment: people's needs have shaped the way our buildings look; population density has altered the way we use space; changing tastes have produced different styles in architecture, and often eclectic combinations of these styles. Certainly the Play House design reflects all these

considerations—perhaps with a grain of humor. But Johnson's blend of the historical with the new also makes the Play House a codex of the kind praised by the nineteenth-century American author Henry James when he spoke of the monuments of ancient Rome. James described Roman ruins as traces of successive moments in time that shed a composite light on history. Perhaps that is one reason that the Play House building feels so comfortable to the theater patron. While its modernity provides excitement and practicality, its historicism reminds us that the past—of the Play House as well as of our civilization—is always with us.

GLOSSARY

Ambulatory: A sheltered space for walking.

Classical architecture: Architecture that has its roots in Greek and Roman antiquity. It uses recognizable elements from the vocabulary of antiquity, such as the column, applied in standard ways. The orders are recognizable throughout all classical buildings. The demonstrable harmony of the parts of a classical building is achieved by using related proportions in all parts of the building. Order and discipline, as well as the use of some form of the traditional columnar orders must be present.

Clerestory: That part of a building which rises clear of the roofs of the other parts and whose walls contain windows for lighting the interior.

Crenelated: Having a molding with an indented pattern.

Exedra: An indented, niche-like space intended as a conversational area in antiquity, but used decoratively in subsequent ages.

Oculi: Round openings to admit light.

Order: The total assemblage of parts comprising the column and its appropriate entablature (the part of a building which rests on the column).

Pediment: The triangular space created by the sloping eaves and horizontal cornice of a gabled roof element, commonly used over door and window openings.

Pendentive: The curved, triangular-shaped vaulting springing from the corners of a rectangle which allows for a transition from a rectangular space to a round or polygonal dome.

Pilaster: A shallow column or pier merged with the wall which does not serve a direct structural function.

Portico: A place for walking under shelter, usually applied to the columned porch before the entrance to a building.

Proscenium stage: A picture-framed stage facing the audience. It does not extend out into the audience as a "thrust" stage does.

NOTES

[1]Wilma Salisbury, "Exile Returns to Design Playhouse," Cleveland *Plain Dealer*, Nov. 1, 1983.
[2]Randall Pollack, "Philip Johnson's Playhouse," *Northern Ohio Live*, Sept. 22, 1980, p. 42.
[3]Ada Louise Huxtable, "The Troubled State of Modern Architecture," *Architectural Record*, January, 1981, p. 77.
[4]John M. Jacobus, Jr., *Philip Johnson* (New York: George Braziller, 1962), pp. 11-13.
[5]Paul Goldberger, "The New American Skyscraper," *New York Times Magazine*, Nov. 8, 1981, pp. 68ff.
[6]Charles Jencks, *The Language of Post Modern Architecture* (New York: Rizzoli, 1977), pp. 6-8.
[7]"Mr. Johnson's Hidden Jewel of a Museum," *AIA Journal*, May, 1980, p. 53.
[8]Mary-Peale Schofield, "Meade and Hamilton's Livable Cleveland Houses," *The Gamut*, no. 6 (Spring/Summer 1982), pp. 24-39.
[9]Paul Jacobus, "Philip Johnson: His Work, His Times," *Progressive Architecture*, February 1984, p. 100.
[10]Hermann G. Pundt, *Schinkel's Berlin* (Cambridge, Mass: Harvard University Press, 1972), pp. 86-88.
[11]Peter Eisenman, "Introduction," in *Philip Johnson: Writings* (New York: Oxford University Press, 1979), p. 168.

Pen drawings by the author's daughter, Karin A. DeStefano.

Carsten Ahrens

Recollections of a Dragonfly Man

"There's no explaining hobbies," my mother said; "my son when little more than a toddler was fascinated by a johnny whitetail, a dragonfly that flew about the lilypond. He caught the insect in a handmade net and has been collecting them ever since . . . Canada, Alaska, the Everglades, South America, Africa. I don't know where all."

I netted and pinned fifty species from Ottawa County, Ohio during my grammar-school summers. In college, my master's degree was in entomology and the thesis was on the order *Odonata* (odonates for short), which includes two suborders, damselflies and dragonflies. Though these are among the most ancient of insects, the number of species is small—about 5,000 in the world, in contrast with over 500,000 species of beetles. About 450 different odonates fly in America north of the Rio Grande. Fossils show that dragonflies with wingspreads of thirty inches patrolled the swamps of our planet eons before the dinosaurs stalked it.

All odonates begin life from eggs laid in or close to water. After one to four years of aquatic life, they emerge as adult insects and, having changed the form of their breathing apparatus and developed four intricately veined wings, they become aerial for the rest of their life cycle, that is, until the first frost. In every stage they are predatory, as well as prey to other predators.

Each species has its unique color pattern, and the range is great. Our largest U.S. dragonfly (*Anax walsinghami*) is a western species seven inches long, with a wingspread of five inches. It is speed glorified! When I collected one along an irrigation ditch in Farmington, Utah, I was sure I had netted a bullet!

On a cloudy day odonates hang head upward in vegetation, but when the sun appears, they gracefully, tirelessly, pursue food. One of their many common names, "mosquito hawk," is quite apt. Each insect holds its six legs like an open basket and,

once it scoops up the prey, instantly lifts and mangles it with sidewise-working jaws. There is no stopping, birdlike, to perch and savor the food. An exception is a primitive odonate (*Tanyopteryx hageni*), which I've collected in Cades Cove, Smoky Mountains, and high up Snow Creek in Yosemite; and which I've watched near Juneau, Alaska. This big dragonfly, like a flycatcher, will cling to a tree trunk, make sallies after passing insects, then return to its post. When a dragonfly clashes with another of equal size, like knights in bright armor in a medieval joust, both tumble to earth. Eight big rapidly-beating wings, striking each other, give off the sound of crumpling cellophane.

Once, when a boy, I had the job of distributing hay brought in by farm hands to the loft of our great barn. Between loads, I'd climb to a platform by a large window in the barn's gable and watch hundreds of insects brought in with the hay seek vainly to escape through the sunlit panes. I must have been a little monster, for I would lift a large dragonfly, also trying to find a way out, hold it by its folded wings, and offer it an endless variety of insects to eat. It refused nothing, would eat one insect after another as long as they were offered. Once, irritated by its greediness, I turned the odonate's abdomen so that it was in front of its jaws. It began to eat itself and continued this strange task until the body part was too short to reach its mouth. I was sure that dragonflies couldn't feel discomfort like more advanced forms of life.

The head of an odonate is mostly eyes and mouth. The tiny antennae and the three small eyes (ocelli) seem unimportant. (Ocelli are vestigial organs, probably once useful, but now of doubtful function.) But the great eyes, composed of thousands of six-sided facets, make sight possible to the right or left, ahead or behind, above or below. A collector must be wary or he won't succeed. Odonates do not see food unless it is moving. A mosquito at rest is safe, but any small traveling object will be assaulted, and fast. In the Everglades, a friend and I found a species (*Gynacantha nervosa*) that hawked the treetops high overhead; they never came down to net level. My comrade had a sort of sawed-off shotgun that used shells filled with birdshot. He often collected large odonates with it, but the specimens usually came down in pieces! I discovered that by throwing a handful of pebbles skyward, I could entice some high flyers to follow the stones down into the range of my net.

The mouth of an odonate is equipped with upper jaws (mandibles) and lower ones (maxillae) very different from those of higher animals, yet quite efficient. The lower lip (labium) in the larval forms works like a sliding pincers that reaches out, grabs, pulls in some aquatic creature, and holds it firmly while the sidewise-working jaws initiate the digestive process. A large odonate larva will catch, skin, and devour a tiny bullhead fish in a little less than an hour.

The chief function of an odonate's thorax is locomotion. That body part is filled with powerful muscles that operate the four multi-veined wings and the three pairs of legs. Legs are for catching prey and for clinging: odonates do not walk.

The long slender abdomen with many hinged segments gives them the name "darning needle." Each segment is equipped with a pair of openings that draw

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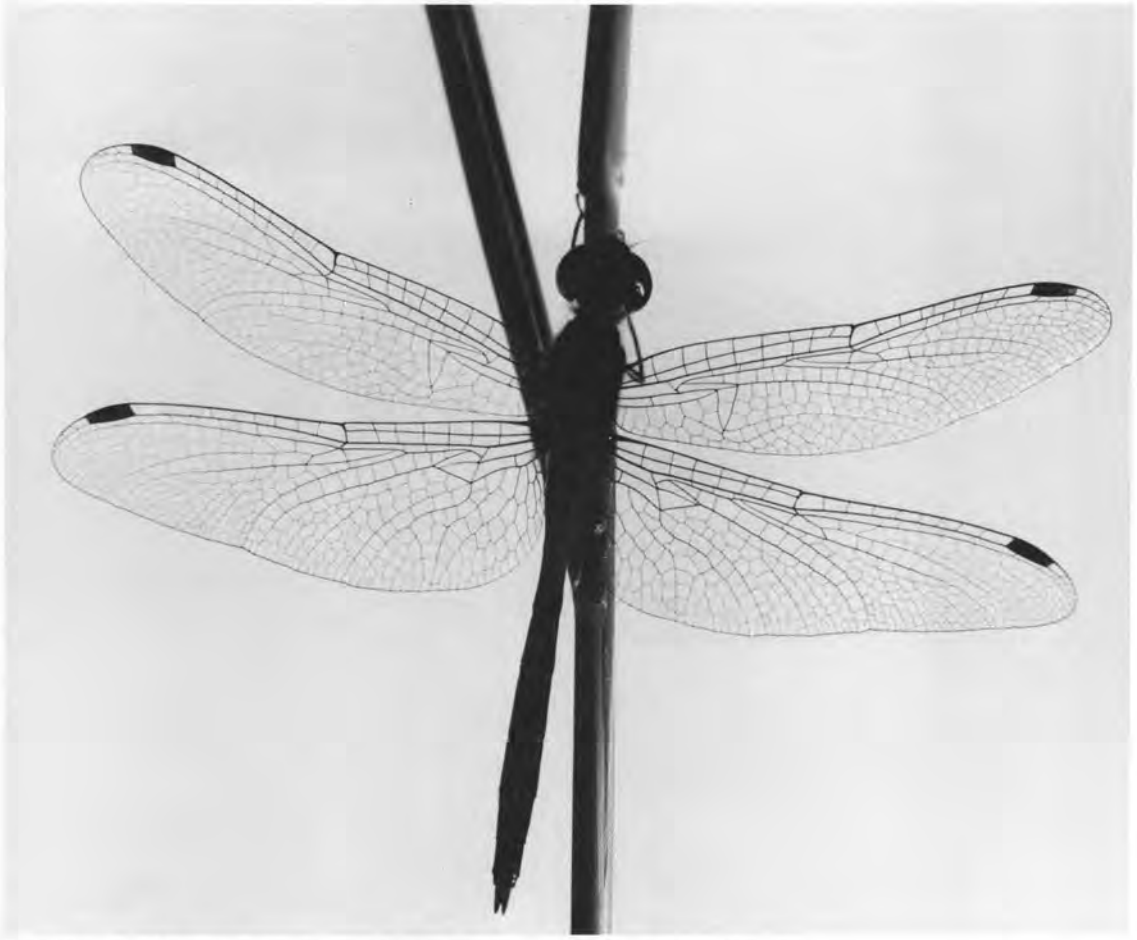
Carsten Ahrens has been keeping a close eye on American flora and fauna for more than sixty years, particularly in Ohio, where he was born on the Marblehead Peninsula, and Pennsylvania, where he lives now. He has retired from his job as a National Park Ranger-Naturalist, but not from his lifelong habit of observing what goes on in the natural world around us. He has published two books, Afoot in Penn's Woods *(winner of the Pennsylvania Outdoor Writers Association's Best Book Award), and* Along Penn's Waterways, *collections of his columns on nature (Allegheny Press). In previous issues of* The Gamut *Mr. Ahrens has reported on the habits of the Ottawa County daisy (No. 12, Spring/Summer, 1984) and the history of the Danbury Literary and Debating Society (No. 14, Winter, 1985).*



Red dragonfly, *Sympetrum semicinctum*. Photo: Runk/Schoenberger, *Grant Heilman*.

in and expel air through tubes that connect to other body parts. Here are also located the seemingly simple digestive system and the anything-but-simple sex parts. No other insect I know of has a more archaic reproductive system or undergoes a more intricate sex performance in order to bring about mating. The male has a long abdomen of ten segments. On the ventral side of segments two and three is the penis, but the spermaries are out on segment nine. Previous to copulation the sperm must be transferred from the spermaries to the tip of the penis by bending the abdomen downward and forward. In copulation, the female is swung, suspended, under the body of the male in an inverted position the reverse of his own. Copulation may take place while clinging to a branch or in flight. But this outlandish, if time-honored, system works and ultimately results in countless fertilized eggs.

My hobby has always offered me a good excuse for travel. My first collecting trip in Alaska was fun, for back then in 1937 no one had "wasted" a summer collecting odonates up there. I studied, collected, and wrote a paper on Alaskan odonates which appeared in the *Entomological News*. In subsequent years that publication used my reports on the odonates of Acadia and Yosemite national parks where I worked as a summer ranger-naturalist. Other trips have produced stories and articles on dragonflies that have appeared in thirty publications, from *American Forests* to *Woman's Day*.

In the Everglades I collected a pair of rusty, antique-looking specimens, new to science. When I brought these rare insects back to the university, my professor, addicted to odonates himself, asked that I allow him to describe the new species. He said I was young and would have many chances to

The largest and smallest *Odonata* of the continental United States: *Anax walsinghami* McLachlan and *Ischnura denticollis* Burmeister. They were netted by the author in Utah and California, respectively.

name others. I agreed, reluctantly. But it turned out that neither of us would have that honor. My mentor delayed for a year getting at the job he had insisted on doing, and in the meanwhile a collecting group from Michigan visited the Everglades, found the unnamed insect, and christened it scientifically. (That is, it was given a Latin name designating its genus and species—*Aphylla williamsoni*—the latter name, as it often is, taken from its discoverers.)

By the time a Ford Fellowship took my family and me for a year to Oregon, I had 10,000 specimens, each papered in its triangular envelope with the usual data (genus, species, sex, time and place of capture) recorded in India ink on its flap. Before we left, I shipped 1000 odonates, ten each of 100 species, to an English museum that had been bombed in World War II. I wish I had sent all of them. While we were in Oregon, a family rented our home, and the children, I imagine, opened the doors of the dragonfly cabinet and forgot to close them. By the time we returned, the cabinet had become an active mouse colony; the pounds of paradichlorobenzine I had used to discourage insect pests hadn't bothered the mice at all! A hole had been chewed through each envelope where a thorax rested; the heads, wings, legs, and abdomens were left behind. The mice knew where the protein was located.

In 1930, I moved from Ohio to McKeesport, and soon became acquainted with the swamps, bogs, lakes, and streams of western Pennsylvania and their odonate populations. Later, during a sabbatical, I surveyed the odonates in the counties that drained into the Ohio River: the checklist contained 97 species.

Near McKeesport was a willow-edged stream, Long Run. Here I found a colony of the largest damselflies (*Archilestes grandis*) known in the United States. At that time only one book had been published on U.S. odonates, *A Handbook of the Dragonflies of North America* by James G. Needham, and according to this authority, these oversized damselflies could be found only in the Pacific coast states. Yet here in Pennsylvania were hundreds of pairs of them in tandem depositing their eggs in the twigs of the willows overhanging Long Run.

Back then, our continent was sort of divided among dragonfly barons. Dr. E.M. Walker owned Canada; Dr. C.H. Kennedy, Ohio; Dr. J.G. Needham, New York; Michigan was the bailiwick of the Williamson brothers, who attached their name to my early discovery; Dr. William Proctor claimed Maine, or at least the part he ruled from his "cottage" at Bar Harbor; Drs. P.P. Calvert and Hugo Kahl divided Pennsylvania between themselves, etc. Today, all these authorities are gone; but their papers and books speak for them. At any rate, after finding the big damselflies, I wrote (in my innocence) to Dr. Kahl, the curator of insects at the Carnegie Museum, for I thought he would be interested in a western insect's being found so close to Pittsburgh. He wasn't! My statement was too preposterous to be considered for a moment. I should read the "literature" on *A. grandis*. He wrote I had probably picked the insect from the radiator of a car driven through from Washington or

from the cowcatcher of a trans-continental train.

I went to the museum to see him. He sent out word from his third-floor office that he was suffering from lumbago and was seeing no one. When I telephoned, he returned the receiver to its cradle as soon as he learned who was calling. But I finally succeeded. I rented a tuxedo, crashed the annual Founders Day affair, cornered the reluctant curator, and showed him a specimen.

"Ya, it is *Archilestes grandis*," he admitted, and again began discussing automobile radiators, etc., until I pulled out a collection I had brought along of 24 newly-pinned pairs. Then I became his friend. It was almost embarrassing. For months, should I meet him in the library, the art gallery, among the dinosaurs, or in the men's room, he would insist, in his heavy foreign accent, "Ve must have coffee."

Many species of odonates are so big that, like birds, they can be recognized at rest or in flight. True, the identification of the smaller species will require a hand lens, but many of them are so individual that they can be recognized at once. Wherever I collect, I'm on the lookout for a dragonfly called the "globe-trotter" (*Pantala flavescens*). It seems to be a true cosmopolitan, for I have yet to collect in any of our states or in any foreign country where I haven't found this species. It is not unusual in appearance, but it always seems like a friend from home.

In my old collection (the one that fell prey to the mice), I had eleven specimens of a large dragonfly, *Epiaeschna heros*, which betrayed a certain unusual taste. Almost nothing is known about this species; one specimen, a female, I netted as she was laying eggs along a ditch in Maine, but the other ten, all males, were taken after they had blundered through the open, unscreened windows of schoolrooms! Such oddities are the spice of the dragonfly collector's life; and I, for one, have never regretted the large portion of my own life that I have devoted to this pursuit.

Wojbor A. Woyczynski

Of Men and Martingales, or How to Gamble If You Must[1]

In 1812, the mathematician Pierre Simon, Marquis de Laplace, observed, "It is remarkable that a science which began with the consideration of the games of chance should have become the most important of human knowledge . . . . The most important questions of life are, for the most part, really only problems of probability." And one of the most fruitful concepts of probability theory is the simple but fascinating one called the martingale. In particular since the initial work of Joseph L. Doob of the University of Illinois in the late 1930s, martingales have thrived and gained incredible popularity, both as a technical tool and as a general abstraction of the notion of a "fair game." And the importance of martingales in other natural and social sciences has grown as the role of quantitative methods increased. Quantum mechanics made our thinking about matter probabilistic, and statistics turned all the modern social sciences upside down by making them quantitative.

But what is a martingale?

I recently conducted a modest poll on the word *martingale*. It has an obscure etymology and an uncertain origin, but may derive from Arabic, or from a Provencal word referring to the way the men of a certain village fastened their trousers. Most of my nonmathematical acquaintances did not have the faintest idea what it meant. Only Kathy, my horse-crazy friend, thought she knew: among those who ride there is no doubt that *martingale* is a part of the harness, a strap fastened at one end to the noseband and at the other to the girth to prevent the horse from throwing back his head. Some expert sailors would also recognize a *martingale* as a rope for guying down the jib-boom.

In a much closer approach to the mathematical meaning, another friend, Alejandro, tells me that in Spanish, to this day, "to have a martingale" colloquially means to have a system to beat the odds in unfavorable circumstances. In English, a somewhat similar meaning, but restricted to gambling, was very popular more than a century ago. It connoted a betting system also known as "doubling up."

In the sense I am using the word here, martingales have been around since time immemorial. In what follows, we shall see why and where.

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[1]The title paraphrases the title of an influential mathematical technical monograph by L. Dubbins and L. Savage. In the first edition the book was called *How to Gamble If You Must, or, Inequalities for Stochastic Processes*. In the second, the catchy title was quietly reduced to the second part. Reportedly, a multitude of potential gamblers bought the first edition, but almost as many returned it after taking a glimpse between its covers.

Wojbor A. Woyczynski was born in Czestochowa, Poland, and has made his way to Cleveland by way of Evanston, Illinois and Pittsburgh, Pennsylvania. His knowledge of games of chance, he says, is purely abstract and disinterested, "a practical application of the theoretical research I was doing during the last fifteen years." Dr. Woyczynski was educated in Poland, receiving his B.S. and M.S. in electrical engineering from Wroclaw Polytechnic and his Ph.D. in mathematics from Wroclaw University. He came to the United States in 1970 and is now professor of mathematics and chairman of his department at Case Western Reserve University. Among his interests he lists skiing, tennis, classical music, and sailing; and he claims never to have visited Caesar's Palace in Las Vegas.

Let us take a closer look at a simple game of chance, "heads or tails." The game is played between two players by tossing a fair (and *fair* is the critical word here) coin a number of times. Each time heads comes up the first player wins, say, \$1, and he loses \$1 if tails comes up. Assuming that each player started with an initial capital of \$0, the different possible histories of his wins and losses can be traced by following any sequence of arrows in Figure 1. Negative capital means, of course, that he is in debt.

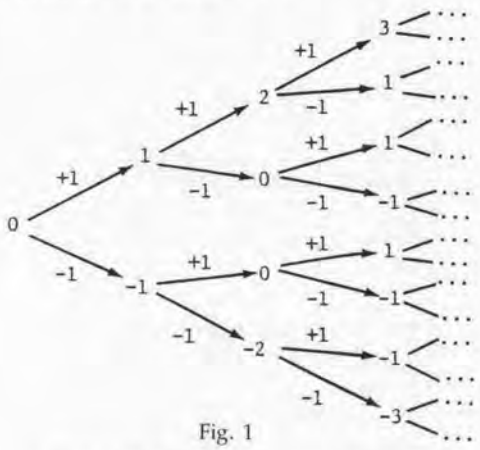

Fig. 1

This infinite tree, representing all the possible runs of the game (or more exactly, all possible sequences of fortunes of player 1) is the simplest example of a martingale. All the possible histories are equally likely and the property of the martingale, reflecting the fairness of the coin, is here exhibited by the fact that, given the fortune of the player after n rounds, his possible fortunes after $(n + 1)$ rounds average out to the fortune at the preceding stage. For example, if after two tosses the player's holding was \$2, after three tosses there are only two equally probable fortunes, namely \$3 and \$1, and they average out to $(3 + 1)/2 = 2$.

A martingale is thus the property of certain repetitive phenomena, in which "things" at the next stage somehow balance out to equal the "thing" at the present stage. Martingales can be observed around us if we are sensitive enough to look for them. Consider mobiles, the aerial sculptures that Calder taught us to enjoy, in which, at each branching, the total weight on one side of the suspending pivot exactly balances the weight on the other side. Or a naturalist can see a martingale in the branch of a tree.

The betting system of "doubling up" that I mentioned earlier, if played with a fair coin, is also a martingale in our sense of the word. The system calls for doubling the player's stake until the first win occurs and then starting all over with a unit bet. The "tree" of this game (Fig. 4), which shows all the possible histories if one follows any choice of arrows, exhibits the familiar martingale property. Starting with a certain fortune, the possible fortunes at each successive stage average out. Your expected fortune does not increase as the game progresses. By the way, Fig. 4 also helps to dispel the infamous "gambler's fallacy," the belief that after a

Fig. 2: Author's son Martin and mobile martingale.

Fig. 3: Natural martingale from friend's house.

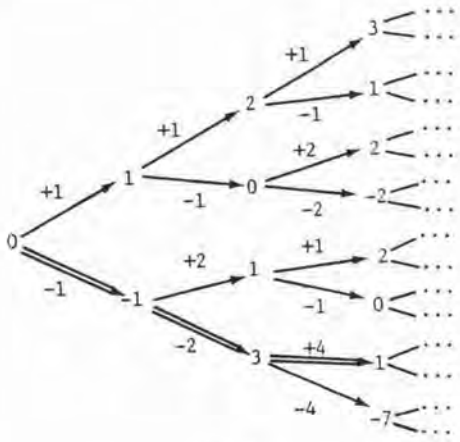

Fig. 4

long string of losses there must come a win which *guarantees* the recouping of one's previous losses and an eventual win of $1 (see double-arrowed path in Fig. 4). The average win after each round is still zero, indicating an even chance of winning or losing. Besides, in the most practical situation, the gambling casinos, there is a limit placed on the size of the maximum bet, thus reducing a player's chance to outlast the bad luck. The "gambler's fallacy" was the result of a lack of understanding of the fundamental principle which establishes that each round of the game is completely independent of all preceding and following rounds.

When and how did mathematics first get involved in all this? Of course, people have gambled almost from the beginning of time. Adam and Eve gambled on the apple and lost. Almost all primitive cultures engage in some kind of dice play, initially with *astragalia*, irregularly shaped knuckle bones. However, curiously enough, the mathematics of gambling, in the form of rudimentary probability theory, was not developed until the sixteenth century, and Gerolamo Cardano of the University of Bologna was the man responsible for it. Why this connection did not materialize earlier, despite the existence of the necessary algebraic tools since antiquity, is anybody's guess.

Cardano is one of my favorite Renaissance men. During his life, he went through several rags-to-riches cycles, intellectually and otherwise. A rector of his university while still a student, he seemed to be bound for a successful career, when suddenly all his plans fell apart and he ended up in the poorhouse with his wife and small child. Undaunted, he strove to renew his career, and eventually became one of the foremost physicians of his time. Kings vied for his services. But that didn't assure his happiness either. He saw one of his sons executed as a murderer and the other become a habitual criminal. He himself was incarcerated as a heretic and expelled from his university in old age, but he ended his life peacefully in Rome on a papal pension.

Today, after four hundred years, the general public has only two ephemeral opportunities to become aware of Cardano, despite his having written a book, highly popular in his day, *Thoughts on How To Perpetuate My Name*. The first of these occasions usually comes in a high school math class when pupils slow in assimilating the "arcane" formula for solutions of quadratic equations may be threatened by a ghost of the "Cardano formulae," which work for cubic equations. By the way, these celebrated formulae (which were the first achievements that went decisively beyond what the classical Greeks knew) contributed markedly to the storminess of Cardano's life. They were first published in his *Ars Magna* in 1545 (what a year for publishing—it also saw the appearance of Copernicus' *De revolutionibus* and Vesalius'

Fig. 5: Gerolamo Cardano (1501–1576), pioneer of gambling theory.

Anatomy!) and were the object of an extremely fierce and bitter quarrel between Cardano and Cinnolo Tartaglia that ended in a prolonged public dispute in Milan, in which the powerful and the wise of that city sat in judgment, and which kept the whole of Italy interested after the excitement of chivalric jousts and tournaments was no longer available. Cardano won.

Surprisingly, the second chance to learn about Cardano usually comes in English literature classes studying Shakespeare. If one is inquisitive enough to ask what book Hamlet was reading during his soliloquy, the informed teacher will answer that the book was Cardano's *Consolation or comforte*. This question has still not made the *Trivial Pursuit* game, though (which no doubt explains Cardano's non-existent public image today).

What is, however, most interesting for our story is that Cardano was a compulsive gambler, a feature of his character that was summarily condemned by most of his biographers. His small *Liber de Ludo Aleae* or *Book on Games of Chance*, published posthumously in 1565, contained the often forgotten first study of elementary probability, a hundred years before the celebrated correspondence between Fermat and Pascal, who are usually credited with the creation of the foundations of probability theory. Cardano played a variety of dice games (ancestors of the game of craps) and a card game called *primero*, which over the centuries was transformed into poker. He not only played them avidly, which of course aggravated his stormy life even further, but analyzed them thoroughly, computing correct chances on rolls of two and three dice and certain of the probability-weighted averages, as well as formulating some general principles, like a vague form of the law of averages (law of large numbers). He also used the power law (governing exponents) for the repetition of independent events which, for example, in the game of heads-or-tails described above, permitted us to compute that the probability of two consecutive heads on a fair coin was 1/2 times 1/2 = 1/4. Not only did he coolly analyze games of chance, but he was also a somewhat humorless moralist about them. In *De utilitate*, clearly addressed to a different audience, he warned against the acts which are most likely to bring a man to misery:

> Among these there are five: gambling, alchemy, architecture, lawsuits and luxury. Gambling brings loss in two ways, first because a man loses money, secondly because he is led to neglect his business, arts and students. However, not all gamblers lose, but especially those who are either unskilled or unlucky or those who play with cheats.

Although not renowned for his sense of humor, Cardano had the good grace to entitle one of the chapters, "Do those who teach also play well?"

So much for Cardano. Now, back to the tables—gambling and mathematical. I would assume that the main preoccupation of a "prudent" gambler (if there is such a thing) would be not to get ruined, i.e., not to permit his initial fortune to dwindle to zero. This old-fashioned "gambler's ruin problem" gives rise to some nice and quite modern mathematics.

In order to reflect conditions of the real world (read *casino*), we will also look at games which are unfair, or unfavorable, to one of the players. Mathematicians call them submartingales. Suppose you are at a casino with $125 in your pocket and badly in need of $1000 by early morning (say, to pay off your debt to unforgiving lenders). The question then is not whether to play but how to play.

If you are given a chance to play a fair martingale game, such as unbiased heads-or-tails, where the probability of a win at each toss is 1/2, and if you have no time limit, then the strategy really doesn't matter. Whether you play boldly and stake the whole $125 on a single toss or you play timidly with miserly $1 bets, the probability that you will reach your target of $1000 before you are ruined is always proportional to your initial capital, i.e., 125/1000 = 1/8. The complementary probability that you will be ruined before reaching $1000 is 1 minus 1/8 = 7/8. One or the other of these two possibilities is statistically sure to happen after some finite number of tosses.

In real life, however, casinos never offer fair odds, and there is also an obvious time limit. What you are able to play is usually a taxed fair game, where at each turn the house collects a fixed percentage of your bet, or a game which is outright "sub-fair" (a submartingale) such as red-or-black at roulette. There are 38 numbers on the roulette wheel of which 18 are red, 18 are black, and two are green, so that your odds of winning

if you bet on red are 18/38, which is less than 1/2.

The above two circumstances change the situation in a fundamental way and the optimal tactic is to play boldly, i.e., on each bet stake all the money you have or just enough to reach your target fortune immediately (the latter in case you have already accumulated more than half of your target). Intuitively, large bets should be more advantageous than small bets for attaining a fixed target, if one remembers that any consistent policy of compounding small bets that are subfair is bound to decrease your expected wealth. That's what not only gamblers but also tennis players know well. If you play against a stronger opponent, you don't engage in lengthy, cautious exchanges. Before the law of averages takes hold, you go for broke with a risky shot.

Let me illustrate the above argument with a couple of concrete tactics of playing red-or-black at roulette. There is a general formula which says that if you play a game in which the probability of winning on each turn is strictly less than 1/2, and if you bet a unit at a time and you start with a fortune of x units, then the probability that you will reach a fortune of X units before being ruined is

$$\frac{r^x - 1}{r^X - 1}$$

where

$$r = (1\text{-}p) \div p$$

is the "unfairness" ratio for probability p of winning on a single bet on red or black. In our case,

$$r = 20/18 = 10/9.$$

So, betting \$1 units consistently, you have a probability of success equal to

$$\frac{(10/9)^{125} - 1}{(10/9)^{1000} - 1} = 1.09 \times 10^{-40}$$

or about one in ten-followed-by-thirty-nine-zeros—not even as much as the odds of finding a needle in the haystack—as a matter of fact, even less than the odds of finding a particular atom in the solar system.

If your bets are increased to \$5, then the probability of success is

$$\frac{(10/9)^{25} - 1}{(10/9)^{200} - 1} = 9 \times 10^{-9}$$

or nine in one billion—only fifty times less than the odds of winning in the Ohio lottery.

For \$25 bets, it's already

$$\frac{(10/9)^5 - 1}{(10/9)^{40} - 1} = 0.01$$

or one in one hundred; and for consistent bets of \$125 it is not so hopeless:

$$\frac{10/9 - 1}{(10/9)^8 - 1} = 0.084$$

or about 1 in 12.

But, as I said before, all of the above tactics are improved by the boldest strategy: bet the entire current capital as long as it is less than half of X, and then just enough to reach X should you win on the next and last turn. To evaluate the probability P of success of the bold play is not as easy as what we have done so far. It is not hard to see that P depends on the ratio x/X, that is, on what percentage of the goal you have when you begin to play. Denote, for brevity, x/X by y, and note that y is always more than 0 and less than 1. The key to understanding how P depends on y is the formula

$$P(y) = pP(2y) \qquad 0 \le y \le 1/2$$

which is almost self-evident. Indeed, if the gambler's relative fortune y is in the range between 0 and 1/2, then, with the bold tactics, to reach the fortune $y = 1$ he must win on the first turn (with probability p) and then, starting with a new initial fortune $2y$, he must go on to eventual success with probability $P(2y)$. Multiplication on the right-hand side of the above formula comes obviously from the power law.

The formula has remarkable consequences. First of all, in our example of the red-or-black game in roulette with \$125 capital and a goal of \$1000 (so that $y = x/X = 1/8$), and $p = 18/38$, it immediately gives (by iterating)

$$P(1/8) = pP(2\times 1/8) = p^2P(2\times 2\times 1/8)$$
$$= p^3P(2\times 2\times 2\times 1/8) = (18/38)^3\,P(1)$$

Since $P(1)$, the probability of reaching 1 when you start with relative capital of 1, is obviously 1, we get as the probability of success in bold play $P = 0.106$ or about odds of 1 out of 10.

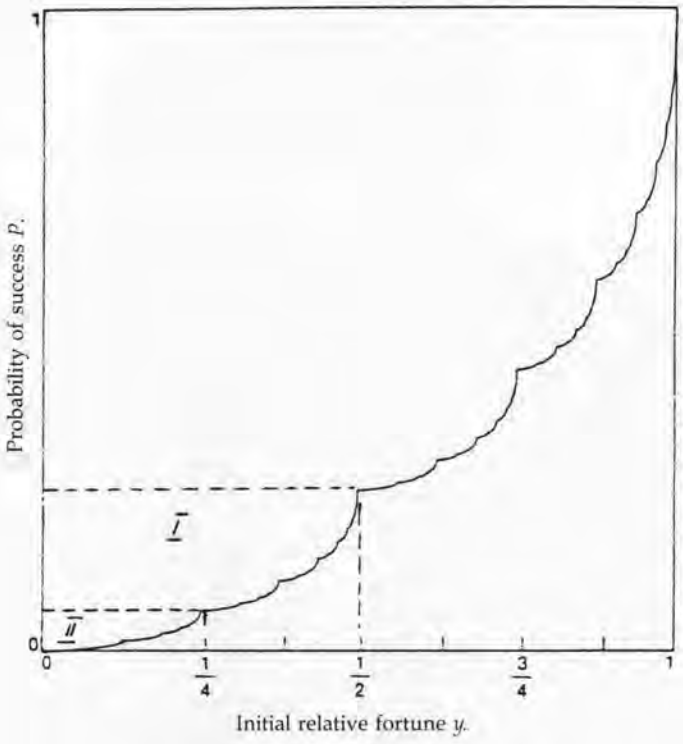

Fig. 6: The amazing curve of bold play (P = 1/4).

But secondly, the formula shows the deeper properties of the curve (see Fig. 6) representing the probability of success of bold play *(P)* as a function of the initial relative capital y. That is, it indicates that the graph in the whole square is a precise enlargement of the portion of itself contained in the rectangle **I**, and the latter is itself an enlargement of an even smaller portion contained in rectangle **II** and so on and so forth. This infinite self-similarity of the curve of bold play has tremendous consequences. The curve clearly grows continuously from the lower left corner to the upper right corner of the square, but at the same time it increases almost nowhere; i.e., the length of the set of points y where the curve increases is zero. The curve's total length is 2, the maximum length that a curve, growing from the left (over to the upper right corner of the square), can have. Simultaneously, the total arc length of points where the tangent to the curve is horizontal is 1, and the same is true of the vertical tangent. If you come to think about it, it is a truly pathological curve, strange, its nature not easily grasped.

To help us to better visualize the nature of the phenomenon of self-similarity, I asked Bruce Ikenaga of Case Western Reserve University to program on a computer several stages in the creation of another, planar, self-similar set. The results are shown in Fig. 7.

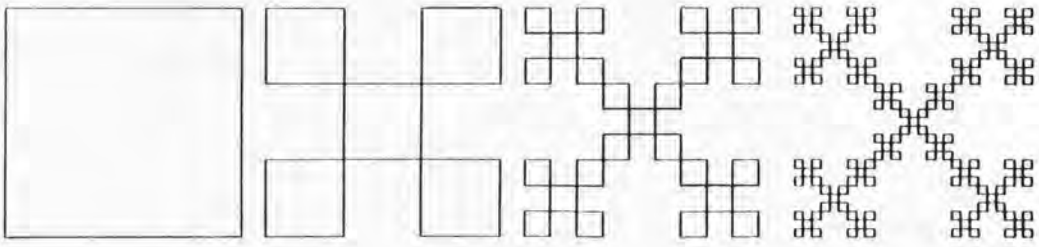

Fig. 7: Computer printout showing generation of a simple fractal.

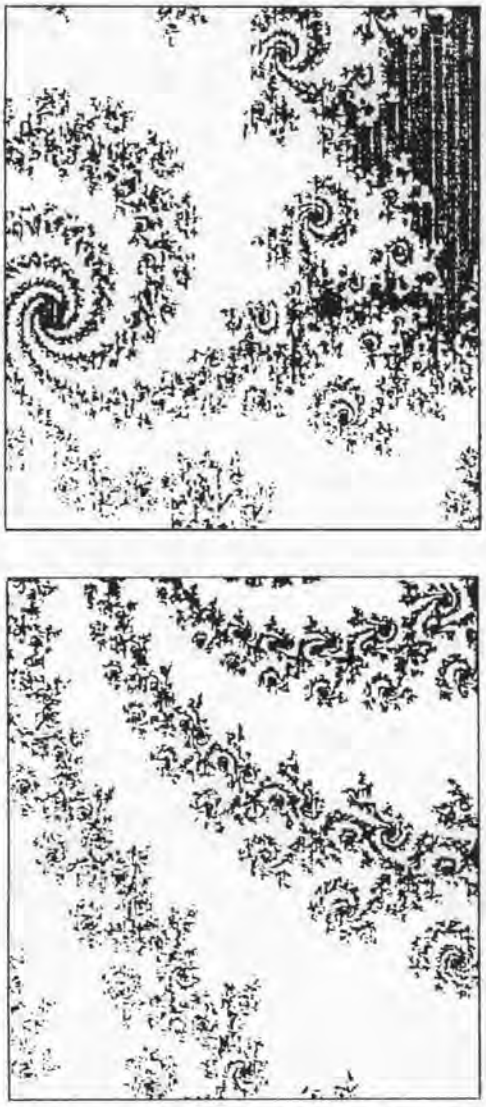

Fig. 8: Computer printouts of portions of an elaborate fractal, the Mandelbrot set, which has been called "the most complicated object in mathematics." The graphic representation of the set, derived by certain complex numerical operations, keeps branching out infinitely into smaller, similar but varied configurations.

He also produced an even more spectacular self-similar set which I reproduce in Fig. 8. In the last decade, self-similar sets have grown in importance in science by leaps and bounds. Although they were studied by pure mathematicians for more than a century, it was Benoit Mandelbrot, currently of IBM's Watson Research Center, who coined the term *fractal* for self-similar objects (because of their fractional dimension), and proceeded to show convincingly that nature often is itself governed by fractal geometry. Fractals, as exuberant as they seem to be, permit explanation of the jagged and extremely complex structure of the natural world and the unified description of such diverse phenomena as turbulence of liquids, symmetry of living forms, branching of crystals or rivers, and fluctuations of the stock market. It turns out that the classical Newtonian picture of the smooth universe is not accurate enough for us. Today fractals are big business in engineering and the sciences.

Gambling illustrations are merely the tip of the iceberg when it comes to applications of martingale techniques in the natural and social sciences and elsewhere. The "gambler's ruin problem" can be, for instance, re-interpreted as a problem of absorption at a barrier equal to zero of a particle wandering randomly about the straight line, one unit at a time, with probability p to the right and probability 1 minus p to the left. The solution offered above in the "gambler's ruin problem" also gives the probability that the particle starting at x (see Fig. 9) will be absorbed at 0 before reaching X. This is of interest to physicists and chemists.

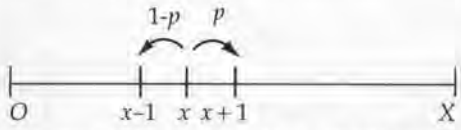

Fig. 9: One-dimensional random walk of a particle.

Even the daily decisions of an academic administrator can be influenced by the so-called optimal stopping techniques derived from martingale theory. Recently, a technical typist resigned and I began interviewing candidates for the vacated position. Since technical typists are in great demand, I was forced to operate under the assumption that I would have to make my decision to hire or not to hire at the end of each interview.

Once the candidate left, I knew from experience that there was little chance she would still be available should I call her back later.

If I could gather together all the candidates (N) in the pool, and test them simultaneously, my task would be easy. I would rank them Ms. #1, Ms. #2, . . . Ms. #N (there was one male candidate, but he requested double the salary we could afford, so let us forget him) and ask the personnel department to sign the contract with Ms. #1. However, in reality, I am not privy to this information, and the applicants keep coming in random order. The only sensible thing I can do in these circumstances is to rank the candidates relative to the ones I have already interviewed and make my decision on that basis. So, for instance, if the first few candidates in order of appearance had absolute rankings

Ms. #7, Ms. #3, Ms. #10, Ms. #4,

I could only assert that their relative ranking, taking into account preceding interviews, were as follows:

1, 1, 3, 2.

The second I interviewed was better than the first, so at the time I finished interviewing her, for me, she was the best, but the third was worse than both first and second, so her relative ranking was 3, etc. Obviously, my aim was to optimize my interviewing strategy, i.e., to minimize the expected absolute rank of the typist I hired. If I hired the first to show up then her expected rank would be $(N + 1)/2$. One would hope that a better strategy were possible.

In a pool of two candidates ($N = 2$) only two strategies are possible, and it does not matter which one I select. Either I hire the first person to be interviewed, or the second. In both strategies the expected rank of the hired secretary is 3/2. However, if the pool consists of 3 typists, one already has several strategies and the best, "hire the second if better than the first, otherwise hire the third," gives the expected absolute rank of 5/3 which is better than the average rank of $(3 + 1)/2 = 2$. Surprisingly, the martingale theory guarantees that even with an arbitrarily large pool of applicants there exists a strategy: selecting a typist who is ranked fourth or better. The strategy clearly has to depend on the pool's size and it is too complicated to describe here but the very fact that it exists is comforting. (Although I am still interviewing at press time.)

Even in such an unlikely place as the courts, martingales and the power law keep haunting the lawyers with a vengeance. I have seen some interesting examples in my own experiences as an expert witness in Ohio courts, but my favorite case is one litigated in the Swedish courts. A driver was charged with overtime parking in a spot without parking meters. On his first round, the policeman had recorded the position of air-valves on two curb-side wheels of the defendant's car as being "at eight o'clock" at rear and "at one o'clock" at front. When he returned after the allowed parking time had expired, he discovered that the valves were in the same positions. He submitted these findings as proof of defendant's guilt.

The defendant claimed that he did leave the parking spot and when he returned, the valves, by accident, aligned themselves in the original positions. He supported his defense by the computation which showed that the probability of such a coincidence is $1/12 \times 1/12 = 1/144$, which, his lawyer argued, is large enough to establish reasonable doubt. The court concurred and dismissed the case.

This brings us back to the power law. Or was it just a "bold play" on the part of the defendant's attorney? After all, the rotations of two wheels don't seem to be completely independent of each other, and that is what you need to justify the simple use of the power law. And what would happen if the policeman were not lazy, and had walked around the car, and had recorded the positions of all four wheels?

FICTION: Stuart A. Kollar

Performing Art

I am a lover of illusion. A master of the drama. A man who inhabits concealing apparel. At the theater I study the players on stage and do not care about the characters they are trying to portray. I wonder if the actors are fevered or intoxicated or afraid, and whether they will have sexual intercourse together after the performance. When they mime intercourse in character my attention strays. They take care to avoid injury, and I am not convinced.

My name is Eugene. While free of religious faith, I concede to the clergy their significant supporting roles. My favorite playwright is Popavitch. For music, I like Hans Schmidt. No public performer has ever made me laugh. I wait in the theater for the others to laugh. Then I look into the mouths of the women.

There are so many women in whom I find pleasure. I recognize them on sight. Each week they appear wearing fashionable clothing in the *New York Times Sunday Magazine*. I page through the magazine over hot coffee, with Hans Schmidt thundering on the phonograph. The coffee intensifies my passion. Schmidt ravishes the rising steam. I peel away the layers of pages, blackening my fingers with ink. There is no need to read the text. Nothing changes in the way the *New York Times* tells a story. But the fashions change. Women's lingerie becomes lacy, bark-colored, or corrective, depending upon the season and the mood and what the elegant companions of Popavitch are able to wear attractively. Some of the more exciting designs I save in a scrapbook. But I rarely have the leisure to review them. Every Sunday brings a new collection.

At the theater the women arrive early in their street clothes, high-strung, swinging handbags and special shoes. They have to be eased into the dressing rooms. And when they emerge, they glitter in *period costume*. The street clothes from the *Times* stay behind on a hook. Instead we admire a dress worn by a woman who will be murdered in her parlor during the winter of the year 1923. Her murderer perspires within a worn tuxedo. The police detective pulls a note pad from the pocket of his overcoat. He writes too fast, exaggerates his intelligence. The young victim was vivacious, but she had a bust too small to fill the dress. Her mother, a brunette with wide hips and pearl shoes, lives to see 1924. She greets the New Year with a marvelous, low voice. The man beside me sniffs with a cold. Nursing lozenges, he waits for a moment of laughter so that he can

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*Stuart Kollar is thoroughly Ohio: born in Elyria, grew up in Cleveland, and graduated from Ohio University with a degree in journalism. Now Director of Publications at Cleveland State University, he formerly occupied the same position at Case Western Reserve University, and has been a trade magazine editor (*Veterinary Economics *and* Sign and Display*). None of these jobs, he says, has kept him from writing fiction. "I write because it's easier than working around the house. And it pays so well." "Performing Art" is part of a story cycle, not yet complete.*

cough. His wife's ankle appears appealingly beside him in bark nylons. In front of us a party of priests and nuns sits courteous and attentive, understanding everything. One of the nuns is pretty. One of the men wears street clothes, having left his vestments behind. His hair is freshly cut, his neck pitted.

I have never married. Like a priest I am celibate but not chaste. I became unchaste late in life. The script called for me to spend more than forty-five years in out-of-style clothes, lingering upstage, holding a glass of carbonated water. When the others laughed and called for a toast to the New Year, I drank. When they became intoxicated and strolled off in pairs to have sexual intercourse, I buttoned my overcoat and slipped quietly into the folds of the side curtains. Where I stopped there were no priests, and not even any future priests. The others were groomed for their roles, given stage directions, cues, and meaningful exit lines. I was written out, left in the folds wearing my overcoat and carrying the glass of carbonated water. I searched in vain for a companion. No teacher took interest and directed me into a career. Groping among the curtains on my own I became what I am. Celibate. Secretive. When I engaged in unchastity it was viewed as an outrage. The others had forgotten me. I violated the unity of the action, the decorum of the event. I presented my sexual coming out as an authentic performing art, leaping from the folds while the professionals stood dumb, posing in period costume and straining toward the wings for instruction and rescue.

In my overcoat I held sway. On my mark, struggling with the lady among the footlights. She cursed me in an audible aside. The audience began to stir. I could hear questions, coughs, nyloned legs uncrossing and crossing. Program papers peeling. Who was this villain? Could his photograph be found among the others? A guest artist, perhaps? A stand-in?

So much for my chastity. There was certainly no need for concern over the lady's. She retired to the dressing room, tidied up, and returned in time for curtain calls. The company clustered around her backstage with more ardor than usual. I watched from the high scaffolding as the roses arrived. Then they all put on their street clothes and staged a riotous cast party. Wine splashed on the floor. Shoes slipped merrily over it. The bestial smell of the circus rose toward me.

Sometimes during intermission I stand near the others and listen to what they say. Though I have a cheap seat I can mingle in the lobby with patrons from the front rows, those who turn in annoyance when the man beside me coughs and loses his lozenge. These patrons smoke cigarettes or cigars and talk of subjects far from the theater. No one bothers to remark that the play is good. *Of course* it is good. I stand behind a patron in a suit and stare at the seat of his pants. The woman with him has nylons with seams.

"It's cancer," she says quietly. "My sign."

His tired eyes are elsewhere. "Better get a second opinion."

The lights flash overhead. A dandy sweeps past in fur boots. The boots have been featured in the *New York Times*, worn by a woman waiting before a theater with Russian letters on the marquee. I barely noted her. I was hurrying ahead to a page in which I could discover a young lady standing beside a bed, clad only in fashionable foundation garments. I saw her as I left the toilet. While the plumbing hissed behind me I stopped in the hall, fascinated and terrified. Such a young girl. So beautiful. I remembered her as a baby with firm legs and earrings.

"Here's your little niece," they said. "See Uncle Eugene."

She stood proudly and defiantly, fortified against my passion. When I stepped toward her she stiffened. Hans Schmidt thundered in my ears. I entered

the room and pulled the page shut behind me. Back to the cognac ad. Back to the frigid lady in the fur boots. Turn to the full-color layout with the young girl in the bedroom, and you will find her foundation garments crumpled on the bed. You will sense, just beyond the frame of the photograph, an outrage taking place. Did we cover ourselves? Not even with a newspaper. And the *New York Times* told nothing differently. The football scores, the president, the armed parties, the dead. Indifferent to what was being done within its very pages.

As a boy I delivered shopping circulars every Thursday. For three weeks I delivered one to each house on the route, and then I began dumping them all in the tall weeds. They paid me as usual. I had no teacher to tell me right from wrong.

When Hans Schmidt is given I attend the symphony. With field glasses I appreciate the players even from my seat near the ceiling. The men fiddle in worn tuxedos. The women wear dark dresses, dark hosiery. Their nails, darkly lacquered, are long and tough on the bowing hand. To hold a cello between your knees and accommodate Schmidt, you must become toughened against distraction. You wear a hard smile all the while you're fiddling. When the selection ends you shut your page and gaze stoically toward the violins. The player beside you has better tone. But you have those strong fingers, with nails lacquered and cut short on the left, lacquered and left long on the right. Your cello leans against you. You are relieved to have it over. The string parts are difficult and repetitive. Old Schmidt poured all his passion into the horns.

You can see the way it works. Looking through the field glasses, I watch them. They fail to notice me. They practice long hours with the bow against the strings, wearing their nails away. I simply applaud. When my arms tire I stop. The others carry on. No conductor asks me to continue. No composer scores a part for me. As a boy I was terrified by a tuba in my room. I tried to stop its bell with wadded clothing, and the clothing simply disappeared, taken into the system of the tuba. It never needed dusting; the dust slipped away. From bed I could see myself, dust-free and upside down, entrapped in the bell of the tuba. When the weeds died and the man from the *Shopping News* came, threatening me with violence and demanding his money, I ran to my room and asked the tuba to take me in. Years later I learned that it was not a tuba, but a sousaphone. Properly dressed and swung briskly, it added glitter in the marching band.

And yet the girls who swing the sousaphones are dull and unhappy. Their cheeks puff and deflate on cue. In issued clothing they stand revealed as plain and unpopular girls, depending upon the marching band for diversion during the leisure hours. They cannot be cheerleaders or marching majorettes. But if they learn to pucker in the prescribed manner they may swing the sousaphones and spell ''North'' on a frigid and rainy Friday evening with the north wind stinging their knees. As I watch from the bleachers the breath of the priest in front of me frosts my field glasses. He sits within a wet overcoat, huddled against the cold. His Catholic boys are losing. The mother sitting with him unfolds a piece of plastic long enough to cover both of their laps. They sit together under the plastic and pull for the Catholic boys. The priest explains fine points of play to the attentive mother. Makeup drips from her cheek and splashes onto the plastic. Across the field the North marching band plays a brassy refrain. Puddles beneath the bleachers entrap us upside down.

Squeezing into the huddled group, I slap a boy's rump and send him away to the bench. The mud-splattered players glare at me, angry and amazed.

"Who in hell are you?" the leader asks.

"Check your program." I indicate my Catholic uniform. "The priest sent me with a selection. 'The Sexual Overture,' by Schmidt."

He shakes water from his face guard. "That's a band number. You're in the wrong group."

I feel brittle, bending over. My back remains straighter than the others. "Escort me to the sideline."

"Sweep left," the leader snaps. "Everybody block."

I pose as a runner, my back stiff. From the corner of my eye I see the sousaphones glaring defiantly. The North team lines up to face us. The officials are alert for foul play. I cannot hear the leader's signals, but I follow the movement of the others. A forward step fools the North team into expecting a direct assault. Then, with the Catholics blocking, I turn the full energy of my offensive toward the band. Past the officials, through the rabble at the sideline, over the bench, and to the fence beyond. A high step takes me onto the track. The band director sees the danger, comes down from his ladder to assail me with his baton. Futile blows clatter against my helmet, my shoulder pads, my girdle pads. Brushing him aside, I mount the ladder and face the obedient musicians. The firm-lipped girls pucker at my pleasure. They fill their cheeks. They play. Across the field our priest explains it all to the mother, his voice rising to be heard. She leans too close and drips onto his overcoat. The evening closes amid Schmidt's violence, a satisfying end to our leisure.

Afterward I dry within concealing apparel. With the buttons securely fastened I feel assertive and strong. The fabric sags, poorly fitted. Slowly my perception sharpens, rising to the level necessary for night duty. I darken my face, my eyelids, the backs of my ears. If you smile on night duty your teeth give you away. If you scream the game is lost. With blackened nails you steal into no-man's land, your memory dulled, your jewelry stifled. You leave the coffee behind, and the light, and the music. Alone in his cell the priest recites a prayer after you.

You crawl forward slowly, alert for movement. Folds of curtains hang dead from the flies. Each may conceal a new danger, dressed in period costume. Stop at the slightest disturbance in the fabric. Freeze. They won't murder you if you're caught here. They'll entrap you in a compound bathed in pitiless white light. When you move, feeling along the edges of the compound, the light follows. They may take pictures. Movies, if you move. No rescue comes from your old reality. The priest goes off to his football game. The president retires. The pressmen at the *New York Times* cover their ears and switch on the machines. While the magazine flies by they study their checkbooks and read notices from the union. The toilet runs unattended. The coffee sours. Upstairs, trapped in a tuba, a terrified boy weeps without hope.

I arrive with the cast party in full progress. The actors are careening about, drunk with success. They gesture, shout, drink, and revel in their street clothes. Sustaining patrons from the front rows stare casually, nursing cancer and cocktails. They have paid well to come to the cast party and see the actors in their street clothes. Now the clergy enters, nodding and timid. The pretty nun has her program; she is going to save it. The priests gaze overhead, admiring the rigging, lights, and apparatus. They accept cocktails from the waiter and stand out of harm's way.

I decline a cocktail, showing my glass of carbonated water. Under my overcoat I am perspiring. The murderer promenades by, arm in arm with his small-

busted victim. "We're going to drink until the reviews come out in the *Times*," he says. "The printing takes all night." He stops to see the pretty nun. "My God. Pretty."

The nun offers her program and asks for his autograph. Across the stage the detective is giving a lesson in ratiocination to the mother with the low voice. "Her garter," he says, "is no proof whatsoever. Nor is her shoe."

Up close the mother has poor skin and eyes that search for a more promising situation. She assesses the priests and excuses herself. Singling out the father with the pitted neck, she asks if he enjoyed the play. A foolish question. *Of course* he enjoyed the play. He sips his cocktail, assaying her through the glass.

"Do you come to the theater often?" Her voice is low, marvelous.

Only occasionally, the father says. Although a great reader—devoted to Popavitch—night duty at the rectory leaves him no leisure. He comes out only occasionally, for football or a murder mystery.

"I've done Popavitch in repertory," the actress breathes. "In Russian. Would you like to hear?"

When father nods she coaxes him away, past the sustaining patrons and over to where the waiter waits with his tray. Near the side curtains they continue to talk. The sister anxiously watches, then catches herself and hides behind her program. She asks the program to take her in, seeking to become part of a cognac ad. When she peeks out again, they're gone. Only the curtains remain, hung in massive folds and spattered all over with intricate figures wrought upon the cloth in patterns of deep black. Feeble gleams of light penetrate from the no-man's land beyond.

I approach the pretty nun. Carefully I remove the program from her hand. She sees my club soda, tries to recognize me through it. The curtains beckon, swinging on a current of air. We incline toward them. I grasp the fabric. Fumbling and groping—where is the opening? She presses against me. Her breath singes my neck. With a curse I catch her wrist and plunge into the folds. We struggle forward, tangling ourselves in the material. When the snarl becomes unbearable we turn and strike in a new direction. But the fabric knots and twists ahead and behind, on the left and on the right. The light flickers so weakly beyond. Trapped and surrounded, we fill our hands with the heavy cloth and pull it down upon us. The audience gasps. The curtain falls. And suddenly everything is as black as her habit.

William S. Chisholm

Ions, Eons, Yarmulkes . . . Mysteries of Pronunciation

A couple of years ago, when I first contracted to write a guide to standard English pronunciation for Simon and Schuster, many colleagues and friends encouraged me to come down hard on the widespread pronunciation of "nuclear" as **NOOH**-kyuh-lur. The next gem of mispronunciation in line for scorn was "jewelry" pronounced with the *l*-sound ahead of the vowel in the middle syllable, that is, **JOOH**-luh-ree. As the list of despised pronunciations grew, I noticed that the words targeted for correction were showing the effects of ancient processes of phonological alteration which have been changing the pronunciation of English words for many centuries. *Metathesis*—a reversing of the order of two sounds—is responsible for the modern pronunciation of "bird" from Old English *bridd*, for example, and it explains **NOOH**-kyuh-lur and **JOOH**-luh-ree. Also, *syncope*—the reduction of the number of syllables in a word—accounts for the two-syllable pronunciations of "family" and "sophomore"; *consonant cluster reduction* explains why "craftsman" and "architects" are often pronounced without the *t*-sound in their consonant clusters (i.e., **KRAFS**-mun and **AHR**-ki-teks).

All of these pronunciations were on the hit list of one colleague or another. But the three varieties of regular phonological change that I've just mentioned (together with a few others that will be taken up later) are very strong tendencies *within* the language: phonological change takes place without most people noticing that it is happening. And it is the language, not the speakers, that effects the change. Propriety's guard dogs are patrolling the property, nevertheless. The irony (**EYE**-ruh-nee and **EYE**-ur-nee are frequent growls) is that the ever-wily foxes of linguistic change still manage to

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Pronunciation Key

The following system is used to show pronunciation: **BOLD FACE CAPITAL LETTERS** for primary accent, CAPITALS for secondary accent, lower case for weak accent. The letters, b, d, f, h, j, k, l, m, n, p, r, v, w, y, z represent their usual sounds. The remaining sounds of English are represented in the following way:

Consonants

g	*as in*	gag	ch	*as in*	church	dh	*as* th *in*	thy
s	*as in*	sis	sh	*as in*	shush	zh	*as* s *in*	pleasure
t	*as in*	tot	th	*as in*	thigh	ng	*as in*	wing

Vowels

a	*as vowel in*	fat	i	*as vowel in*	lip
ah	*as vowel in*	palm	oh	*as vowel in*	so
aw	*as vowel in*	raw	oo	*as vowel in*	book
ay	*as vowel in*	way	ooh	*as vowel in*	June
e	*as vowel in*	jet	ow	*as vowel in*	cow
ee	*as vowel in*	teen	oy	*as vowel in*	toy
eye*	*as vowel in*	island	u**	*as vowel in*	mutt
ir	*as vowel in*	fear	ur	*as vowel in*	fur

*Also, y + e in buy (**BYE**), tile (**TYLE**), etc.

Also, uh in ago (uh-GOH**), sofa (**SOH**-fuh), etc.

carry off the chickens, as has happened with that cackler **KYOOH**-pahn (''coupon''). **KOOH**-pahn is safe in the roost laying an egg.

Guardians of correct pronunciation are not born—they nominate and elect themselves. Though youngsters do not apply themselves consciously to the task of acquiring their native tongue, persons born into any linguistic nation invest much time in learning how to speak. Once they have intuited the rules of grammar and stored their knowledge of the language in the unconscious part of their minds, however, many become quite consciously egocentric about language. The ''standard'' language for any individual is the one he or she speaks, but one person's standard is another's non-standard. Or, at least, no two patterns of speech are identical. In comes diversity, then dispute, even warfare whose battles are waged ritualistically with snarls and sniffs—written salvos aimed at the scofflaws of grammar, appeals to common sense, and complaints about a loss of euphony. Ultimately, it's the Right against the Wrong, the unending struggle between the forces of convention and those of *laissez-parler*.

What is right? What is wrong? What is standard? What is non-standard—originally called substandard? Where do correct and incorrect fit in?

These questions are clichés, and so are their answers. My purpose is not to ask such questions and answer them but rather to use them to set forth the issues which have provoked most of the disputes about the pronunciation of English. I hope to give an account of what pronunciation is, but, more important, to describe what modern lexicographers do with it and about it.

Once upon a time there was a blissful season in the history of the English-speaking people when no one pronounced any word in such a way as to wrinkle the brow of any other speaker. This blithe period was in the spring of about 1385 A. D. Doubtless before that and certainly since, we have been almost literally at each other's throats. After all, the Anglo-Saxons were dominated for several generations after 1066 by the Norman French, and long before the French institutionalized correctness, they were convinced of it. In 1635 the foundation of the French Academy ratified *official* propriety, and ever since then the forty ''immortals,'' as the members of the academy are called, have felt the need to post themselves as sentinels. But Angles and Saxons, when they encountered one another at their borders a thousand years ago and more, must have been as grim-faced in response to each other's mallocutions as are the green-robed guardians of the Academy today when they leap into action at the rabble's raucous noise.

English began as a collection of mutually intelligible West Germanic dialects. The dynamics of the society depended on diversity, but diversity often grows into conflict. Thus, difference and variation worked for and against the commonweal. If we believe, as I think we must, that we today tend more toward stubborn linguistic tyranny than toward egalitarian liberalism, then we can rightly assume that our ancestors were similarly inclined.

Vive la différence was sincere but hopeful when first proclaimed. It was well-meaning but unrealistic, as are most such democratic expressions. Because many words are pronounced in more than one way, we frequently recognize that someone has dropped a sound that we pronounce or has put one in that we don't pronounce. ''Athlete'' (**ATH**-leet/**ATH**-uh-leet) will serve as an example. What to do? Well, if we are literate, aware, educated people (also sophisticated and cultivated) *we* know that *we* are right in not inserting the damned epenthetic vowel in ''athlete.'' We have simply *decided*.

In the preface to his *A Compendious Dictionary of the English Language* (1806), Noah Webster admitted that ''. . . the more I reflect on the subject, the more I am convinced that a living language admits of no fixed state, nor of any certain standard of pronunciation by which even the learned in general will consent to be governed.'' All thoughtful commentators—Noah Webster was certainly one—have either enthusiastically or reluctantly granted the obvious: living languages

are alive. And the necessary corollary of this—that living things change (dead things do, too, but not dynamically)—led Webster to admit first that a system in process (language) is kinetic, not static, and second that a language cannot be "fixed." What it can be is regulated. Webster was ruled by regulation—according to "principle" and "reason" of course. If his writings are packed with scorn for "corruptions," "errors," and "mongrels," he judiciously modulates his conscientious objection by being reasonable. He argues on the principle of least effort that words like "correspondent" and "termination" are properly pronounced with accent on their penultimate syllables, giving "to all parts of the word(s) a full distinct articulation, with the least effort of the organs." He then claims that the same principle places the accent on the first syllable of "horizon" (**HOR**-uh-zun), complaining that preserving the Greek accent (on the second syllable) produces "harsh, unnatural" pronunciation (i.e., not euphonious) "and in poetry, with an elision of *h*, *horizon* is usually preceded by a most disgusting hiatus." (Nymph, in thy horizons . . .)

On matters phonological then, Webster was a euphonist. But euphonious sounds in one ear can jangle in another. If suddenly today we started hearing our fellow citizens pronounce "horizon" as **HOR**-uh-zun, our ears would quake. Would we then raise a melodious alarm? Would we fire off an irate letter to the nearest editor complaining of the noisy offense? Probably. But it is hopeless, bootless—for as Webster knew, people will not conform to "any certain standard of pronunciation" unless it is their own.

If a certain standard of pronunciation could be determined, what might it be? Modern lexicographers take the position that *standard speech is the common practice of educated speakers*. This is a reasonable but not an easy stance to take. One of the difficulties is how to determine who the educated speakers are. But this is a problem easily solved compared to that of finding out what common practice is. As for the first question, the usual stipulation is that the educated people are the ones who are educated. They have baccalaureate degrees at least; many have Ph.D.s or M.D.s or J.D.s; if they don't have any of these credentials, then they have educated themselves. They can converse engagingly on matters philosophical, medical, legal, etc., with the folks who have the sheepskins. It is to be admitted that such a characterization of standard speakers is elitist. It excludes the pronunciation practices of the uneducated class, the "rabble" again, though lexicographers never construe their purposes in this way or express them so. They indicate merely that their dictionary "records" the "unguarded pronunciations" of "cultivated speakers."

In this, they continue the spirit of lexicography begun by Dr. Johnson when he produced the first modern English dictionary in 1755. His lexicography is the model of compendious observation, keen discrimination of meaning, and astute definition. His intention had been to ascertain and then to regulate the condition of the language. But he freed himself from this essentially prescriptivist purpose as he did his work, coming to realize, wisely, that the fruitful aim of his tedious labor must be that of describing, not regulating.

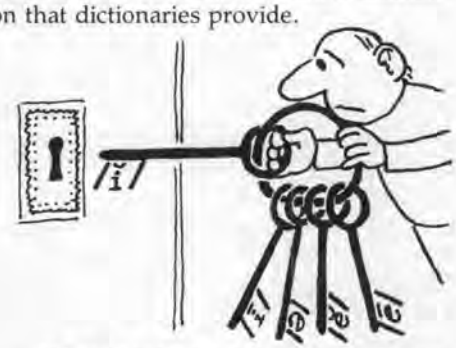
If modern lexicographers report the pronunciations of educated persons, have they relinquished their responsibility to decide that what they hear is best or even good? No and yes. They have decided that they may *not* decide what is right and what is wrong. ("The floodgates are open!" cry the guard dogs of correctness.) But they have decided that they must report that a pronunciation is or is not one which the educated

speakers of the language use. This puts them in the curious position of arousing the ire of those who insist on a certain standard but who will not tolerate any. Variation is the culprit, the certain phenomenon which leads to all the difficulty.

I have an acquaintance who shudders when he hears someone pronounce "detail" with the accent on the first syllable, a variation from his own habit of pronouncing di-**TAYL**. And the word "disgust" pronounced with a *k*-sound at the beginning of the second syllable is loathsome (**LOHDH**-sum, not **LOHTH**-sum) to him. When asked (**ASKT**, not **AST**), he will argue *reasonably* à la Noah Webster that "detail" should have rising stress, that "disgust" is spelled with a *g*, and "asked" pronounced with consonant cluster reduction is illiterate. (He thinks that "ask" pronounced as **AKS** is without redeeming features, hence obscene. He doesn't know that **AKS** was the original, "true" sequence of sounds or that today's standard **ASK** is a mistake that nearly everyone has acceded to.) He allows for variation in his own speech, pronouncing the days of the week sometimes with a bit of stress on the second syllables (**WENZ**-day), sometimes not (**WENZ**-dee). He selectively accepts some variations in the speech of others, not caring whether he hears "often" with the *t*-sound or without it. His views on variation are typical even if his targets, like his speech patterns, are different from those of others. There's the rub. What are dictionary makers to do with variation *qua* variation? More to the point, how are the facts of variation to be determined in the first place? One can worry about what to do with the facts after they have been ascertained.

For spelling and meaning, the evidence sifted by lexicographers is orthographic. People spell words when they write them, and when their books are published the public sees what has been set down. Then lexicographers judge what the author's words mean by studying the same written record, the words on the page. To be sure, publishing houses and printing offices have style guides and dictionaries at hand which they use to bring an author's manuscript into line with their own ideas about how words should be spelled, what usage should be maintained, and what grammatical rules are to be protected. So the educated native speaker's language, at least the written dialect of it, gets altered somewhat from its original form.[1] (If he has dared to use "hopefully" in any context whatsoever, he will learn that he has used *that* nine-letter word which is more than twice as bad as any four-letter word. He is not permitted to say, "She arrived in Chicago hopefully," even if he means that she was hopeful when she got there.)

Meaning in the strict sense, the denotative one, is hard to specify. But look up, say, the word "loop" in a good college dictionary (in fact in almost any dictionary, since the bad ones steal from the good ones) and find the artful genius of the professional lexicographer: "loop: the more or less circular figure formed by a line, thread, wire, etc. that curves back to cross itself" (*Webster's New World Dictionary* 2nd ed.). Dictionary definitions are precise, simple, clear, accurate, unambiguous, succinct, and complete, like nothing else in this world, unless it is the etymologies, synonymies, antonymies, and other batteries of hard, denotative information that dictionaries provide.



What about pronunciations in dictionaries? Are they precise, simple, clear, accurate, unambiguous, succinct, and complete? Succinct merely. Not two people in a thousand can work their way around the phonetic key, the medium for the message. So there go simplicity and clarity. Ambiguity wanders in via the key and the truncated format of respelling for pronunciation. Worst of all, it is impossible to ascertain scientifically the standard pronunciations of the educated population, so we lose accuracy and completeness. Attempts to learn how the population pronounces words are enterprising but defective. Not enough evidence is ever collected, not even that of a "standard random sample." The speech of 99+ percent of the people who say things never reaches the ears

of those who would report it. The little that does can easily be misheard. If not this, the transcription of it can be awry. And if not this, then the accurate phonetic record can be that of a non-educated speaker.

A human speech sound disappears into the air as soon as it is articulated. The lexicographer must capture this butterfly—which he does in a number of ways. Edward Artin, for many years the pronunciation editor of the Merriam-Webster dictionaries before his retirement, took himself and his tape recorder all over the country to town meetings, conferences, symposia, and colloquia, recording the speech of individuals who he knew were standard speakers. And under his tutelage, others in the dictionary offices were trained to listen to their fellow-Americans talk and to take note of what they heard. When Artin wasn't at a meeting or in the office, he had the radio on, tape recorder whirring. Then, he made phonetic transcriptions of his evidence and noted the speaker, occasion, context, date, and place. He recorded the pronunciations of disputed words like "première" or "strength," of course, but not just these. As a descriptivist he assumed nothing about how people pronounced words and sought to find out the articulatory facts about everything from "a" to "zym-."

Artin's record, which has been estimated at more than 150,000 items, became the "data base" for Merriam-Webster's pronunciations. Interpreting it, he decided to show, among other things, a pronunciation of "etc." as un-**SOH**-forth. But such a pronunciation is a reading pronunciation,[2] not the kind that Artin thought prime. Unguarded pronunciations, caught on the wing, so to say (*after* the meeting at Town Hall, or during the relaxed (?!) conversation of a Gore Vidal and a William F. Buckley on a talk show), were prime evidence. No one knows how many pronunciations of a word constituted for Artin a *sufficient* warrant for including them as variants. And no one knows whether he used only frequency to judge which pronunciations should be placed first when more than one was to be recorded. Although there are fewer speakers of the Northern regional dialect of American English than there are speakers of the other dialects, the Northern dialect is used as the base form by all dictionaries; so it is easy to see that the mere numbers are not decisive.

What *is* decisive? The judgment of the editor, usually that of the Editor-in-Chief. And his judgment is influenced by the corporate body of the dictionary's publishers, that intangible but real force that makes market decisions. Even if it could be proved that both "family" and "history" are pronounced 83% of the time by standard speakers as **FAM**-lee and **HIS**-tree, neither pronunciation is likely ever to appear first in any college dictionary, because those who market dictionaries know that prescriptive "correctness" sells better than descriptive accuracy. Remember that most people who buy dictionaries think that they can find "true" meaning and "correct" pronunciation inside, that the dictionary, like the Bible, is infallible. "Webster's" writes *truth* indelibly. There is a gap, then, between the avowed principles of lexicography and the marketing of its product. Lexicographers strive to be faithful to facts, but they are in the wrong business.

Nevertheless, though lexicography has a little less rigor than astrology and a little more than psychology, it *is* an art. If objectivity guides modern lexicographers, it does so more in the spirit of a Renoir than of a Herschel, in that lexicographers *represent* truth in bright linguistic colors of invention and imagination.

Empirical data exists for the lexicographer in the form of *citation slips*, or *citations* as they are called—thousands of slips of paper containing the verbal artifacts of the present culture. Citations consist of clippings of new words (or old words with new meanings) found in magazines and newspapers and books, the whole sentence in which they occur, sometimes one or two sentences on either side for context—date, author, publisher, place. Several of these for each word. Sometimes dozens. Is one citation, an empirical datum, sufficient? What does it *signify*? Would two citations be more significant? Do these give evidence of the same meaning or closely related ones?

Also under the bleary eyes of the lexicographer lie entries from the previous edition of the dictionary. Are there definitions among these that are no longer current? This is an important question, not because it must be answered, but because it cannot be. There is no evidence one way or the other. The citation files no matter how extensive will not show that a meaning has passed into oblivion, nor will they show that a whole word together with its definitive baggage has succumbed. Has ''lightsome'' passed? Perhaps it has. Perhaps it hasn't. The point is that science is of no use here. One must apprehend the truth by being attentive, thorough, and careful. Also, *very* experienced, knowledgeable, and especially, smart.

Accurately recording what people *do* with language is easier in principle than in practice. In the front matter to the current edition of the Merriam-Webster college dictionary (the ninth), we find this confession on the principal activity of dictionary making, that of defining: ''(the most important function of a dictionary) is to define the meaning of words . . . [but] meaning does not truly reside within the word but in the minds of those who hear or read it. This fact alone guarantees that meaning will be to a great degree amorphous.'' If those who frame definitions must contend with shapelessness and those who indicate pronunciations must guess at the truth, it is remarkable that lexicographers have achieved such high levels of work.

One source of information that all lexicographers have on how Americans pronounce their words is the published works in dialectology. Information in these is collated with in-house citations. Beginning about 1925, dialecticians and phonologists and many linguists began a series of investigations into regional and social variations in the speech of Americans. By direct and not-so-direct methods to get at what people say and how they say it, a fairly rich body of raw data was unearthed, and the interpretations of it now serve as an important guide for pronunciation editors. Word atlases (including pronunciations) and dialect maps have appeared in profusion.[3] The volumes reveal general patterns of pronunciation; they indicate, for instance, that *everybody* in the North (from western Massachusetts and Connecticut to Minneapolis above the 40th parallel, except New York City) has a monophthong in ''crib,'' but most people elsewhere have a diphthong (something like **KREE**-yub). Such information is certainly not useless. In fact, it justifies the ''key'' which dictionary makers devise to ''respell'' for pronunciation. They use a phonemic symbol, /i/, for example, to represent the vowel sound in the middle of ''crīb,'' knowing that anyone who consults the dictionary for a pronunciation of a word with /i/ in it will infer the ''right'' sound, though the right sound will be different for people in different parts of the nation. Beyond the dialect studies, there are a few reports published in a few journals on how a few people pronounce a few words. All lexicographers, including those who dabble in pronunciation, make as judicious use as they can of every scrap of evidence they can bring to hand.

Lacking the resourcefulness of Edward Artin, and wanting time and patience, I adapted his theory of phonetic ''field'' research in two related ways when first, many years ago, I served as the pronunciation editor of Merriam's chief competitor, and when, just recently, I undertook to produce the guide to pronunciation which I mentioned earlier. When I was in the dictionary offices of the World Publishing Company working on what became the second edition of *Webster's New World Dictionary*, I would come to a word whose recorded pronunciation in the previous edition struck me as needing revision. This happened, I would guess, about every tenth word. With a run of words like *involuntary, involute, involution, involve, invul-*

nerable, inward—where could doubt lie? But what about "ion" when it comes along on the next page? The indicated pronunciations for this chemical term in the existing dictionary were **EYE**-un first, then **EYE**-ahn. I probably hadn't pronounced the word or heard it pronounced for years—since my high school and college chemistry classes. I knew that my pronunciation would be **EYE**-ahn if an occasion ever presented itself for me to utter the word. And I believed that that was what I had always heard. I checked around the office in my usual way: I wrote out a sentence with "ion" in it and put in a couple of other words that begin with the same letter (my co-workers knew what part of the alphabet I was working in), and asked each person to recite my sentence. I got six **EYE**-ahnz and two **EYE**-unz. Aha! I called my college chemistry teacher but was put through to someone else in the department who advised me that he pronounced **EYE**-un, but that he was an "old-timer" and all the "youngsters" in the field said **EYE**-ahn. Armed with this irrefutable evidence, I reversed the order of the pronunciations. When the book came out I found them restored to the original **EYE**-un first, **EYE**-ahn second.

I had better luck with "eon" just recently when I was preparing my guide to pronunciation. The "ion" story is repeated, except that when we get to the end of the narrative, my decision to put **EE**-ahn first prevailed. Now there are two interesting points here. One is that this kind of orthoepic (pronunciation) "research" is inexact, which I'll have a little more to say about shortly. The other is that there is a phonological change in progress. There seems to be little doubt that both "ion" and "eon" were pronounced until relatively recently (50 to 75 years ago) with very weak stress on their second syllables.[4] But then, in recent years speakers have been applying stress to those weak syllables and consequently changing the value of the vowels. The process is accelerating, I believe, and it is at work on three-syllable words as well: *anchovy, ancestor, autopsy, circumstance, dividend, octopus, paradigm, parapet, parallel,* as examples, are all pronounced by a large majority of speakers, probably *all* young ones, with secondary stress on one or another of the trailing syllables, that is, as **AN**-CHOH-vee rather than **AN**-chuh-vee, **AN**-SES-tur rather than **AN**-sus-tur, **AHK**-tuh-POOS rather than **AHK**-tuh-pus, **SUR**-kum-STANTS rather than **SUR**-kum-stunts, and so on. As further examples of two-syllable words whose stress pattern has picked up a beat, let me cite "crouton" (**KROOH**-tahn), "lilac" (**LYE**-lahk, sometimes **LYE**-lak), "mascot" (**MAS**-kaht), "monarch" (**MAH**-nahrk, but **MAH**-nurk is more tenacious than the others), "sequence" (**SEE**-kwents), "peon" (**PEE**-ahn).

The pronunciation of French words in the vocabulary demonstrates the nature of the problems pronunciation editors face. My students in the History of the English Language course learn that they can estimate the vintage of a word borrowed into English from French by applying the Stress Rule: if such a word has falling stress, that is, a strong stress followed by a weak one, perhaps two (**BOOL**-uh-vahrd), then the word has been in English for a long time; if the stress pattern is weak followed by strong (booh-**FAHNT**), then the word has been borrowed relatively recently. English likes falling stress. It is as native as ANG-gloh-**SAKS**-un. It forces itself upon strangers, even as today, on "chauffeur" (**SHOH**-fur), "foyer" (**FOY**-ur), "decor" (**DAY**-kor), "jubilee" (**JOOH**-buh-lee), "limousine" (**LIM**-uh-zeen), "mustache" (**MUS**-tash), "souvenir" (**SOOH**-vuh-nir), "romaine" (**ROH**-mayn), and "tableau" (**TAB**-loh). Those of us who, in our elegance or Francophilia, cling to the rising-stress pronunciation of these and like words can take but small comfort in knowing, as Rex Harrison said in *My Fair Lady,* that the French don't care what they do actually so long as they pronounce it properly. But! "baptize," "capsize" and many other non-French words have fallen to the force of falling stress, so strong is it. Its strength and my students' unanimous testimony made me its champion. But it is no good arguing "All I've ever heard is **BAP**-tyze. Never heard bap-**TYZE** in my life." The editor's "Whom have you been talking to?" puts the argument to rest. How does one know that something going on in the sound system is *sufficiently attested* to justify changing truth (what has previously been reported as a fact) to a fiction? Here, with the absence of phenomenal data, one can't use intuition to assert that the language is changing. One must *have evidence* that a change has taken place.

To what extent do *assimilation, dissimilation,* and *closure,* which are additional ancient phonological processes, effect pronunciation change? Chaucer pronounced "feature" with a *t*-sound at the end of the first syllable and a *y*-sound at the beginning of the second syllable, that is, as **FAYT**-yoor. There has been a general assimilation since Chaucer's time of *t* plus *y* to *ch*, giving the modern **FEE**-chur (there has been a vowel change, too, also following a predictable pattern). The tendency of these sounds to assimilate is very great—one might say irresistible. Still, pronunciations like **PET**-yuh-lunt ("petulant") and the analogous **FRAWD**-yuh-lunt ("fraudulent") are heard. What is their status? So are pronunciations like **LIT**-ur-uh-tyoor instead of the usual **LIT**-ur-uh-chur ("literature") and KRIS-tee-**AN**-uh-tee, normal today in British English, instead of KRIS-chee-**AN**-uh-tee ("Christianity").

Interestingly, the customary **LIT**-ur-uh-chur or **LIT**-ruh-chur and KRIS-chee-**AN**-uh-tee of American English do not result exactly from the assimilation of *t* to *y*. They come about from the fact that the exact requirements for assimilation are *nearly* met. The *t* plus *y* sequence in "literature" is, or was, in the same syllable rather than at the end of one and then the beginning of the next, and there is no *t* followed by *y* in "Christianity" at all, just the *t* followed by the vocalic analog of the *y*-consonant, namely, the vowel of "feet." Such is the strength of *this* phonological process. It leads naturally to pronunciations of an expression like "Let your conscience be your guide" that make the first two words sound like the word "lecher." Guardians grimace (gruh-**MAYS**) and then harass (huh-**RAS**) speakers who emit such lewd sounds—and set the dogs on them. They have simply decided.

The process of dissimilation gives us suh-**PRYZE**, **KAT**-uh-pil-ur, and **BAD**-mit-un for "surprise," "caterpillar," and "badminton" because the first of two *r*-, *l*-, or *n*-sounds in a word tends to get dropped. Are these pronunciations more frequent than sur-**PRYZE**, **KAT**-ur-pil-ur, and **BAD**-min-tun? I *think* so! And is **FENTS** more common than **FENS**, **STRENGKTH** more common than **STRENGTH**? The process here, closure, is certainly subphonemic; that is, English speakers never use **FENTS** rather than **FENS** to distinguish meaning.

The points that emerge from all this are these:

- the phonological rules of English govern how people pronounce words;
- unfortunately for orthoepists, exceptions introduce instability into the system even as they prove the rules;
- no record of standard speech which is capable of proving anything has ever been compiled.

The wonder is that pronunciations recorded in dictionaries, with only occasional distortion and trifling error, actually seem to reflect what people say.

Of the 13,000 words that were entered in the pronunciation guide which I prepared, I greatly doubted the accuracy of the pronunciations for as many as a thousand, among them *amendment, ardent, because, binary, bourbon, catholic, champignon, combatant, contemplative, covert, directly, duress, etymon, exit, forceps, Greco-Roman, Herculean, joule, lawyer, nonchalant, nubile, orange, our, pertinent, piranha, robot, roseola, second, sherbet, syrup, titlist, tournament, turbot, twenty, while, yarmulke.*

Two related circumstances made it difficult to decide which pronunciations to record for these words and in what order they should be presented. The first was an *embarras de pauvresses,* a paucity of reliable citations for what people say; the second was the difficulty of knowing when to throw out a pronunciation because it was not used by a standard speaker.

Dictionary makers usually caution readers to remember that any variant given is "acceptable," and point out that if two pronunciations are presented as the standard, one must come first. Nevertheless, users of the dictionary persist in considering the first

one given as the *preferred* pronunciation. Moreover, the fact that far more standard speakers say **TOOHN** ("tune") than say **TYOOHN** does not justify putting **TOOHN** first, certainly not in the minds of most people in Eastern New England and the South. On this point, incidentally, showing a decrescendo diphthong (**TEEOOHN**) would be more accurate. In any event, conscientious pronunciation editors consider it their responsibility to try to ascertain which of several variants is the more frequent. When they come to "syrup," they put their own pronunciation first because everybody (!) knows (!) that half the population says **SUR**-up and the other half says **SIR**-up. For most words that have current, variant pronunciations, "exit" for example, which one is to be placed first, if frequency is the criterion? My semihard evidence indicates that more standard speakers say **EK**-sit than say **EG**-zit, nearly twice as many (nine to five). Mr. Artin's records, whatever their extent, led him to put **EG**-zit first.

The central issue, that of determining standard variant pronunciations, is impossible to resolve satisfactorily. Neither the question of who belongs to that fuzzy set called "standard speakers" nor the question of how its members pronounce a given word, can be answered. What one *can* do, as I have just suggested, is consult a nominal sampling of speakers one regards as standard, and ask their views on (a) how other people pronounce words, and (b) what they themselves say.[5] I circulated a series of questionnaires among fifteen of my colleagues in the English Department, all Ph.D.s, native speakers (except for one), from twelve different states and eleven different graduate schools including Northwestern, Columbia, Harvard, Oregon, Pennsylvania, Stanford, Case Western Reserve, and Arizona State—a non-standard, non-random sample. Each of the surveys presented a grouping of a couple of dozen words, including many on the list above. The general instructions were these: look at the word, make a mental note of how you say it, think of how others pronounce it, look at the alternative pronunciations provided, mark the one you habitually use (if you don't find it write it down), check off any other pronunciations you use, check off the prevailing educated pronunciation, mark any pronunciation you occasionally hear, and mark any that you never hear.

A procedure like this is dubious at best. There is room for much error. A respondent could check "A" (my habitual pronunciation) when he meant to check "B" (a pronunciation I have heard). He might feel compelled to subscribe to what he considers correct. He might, when confronted with rather subtly paired alternatives (**KOH**-vurt and koh-**VURT** for "covert") entirely lose his sense of what he does say. Nevertheless, when evaluated, the responses presented themselves as thoughtful, earnest attempts to be helpfully accurate. Here is what I learned. (Some of the words I will report on were not on the questionnaires. These are included to explore the nature of some additional decisions that were hard to make.)

bourbon, tournament: One respondent advised me that he pronounces **BOOR**-bun when the house of the Bourbon kings is meant, but **BUR**-bun for the booze. This squared with my own impression, though everybody else voted for **BUR**-bun and against **BOOR**-bun. "Tournament" (also, "during," "jury," "tourist" and many others of this type) is more and more being pronounced with stressed **UR** rather than **OOR**. So far as I know, however, "tour" is never pronounced **TUR**. But on the other side, I heard a politician say **KOOR**-ij for **KUR**-ij ("courage") the other day.

ardent, pertinent: A very large number of words have syllabic consonants sounded—in the second syllable of "ardent," for instance, or the middle of "pertinent" (**AHRD**-nt, **PERT**-n-unt). These are vowelless syllables like the ones at the ends of "button," "bottle" (**BUT**-n, **BAHT**-l). It is possible to pronounce these words with clear vowels (**BUT**-un, **BAHT**-ul), but the only people who do this are folks like an announcer I heard on an FM station in Chicago this summer who managed to say **HUN**-dred (pronouncing the second syllable as "dread," that is) when he came to "hundred" in the stuff he was reading. Such a

"careful" pronunciation calls attention to itself, just as a "careless" one does, **HUN**-urt, for instance.

because, lawyer: A colleague remarked on his questionnaire that he hears bi-**KUZ** and scorns the speakers. My opinion is that he will soon need to scorn everyone, but I am nearly alone in this opinion. All dictionaries show bi-**KAWZ**. Almost all of my informants checked it. The books are wrong and my colleagues have tin ears, say I. It is the same with "lawyer." The standard pronunciation recorded by dictionaries is **LAW**-yur. I have never heard it—only **LOY**-ur. I heard a senior professor who teaches lawyers how to write plain English pronounce **LOY**-ur time after time. Unfortunately, he also pronounces the breed name of his dog as suh-**MOY**-ed (Samoyed).

amendment, directly: Here are two words of many in the language whose spellings show consonant clusters. The usual pronunciations for them are uh-**MEN**-munt and di-**REK**-lee, or so every piece of hard evidence I have would indicate. But it is *verboten* to record the actual practice in this instance, just as it would be to record the usual pronunciation of the past tense of "ask."

binary, etymon, forceps, nonchalant, nubile, robot: These, variously, raise stress-pattern issues. Without doubt, "binary," "forceps," "nubile," and "robot" were all pronounced until fairly recently with the ubiquitous schwa (uh) in their "weak" second syllables. Or so the vintage dictionaries allege! The words are merely examples of a host of words so pronounced. Today most standard speakers give the second syllables a little push, thus, **BYE**-ner-ee, **FOR**-seps, **NYOOH**-byle, **ROH**-baht.[6] "Nonchalant" is representative of the cyclic treatment many French words can be given. The word would necessarily have come into English with rising stress, nahn-shuh-**LAHNT**. Presumably, it then succumbed to the English stress pattern, **NAHN**-shuh-lahnt. But lately, I believe, the French elegance has been refashioned, probably occasioned by the high status, even the—*comment dirait-on?*—the *allure* of all things French which the growing populations of college students have encountered in their liberal education.[7] "Etymon" is a perfect curiosity for me. All dictionaries indicate that everybody says **ET**-uh-mahn and in fact, everybody does say **ET**-uh-mahn—except one person, a colleague, whose specialty is etymology! He pronounces **ET**-uh-mun and testifies that **ET**-uh-mahn "would sound funny." How can this be?

combatant, contemplative, champignon, covert, duress, Herculean, turbot: Many of these also win variant pronunciation because of stress placement. Though dictionaries show a variant pronunciation for "champignon," sham-**PIN**-yun, none of the respondents indicated that they had ever heard it fall from even the daintiest lips. Similarly, **DYOOR**-is for "duress"—again, nobody I consulted had ever heard it. For perfectly consistent reasons, that is, foolish ones, I prefer dyoo-**RES** (as I prefer shahm-peen-**YOHN**) even though the word "duress" was borrowed from French more than seven hundred years ago and therefore should have had falling stress forced on it long since. "Covert" is notorious among pronunciation enthusiasts. There isn't a hint from any quarter that people pronounced the word in any way other than **KUV**-urt until very recently. Then, instanto, *everybody* started saying **KOH**-vurt, or even koh-**VURT**, including my colleagues, rhyming these with the two standard pronunciations of "overt." The CIA is probably responsible. What is responsible for **TOOR**-boh, I think I know. It's the French *enthousiasme* again. The word is, or was, French. But it has been pronounced **TUR**-but in English since before 1300 A.D. "Combatant" and "contemplative" are examples of words that invite different stress assignment, too. **KAHM**-buh-tunt and kun-**TEM**-pluh-tiv are standard. But kum-**BAT**-unt will soon win first place if it hasn't already. And it's just a matter of time until **KAHN**-tum-play-tiv overruns kun-**TEM**-pluh-tiv. As for "Herculean," I wonder if my revered colleague who says hur-**KYOOH**-lee-un will one day turn our conversation to the style of Sophocles.

catholic, orange: the two-syllable pronunciation of "catholic," and the one-syllable pronunciation of "orange" are universal among younger standard speakers and nearly so for the whole population. But neither pronunciation will ever be given first. They have been criticized by elocutionists for many decades as erroneous, wrong, careless, reprehensible—instances of Slovenish. The publishers will have their way.

our, second, twenty, while: In normal speech among individuals who are not employed in dictionary offices or radio and TV news rooms, "our" is **AHR**, "second" is **SEK**-unt, "twenty" is **TWUN(T)**-ee, and "while" is **WYLE**. (People born and raised in the South are exceptions in this last case: their natural pronunciation of "while" is **HWYLE**, as it is **HWICH** for "which," **HWEN** for "when," etc.) Still, dictionary makers are not ready to sanction pronunciations which are considered by most people to be slurred.

Greco-Roman, joule, piranha, roseola: My consultants outside the English Department, in history and art, assured me that "Greco-Roman" is always pronounced GREK-oh-**ROH**-mun. And the colleague in my department who teaches Greek and Latin said the same. Also, while watching wrestling segments of the 1984 Olympics, I heard three people (one commentator and two coaches) pronounce "Greco-Roman" a total of nine times—nine GREK-oh-**ROH**-munz. My pronunciation guide had just been published. It indicated GREK-oh-**ROH**-mun with an added editorial note to the effect that the word is often pronounced GREEK-oh-**ROH**-mun when the style of wrestling is meant. (Sigh.) "Joule" is the opposite case of "etymon." Until recently the dictionaries said that **JOWL** is its pronunciation. But a chairman of a Department of Physics indicated to me that the only pronunciation he had ever heard or used was **JOOHL**. And the former dean of a College of Arts and Sciences, also a physicist, said "The word is common in physics, like your 'noun' or 'adjective.' We say it hundreds of times a year. Always **JOOHL**. Nothing but **JOOHL**." This information led to the pronunciation given in the guide—**JOOHL**, with the note that **JOWL** was once common. It certainly was common in dictionaries! For "piranha," most dictionaries show pi-**RAHN**-yuh, because, I guess,

there is a *y*-like sound in the Portuguese pronunciation. As the curator of the Lincoln Park Zoo told me, though, one would have to go to Brazil to hear anybody say the word that way. (In principle, my colleagues agreed.) It would have been harder to find someone who pronounces "roseola" as roh-**ZEE**-uh-luh (commonly the first pronunciation given in dictionaries, but one that the people I work with never heard), according to the Chief of Pediatrics at Rainbow Babies and Children's Hospital. She told me when I called her back a week after our initial conversation that none of her colleagues—"about two dozen, I suppose" had ever heard roh-**ZEE**-uh-luh. These were doctors who, like my own colleagues, had been born, raised, and educated in many different places.

yarmulke: The story in brief is this. One rabbi I consulted said that **YAHR**-mool-kuh was the only pronunciation, and then added that "**YAH**-muh-kuh is a mispronunciation." Another rabbi, whose temple is within a mile of the first rabbi's, announced "If somebody said **YAHR**-mool-kuh, you'd know he wasn't Jewish."

sherbet, titlist: My records of pronunciations caught on the wing show twenty-three instances of **SHUR**-burt and two of **SHUR**-but. Enough said. The same records show no citations at all for "titlist." But I have some for words of the same class—"bottler," "chortling," and "stifling." For the first two of these, I find evidence for three-syllable pronunciations only—**BAHT**-ul-ur and **CHORT**-uh-ling. For "stifling," I have one citation for **STYFE**-uh-ling and seven for **STYFE**-ling. I believe I have never heard **TYTE**-list, only **TYTE**-uh-list.

For these, as for many of the cases in this chronicle, an ideal world is needed, one in which the lexicographer announces that he will report variant pronunciations, *in random order*, which he judges on the basis of his most careful observations to be frequent among standard speakers; and one in which the users of his dictionary cheerfully accede to his plan, welcome it, and approve it.

Let it be said that orthoepy ("right-wordness") in its broadest construing is not easy. It is a commercial activity practiced within a larger commercial enterprise that answers to a public whose dollars make it possible. Dictionaries depend on advertising and promotion to win acceptance. When the *New York Times* reports that a particular dictionary is its authoritative reference on usage and meaning, this is turned to promotion. But it is an uncommonly honest endorsement—different from that of an athlete championing a car he doesn't use.

The professional life of the modern Johnsonian lexicographer is a spiritual and intellectual commitment to producing an honest product. He can and does spend a whole week on one entry-word, using his brains and experience to sift every piece of evidence, engaging his inventive imagination to get it just right. He hires experts to advise him. But *he* must decide. His work is inexact. Words don't *mean*. They are tokens of meaning that exist in his mind, once he has drawn them off the page or produced them magically from under the hats of strangers. Each word is new when newly used. And this is true not only for meaning, but for pronunciation. His colleagues doing the respellings spend their days seeking truth as it may be revealed to them: what sounds are produced in the words that people speak. *Certain* people, that is, *educated* people—but, alas, people who say things in different ways. Variety! What an impossible state of affairs! Wouldn't it be fine if we all agreed how to pronounce each word and what each meant? No, it would not be. The language would be without its viability—change and variation.

The inheritors of Johnson's drudgery sit in the middle of change with boxes of stubby pencils at the ready. They look up from the page and spy a fellow worker at the opposite desk, fingers inserted in several places in a book, other books open and piled perilously upon one another, citation slips in solitaire rows. A poignant, if romanticized, tableau. A moment in the life of the lexicographer and the language. They both live not only *with* variety and change, but *by means of* them.

NOTES

[1]The standard written dialect of English has far less variation than the oral dialects do. Also, it changes more slowly, precisely because publishers make manuscripts conform to rules in grammar books and handbooks. As pronunciation distances itself more and more from the written standard (especially from conventional spelling), those who use spelling as a criterion to judge pronunciation have more and more to yell about.

[2]One reads "plover" or "bass" (as in "bass voice") or "cation" or "bade" or "primer" (a first book) and says to oneself **PLOH**-vur, **BAS**, **KAY**-shun, **BAYD**, **PRYE**-mur. Of these, **PLOH**-vur has established itself as a standard variant. The reverse case, pronunciation spelling, leads to problems of literacy, for instance, "I should of gone," "I'm gonna go," "Rilly intresting, perfesser."

[3]Much of the published work, of which a sampling is mentioned here, is based on the nationwide survey of American speech first suggested by Leonard Bloomfield in 1925, and carried out by Hans Kurath and his associates. The field work was completed for the Atlantic seaboard during the '30s and so the records are of the language of persons who learned their native tongue about one hundred years ago. Volumes based on these and later surveys include the following: Harold B. Allen, "Minor Dialect Areas of the Upper Midwest," *Publication of the American Dialect Society* (November, 1958), pp. 3-16; Walter Avis, "The Mid-Back Vowels in the English of the Eastern United States . . . ," Doctoral Dissertation, University of Michigan, 1956; David DeCamp, "The Pronunciation of English in San Francisco," *Orbis*, VII (June, 1958), 372-91 and VIII (January, 1959), 54-77; Allan Hubbell, *The Pronunciation of English in New York City* (New York: Kings Crown Press, 1950); Hans Kurath and Raven Ioor McDavid, Jr., *The Pronunciation of English in the Atlantic States* (Ann Arbor: University of Michigan Press, 1961); Albert H. Marckwardt, "Principal and Subsidiary Dialect Areas in the North-Central States," *Publication of the American Dialect Society*, No. 27 (April, 1957), pp. 3-15; Thomas Wetmore, "The Low-Central and Low-Back Vowels in the English of the Eastern United States," *Publication of the American Dialect Society*, No. 32 (November, 1959).

[4]The Merriam-Webster *Second International* (1909) shows only **EE**-un for "eon" and only **EYE**-un for "ion."

[5]The phrasing of the second of these may strike the reader as odd. Can one's opinions about how one pronounces a word be any different from one's pronunciation? Oh my! I learned many years ago that I pronounce "during" as **DYOOR**-ing when, one day, I played back and transcribed the tape of a lecture I had given. Up to that moment, I would have bet anyone a tidy sum that I never in my life had said anything other than **DUR**-ing, not even while lecturing. Such a revelation can be sobering.

[6]"Robot" introduces a complicated problem of general import. It is a term which burst into English sixty years ago. Dictionary makers who noticed it and put it in their books had to guess how it would be pronounced, since not many people knew the word and fewer pronounced it. The best guess, the analytical or analogical one, was **ROH**-but. This apparently turned out to square with what people decided to do with it. But not for long; **ROH**-but is now antiquated. The case of "logo" is similar. As a clipped form of "logotype," the term right away became common among publishers, including dictionary makers. They all knew and used "logotype" (**LAW**-guh-type), and so they said **LAW**-goh. Nevertheless, this pronunciation was short-lived, **LOH**-goh having taken over long since. The cases of "routinize," "tetracycline," and "interferon" are comparable. When "routinize" got going (about 1920), the best guess for its pronunciation was, naturally, rooh-**TEE**-nyze, but of course, it has become **ROOHT**-i-nyze (ARRGGH!). The last syllable of "tetracycline" (about 1950) could have been pronounced as "klin," "klyne," or "kleen." Dictionaries, playing it safe, tended to give all three, but today everyone pronounces the word TET-ruh-**SYE**-kleen. What is a pronunciation editor to do with "interferon?" Obviously, it should be IN-tur-**FIR**-ahn. And so it is. But I have heard IN-tur-**FER**-ahn, even in-**TUR**-fur-ahn.

[7]This points up the current instability of stress-pattern variation for words borrowed from French. The *grande monde* is re-establishing the rising pattern of French accentuation, but selectively and erratically.

William Chisholm, now a professor of English at Cleveland State University, got into the pronunciation racket by chance. He was recommended by a colleague to an editor of Webster's New World Dictionary, *who, he says, "offered me half again as much as I was making at the time teaching, so it seemed a very good idea." Dr. Chisholm, whose degrees are from Western Reserve University (B.A. and M.A.) and the University of Michigan (Ph.D.), is the author of a number of books on the English language, including* Elements of English Linguistics, The New English, *and* Webster's New World Guide to Pronunciation. *When he is not tracking down errant or deviant pronunciations, Dr. Chisholm is a chess enthusiast, fond of travel, who lists as his dependents, "one wife, three kids, six grandkids, one dog, nine fish, and six birds."*

Drawings by Leonard Trawick.

Leonard M. Trawick

John Bennett's Poetry of Beauty and Disgust

Though John M. Bennett has published poems, graphic works, and translations in over 175 magazines, journals, and anthologies, and is the author of more than thirty volumes (including such recent titles as *Ant Path, Burning Dog, Nose Death, Puking Horse,* and *Meat Watch*), his work is not always appealing even to members of that small audience in America who consider themselves regular readers of poetry. Labels like "surreal," "dadaist," "avant-garde," and "underground" suggest the non-traditional nature of Bennett's poems, but the poems are non-traditional in Bennett's own special way. And, though difficult, they amply repay careful attention.

Bennett says that the following poem, "Lip," expresses some of his feelings about his work.

> I was sitting in the basement
> forking down a horse's head the
> cellar damp was misting on its teeth
> I went and stood in front of the mirror I
> thought "I gotta pound my
> neck in nails my brain is loose" saw
> the stains inside my mouth and
> thought about the groove worn in my desk from the
> slumping of my skull
> "Is this my meat?" I asked
> and stretched my skinny lips before the light

Readers who find this poem difficult on a first reading will probably be able to return to it with better appreciation once they can see it in the context of Bennett's other work and his whole approach to poetry.

Most of us are content to take our art in small doses—a concert, a gallery show, a book of poems now and then. But for John Bennett and his wife Cathy (C. Mehrl Bennett), a mixed-media sculptor and graphic artist, art is a twenty-four-hour affair. The Bennetts live with their year-old son Ben and fifteen-year-old black cat Butts on a shady backwater of a street in Columbus, Ohio; the walls, shelves, and floors of their 1940s-vintage house are filled with Cathy's constructions, John's poems, and works of their friends. A room John added onto the house himself, extending from the second floor over the driveway, serves as his study and office, from which he operates his "alternative" publishing enterprise, Luna Bisonte Prods; Cathy's studio is in the basement.

The work of the two artists, while not directly autobiographical, reflects their immersion in their art. Both use "found" objects, images, or phrases, and they often seem to leave their work in a rough state, still bearing the undisguised marks of the creative process. The typical persona (speaking voice) in John's poems seems to blurt out what he has to say, using simple vocabulary, short sentences or fragments, and frequent repetition; the poems are sometimes printed in a thick scrawl or in crude stamp-pad lettering. Some of Cathy's sculptures are assemblages of common, cheap objects.

Art like the Bennetts' offends some people, who consider it sloppy or lacking in beauty. One Columbus reviewer recently questioned both John's and Cathy's right to be

Portrait of the artist in what some would say is an appropriate setting. The handwriting on the wall is Bennett's.

called artists at all, and dismissed John's poems as ''repulsive.'' But their work rests on a genuine aesthetic basis. A certain roughness or ''handmade'' appearance in an art work gives a sense of the continued presence of the artist; it encourages the audience to meet the artist halfway and participate in the creative experience. It's the opposite of the classical mode in which the work of art approaches timeless perfection and seems, like Keats's Grecian urn, to stand aloof and indifferent to everyday human life.

John Bennett was born in Chicago in 1942; just after World War II he lived with his family in Japan, where his father worked as an anthropologist. John spent his high-school years in Columbus, then attended Washington University in St. Louis, majoring in English and Spanish, and went on to graduate school at UCLA, where he earned a Ph.D. in twentieth-century Latin American literature. He returned to Columbus in 1969 as an instructor in Spanish at Ohio State, and since 1976 he has worked as a librarian in the OSU Latin American Library. He still keeps up with his scholarly field, and he mentions Pablo Neruda, César Vallejo, and Octavio Paz as writers who have been important to him. Clearly, if John Bennett's work appears crude, it is because he wants it that way, not because he is ignorant.

Two of Bennett's artistic activities throw light on his attitude toward poetry: poetry therapy and mail art. A certified therapist, he works with Jennifer Welch of the Ohio Poetry Therapy Center in Columbus, and for six years he has conducted weekly therapy sessions at the Central Ohio Psychiatric Hospital. His job is to help patients write poetry which will bring their buried emotions and experiences into the open where they can deal with them more effectively. Thus, though by no means rigorously Freudian, poetry therapy resembles

Family portrait: Ben, John, and Cathy Bennett. Cathy's works are on the wall.

psychoanalysis in its effort to free suppressed material from the unconscious. "People will write things that they wouldn't otherwise say or even think of," Bennett explains. "One of the reasons I myself write is to understand more. There's a lot of stuff in my work referring to daily life, the things one does through the day—going to the grocery store and what not. I want to make sense out of that level of experience in a larger context. My writing is an attempt to get at it so I can read it and understand it."

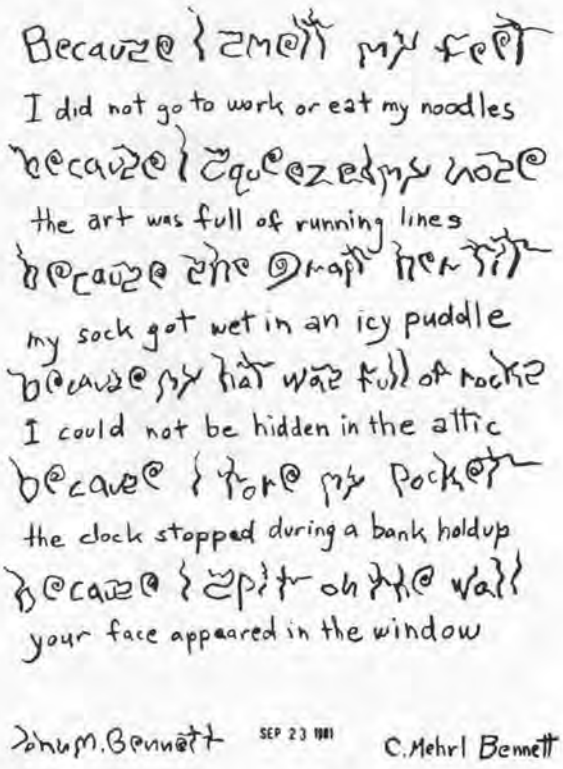
Poetry is for Bennett not only a means of self-understanding; it also satisfies, as nothing else quite does, the need to communicate with others. That is why he has long been active in the mail-art network that flourishes, throughout this country and internationally, independent of commercial publishers and indeed of commercial motives. Poets and visual artists involved in this network exchange booklets, broadsides (poems printed on a single large sheet), and other mailable works, which they print up or make individually just for the satisfaction of sending them to kindred spirits, who reply in kind. Exhibitions of mail art are mounted from time to time around the country, and address lists of mail artists are printed; but often serendipity assists the Postal Service in putting like-minded artists in touch with one another. "It's like a vast flea market," Bennett explains. "That's how I met Cathy—in the mail. She was in Iowa—and California for a while—we were corresponding; she had some mail-art name and I didn't even know she was female. But eventually she came down [to Columbus] for a visit . . . ." (Their meeting is the subject of a film, *Mail-Art Romance*, made by John McClintock, which also includes examples of mail art by other artists from fifteen countries.)

Bennett's own publishing enterprise, Luna Bisonte Prods, is an extension of the mail-art impulse to communicate. He began printing his own work in the 60s, under various imprint names such as the Frustration Press. Since he settled on the name Luna Bisonte in 1974, he has published under that imprint some eighteen chapbooks (poetry booklets)—

mostly his own work; a cassette, *The Spitter*, of himself reading his own poems; and a variety of other poetry and graphic products such as broadsides, postcards, labels, T-shirts, and drawings. Through Luna Bisonte Prods he also publishes *Lost and Found Times*, an internationally circulated little magazine that has, over the eighteen issues that have appeared since 1975, published many of the best-known poets and artists now working in Bennett's vein.

Bennett settled on the name *Luna Bisonte* (Spanish for "moon bison") because "I was interested in a phrase symbolizing opposites"—female and male, celestial and mundane. "I also wanted a name strange enough that people would notice it, have trouble spelling it—which they do!" Prods (without the period) suggests, tongue slightly in cheek, that the business handles ordinary products like hardware or cosmetics; but it also, with deeper truth, implies that it stimulates its customers' minds to greater activity. Does Luna Bisonte Prods ever make a profit? In a word, no.

A number of Luna Bisonte publications involve collaborations between Bennett and another poet or artist. He teams up with Cathy in the chapbook *Some Blood*, which contains the following calligraphed poem (a wry parody of the sentimental song "Because"):



Joint Work is a pack of 2 1/2" x 4" cards each containing one word contributed by Bennett and one contributed by collaborator Bruce Andrews. In the chapbook *Ack's Hacks*, a mail-art correspondent, Al Ackerman, performs various sorts of mayhem on Bennett's poems (e.g.: "I split your poem down the middle, then split Rilke's 15th 'Sonnet to O' down the middle and grafted the bugger together, eh?"). Ackerman, whom Bennett calls "a kind of genius," lives in San Antonio (they have never actually met); he contributes regularly to *Lost and Found Times*. Bennett notes that the surrealists often tried such collaborations; he finds them, he says, both enjoyable and stimulating. "It's also a way of understanding the other person's work, and it occasionally produces a finished product that is very exciting."

Bennett's work falls into three categories: his minimalist pieces, which usually take the form of labels containing a couple of words or phrases; his shorter poems, calligraphed in his special crude-looking but painstakingly developed scrawl and often framed or decorated with rubber-stamp images; and his longer poems—at least superficially more conventional, usually printed in ordinary type but sometimes calligraphed and decorated with rubber stamps or cut-out vignettes.

The label poems are rubber-stamped on standard, adhesive-backed labels; an assortment of them is offered for sale by Luna Bisonte Prods. Lifted out of a broader linguistic context (i.e., stuck on a window or a table) the isolated words on a label do in their small way what all good poetry does—they stimulate the imagination; specifically, they provoke the reader to *create* a context and hence a meaning. For example, Bennett's label,

NO ITCHING

calls to mind the myriad of "thou shalt nots" we meet in modern life—"no parking," "no smoking," "no loitering"—but (because of the involuntary nature of itches) it also suggests the very human difficulty we feel in always obeying all the rules. Another label,

TV CLUB

could refer not only to a social group, but to an instrument used to bludgeon a person senseless. It's also a cultural commentary in the form of an oxymoron: we have sailing clubs, drinking clubs, bridge clubs—but no real TV clubs, because TV is an anti-social medium.

Other of Bennett's labels force the reader even more obviously to reconcile two or more apparently incompatible ideas; for example, how do we make sense of this one?

If the speeder is in a car doing 75 miles an hour, he may soon become a corpse—i.e., meat. And if, as in some versions of the label, all the letters are blurred (indicating speed) except *G* and *M*, we may see a commentary on General Motors. Other interpretations will no doubt occur to the ingenious reader.

Bennett's short pieces scrawled in his special hand printing (see pp. 82–83) usually project a moment of intense awareness experienced by a semi-literate persona, who, though he powerfully feels the *thereness* of himself and his surroundings, is able to express his experience only crudely. The intentional crudeness of the expression and the initial difficulty of deciphering the script, like the brevity of Bennett's labels, induce the reader to become imaginatively involved just in order to understand the surface meaning. It is not unusual, of course, for poets to try to draw readers into a poem by slowing them down with various sorts of obscurity.

Bennett says his special handwriting grew out of his longstanding interest in the visual aspect of poetry and has evolved over several years of experimentation. The script is not as hard to decipher as at first appears; the letter formation is regular—the *s*'s, for example, are always backward, the *e*'s always spiral counterclockwise and the *g*'s clockwise. Bennett says that, although he works over most of his poems and carefully revises them, when he produces these pieces in the special script, he tries to go into a sort of trance, to

give the piece a spontaneity and a fusion of content with medium. "My approach is sort of like a Japanese Zen painting . . . . It's done quickly, and through that process of writing as an unconscious or preconscious activity, the handwriting became more expressive, and developed—and continues to do so."

Bennett's longer poems show some of the same qualities just noted in the shorter ones—an intentional crudeness, an intense focus on immediate experience, a disorientation and unexpected juxtaposition of images that often give the poems a surrealistic cast. There is also frequent anaphora or other repetition, reinforcing the sense of an obsessive grappling with a present situation, or sometimes of a mantra-like exorcism. "Speeding Chair" is an example:

I'm tripping on a chair I see a
chair falling down the stairs I'm
smelling the seat of a chair and chopping up a
chair with an ax I write
"chair" on the bathroom mirror and set a
chair in the bathtub there's a
chair smoking in the broiler a
chair sliding on the roof and a
chair slumped in the seat of my car I'm
walking toward a spinning chair
shrieking and stinking at my place at the table.

The poem begins as the persona either literally stumbles over a chair or else is taking a mental "trip" about, or in, a chair. He sees it or another chair falling down the stairs. Perhaps he only *wants* to kick it downstairs. Dwelling on the physical presence of the chair, he thinks not only of its mass and volume but of its odor—that of the humans who have sat on it. He thinks of getting rid of the chair by chopping it up or by writing its name on the mirror (where it can be wiped off—the exorcism of literature). The chair takes on human characteristics as he (again perhaps only mentally) puts it, like a child, in the bathtub; but malice turns it into a chicken broiling on a spit. Finally, he identifies with the chair as he sees it sitting in his car and "spinning . . . shrieking and stinking" at *his* place at the table. Clearly it is his own human qualities (solidity, odor, propensity for making noise and attracting attention) that he resents in the chair.

Should we take this poem literally, as a dramatic presentation of a deranged person who sees a chair or chairs coming to life? Does "tripping" in the first line mean that the person is on drugs or is dreaming about a chair? Is the poem to be read as a fantasy in which a chair really comes to life? Or should we interpret the events as a symbolic statement of a philosophical view? To make such exclusionary choices is not the way to read any poem. We should rather try to experience it simultaneously in as many ways as we can, and as we do, to recognize in it obscurely familiar feelings of our own—"blank misgivings of a creature moving about in worlds not realized," as Wordsworth put it.

Part of the effect of "Speeding Chair" is achieved by a device that Bennett frequently uses, the continual return to the perceiving consciousness: "I see . . . I'm smelling . . . I write . . . I'm walking . . . ." The poem is not about chairs, but about a person thinking about chairs, and, more deeply, thinking about his own nature.

Most readers quickly notice—and many object to—Bennett's frequent references to the physical body and its functions ("meat" is one of his favorite words) and his apparent preference for what would usually be considered unpleasant images of the external world—rotting, burning, disintegration, and filth. A similar complaint, of course, could be made against *Hamlet* or *King Lear*: art doesn't have to be all flowers.

Bennett's "repulsive" images almost always serve some artistic or philosophical purpose. Most immediately, they provide an emotional jolt that can be channelled to more subtle ends. As Cathy commented, "My first reaction to John's work was extremely negative. That's why I thought it was so important to start up a correspondence with him . . . . It made an imprint on my mind." She says she was pleased at the fervor of the damning review mentioned earlier: that was much better than bored acceptance.

Behind their oddity and clowning, Bennett's poems explore a metaphysical concern with the nature of reality. To Bennett's personas, as to the protagonist of Sartre's *Nausea*, the opacity and impenetrability of the world "out there" is sickening. (Bennett has commented that he read a lot of Sartre and Camus at one time.) In poem after poem, his personas like Nick L. Nips and No-Boy seem trapped in their physical selves—their "meat," their shoes, their clumsy and ugly bodies. When they try to act on the world around them, they are helpless before the hard surfaces, the vast inertia, and the incomprehensible, apparently random forces that go on at cross purposes to anything they themselves desire.

Many of Bennett's recurring "repulsive" images are also clearly symbolic. "Meat," he has said, "refers to one's temporal existence. Vomit refers to the process of self-expression: difficult self-expression, something that is held back and is real hard to talk about. It blurts out in a confused mess." In his recent poems, spitting is self-expression of a more controlled kind. The poet is a spitter who defiles his subject while making it his own.

Bennett denies that his poems are actually repulsive. He points out that some, such as "Diptick to C," express obvious tenderness (though the pun on Diptych/Dipstick in the title undercuts incipient sentimentality). Asked why he doesn't write more about happiness, beauty, or tenderness, he replied, "I do. They're in there, I just don't dwell on them. They are only one part of life, and I like to place them in the context of everything else . . . . It is probably hard to see, but in a way *everything* that I write about is beautiful. My point of view is to make everything cohere, and in that coherence is beauty."

When he talks about his writing, Bennett emphasizes that he is not trying merely to reproduce an objective reality; more important is the subjective consciousness by which external objects are perceived. "From the point of view that I write from, terms for limited states like tenderness or anger don't apply very well because they are occurring simultaneously." Even if the events being described seem horrible, "they are coming from a person who is experiencing tenderness, a sense of contact or communication, desire, or relationship with another person."

Bennett regards his writing as a process of discovery for himself as well as for his readers. "A friend of mine in the poetry therapy field described my work as reflecting a very close contact with my shadow self: by that she meant the other side of myself, the inside of myself . . . . It's like there's another mind or several other minds back inside me somewhere that speak through me . . . . I'm writing *from another place*, another kind of consciousness, and the work is an attempt to give voice to that consciousness (whether it's 'mine' or not)." Any attempt to reduce the experience of that "other place" to something that can be labeled with simple terms is "like trying to measure three-dimensional space from the point of view of Flatland" (a two-dimensional world invented by mathematician Edwin A. Abbott).

"Are the poems coming from that place horrible, or tender, or whatever?—Neither, or both, or something else! I suppose a lot of people see it as horrible, because it's strange and

The artist in his lair: Bennett at table in his office where he produces his rubber-stamp poems.

different, or may refer to scatological matters, but my experience of it isn't always that . . . . It's a sense of arriving at wholeness, a sense of joy, often—creation, integration, comprehensiveness.''

Bennett expects his readers to follow him into this state of illumination, though he realizes that, in poetry as in anything else, the rewards come only after effort: ''People just have to work until they get to the point where they can see it. Some of my readers have no problem, sometimes it takes them a while. They'll be sort of horrified at first, but with some acquaintance or experience with the work they will come around to the other side and see it as beautiful.''

Of course the poetic process is hard work for the poet too, as the poem ''Lip,'' quoted earlier, makes clear. In the opening lines, the poet finds himself in a damp basement—a low, mundane place, the reverse of an elevated state—eating a horse's head, that is, if we use Bennett's key quoted above, taking in or perceiving the temporal world. ''Forking down'' suggests an avid or forced kind of eating, as if he either is frantically trying to obtain satisfaction from something he can't get enough of, or is forcing down something he doesn't like. (Why a horse's head? It's an unappetizing dish, but in another context a horse's head can be beautiful; maybe ''eating'' it—i.e., trying to reduce it to part of oneself—isn't the best way to use it. The horse's head seems to stand for the unknowable ''other''—including other human beings, since it balances the poet's own head seen in the mirror.)

The poet now takes stock of himself (''stands in front of the mirror'') and realizes that his mind has not been properly focused. The remedy is a kind of crucifixion—a negation of a part of the self for the sake of something higher. It is the *neck* that must be nailed perhaps because the neck determines which way the head is turned. He then thinks of the toll exacted by a writer's labors—the compromise of language (''stains inside my mouth'') and the drudgery. Finally he asks, ''Is this my meat?''—a question that is ambiguous but that might be paraphrased as something like ''Is this physical body the real me?'' And, as if in answer, he looks directly at his poetry—his lips, the art of language: it is not as strong as he might wish (the lips are ''skinny''), but he ''stretches'' the lips, both in the sense of spreading them out to examine them, and in the sense of straining their powers to the utmost. The final, upbeat phrase, ''before the light,'' suggests both the enlightening effect of hard scrutiny and the illumination toward which the poet strives.

A paraphrase like the foregoing is of course no substitute for a thoughtful reading—an *experiencing*—of the poem itself. The best gloss on the poem, and on Bennett's poetry as a whole, may be found in this statement he has made: ''The placing of experience or self into language is perhaps the most unique aspect of being human. It is sometimes a difficult, painful, or joyful process. It is the self coming alive and leaving itself simultaneously.''

Poems by John M. Bennett

DIPTICK FOR LADY C

I looked inside her room she
had a sea inside a
stone afloat she looked at me was
sticking out her gum I
saw her smug her lust her
smile, twitching toward me

In my arms she was a
house with windows spouting hair I
touched her flow her
breasts were washing over
stars and circles flashing on her hands
she breathed with me I found a
door and stood out there
panting in her space

THREE POEMS FROM *PUKING HORSE*

I dreemed I fighting
with my x-wife,
I walking
past a gravel
pile I saw 2 auto-
carry trucks had
crashed together
they were full of
wrecked new cars

I was snipping at my finger
nails thought of putting them in
little jars I went off to
the shopping center saw a
woman with a bright pink baggie
''What you got in there'' I said
she raised her nose ''My house my
heart my 2 times daily pills''

Grey mud was oozing
thru the gravel motors
throbbing all around a
greasy mist was in
my throat I stumbled
thru the lot
''My car is death.'' I
thought and saw a bag of
hammers on the hood

NIPS WORKS

By his bed the clicking hole explodes he
stumbles up, flays his skin puts on a suit
and steps out to his Xipe Special, off to
sell his smokeveined bathroom pimple screens

He was pawing through his notes the
accountant smirked across the room What you
got those dice with knives stuck in them for?
They're paperweights you buttwipe jabber I'll use your
face instead you got the perfect pointy nose and teeth

He was sitting in his van KA EGGS painted on the
wall outside a big red garbage truck chuffing
in the slot behind the warehouse
I shoulda stayed at home and counted out my
masks my spider man my plastic man, he hums
I'm grinding in the Emory Belts of Time
I oughta smash the TV, stack it with the others on the garden wall,
he sees some birds whirling around a tree
arranges wads of chunkgum on the dashboard

He's talking to the shipping clerk, I was up all night,
counted all my change, thought about the hoses coming
out her ears and nose, but life's OK I got a
big old Meat Pack car, he tossed his butt in a hole in the
asphalt loading dock, slipped some switches in his pocket,
I talk a lot, but then I get the mutes, he says and
slaps the dented door, fires up the motor

Nick L. Nips (named after Nickle Nips, those little wax bottles containing colored liquid that used to be for sale in candy stores) is the central character in a series of poems by Bennett collected in *Nips Poems* (1980). Xipe, Bennett says, was a Nahuatl god of generation, who wore a flayed human skin as a garment.

BITING THE BRICK

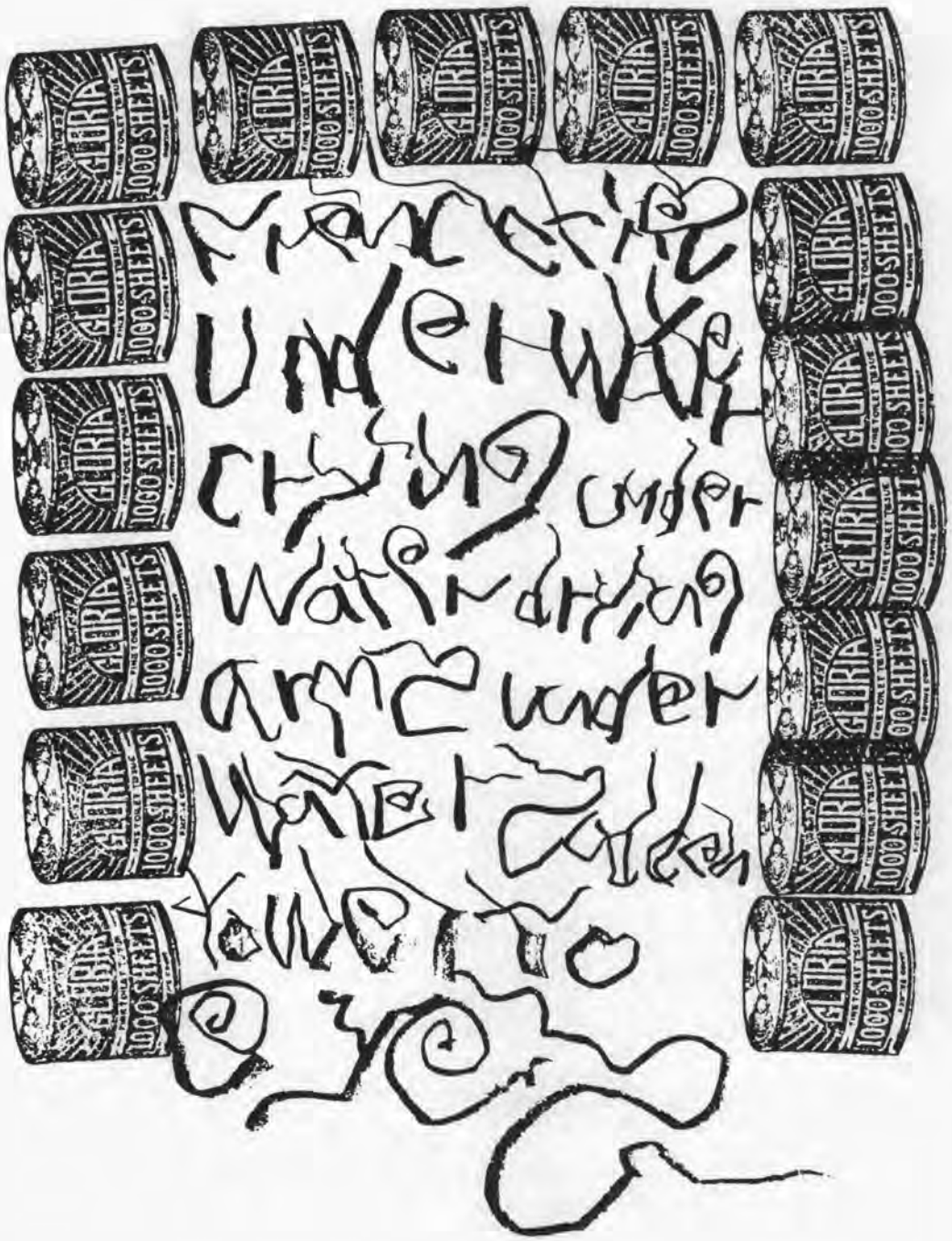
''Biting biting'' he shouts in front of the
supphose display a man in a flat white hat
is running at him an
aerosol spraycan slapping at his waist

No-Boy was pulling bricks from the mud and watching his
nails splinter and bleed on the
stuckon jags of cement
he feels the heavy blue sky on his back he's
trying to lurch himself and the
bricks upright against it

He'll be brooding in the bathtub he'll
be rising in his face he'll
be turning his fixed stare he'll
be heading again at the landfill
dragging his feet and smell to the
mud and filled up place of running water

''No-Boy No-Boy'' he mutters over and over stalking
down the street; at the drugstore, can't
find the shoelaces, hears
the rain explode outside a
flopping in his belly he wants to
vomit and be falling sleeping in the
river surging through the parkinglot

A single tooth sticks from between his lips
''It's Brick'' he thinks
lifting the dark lumpy rectangle to his mouth



French fries under water crying under water drying arms under water sodden towel to eyes

I was watching bug guts on windshield dissolve in rain

Harvey Pekar

The Novels of Daniel Fuchs, Neglected Master of the '30s

The past is full of good authors who are now unjustly forgotten, along with others remembered for reasons having little to do with the quality of their work. In the 1890s, for example, both Stephen Crane and George Ade made significant contributions to American literature. Crane is generally recognized as having done so; Ade is not. Crane, who died at the age of twenty-nine, toward the end of his career began to need money badly: his last two novels, *Active Service* and *The O'Ruddy* (completed after Crane's death by Robert Barr) are trashy, lightweight, unworthy of him. If he had continued to turn out inferior fiction for decades, it is possible that for literary critics and historians his bad work would have negated his good.

This is what did happen to Ade, at his best between about 1893 and 1903. Though he was praised by Theodore Dreiser, Ring Lardner, Sinclair Lewis and James Farrell, and probably influenced them all, Ade has now been forgotten. He lived for a long time after 1903 and turned out a tremendous amount of commercial garbage which ultimately made many readers forget about his best writing or, if they never read it, caused them to assume he was always incapable of doing serious work.

Nathanael West and Daniel Fuchs, a generation later, form a similar contrast. West died young after writing four novels, two of which are generally acknowledged to be outstanding, i.e., *Miss Lonelyhearts* and *The Day of the Locust* (about Hollywood, a perennially fascinating subject). He was S.J. Perelman's brother-in-law. His wife was Eileen McKenny of *My Sister Eileen* fame. With a great future ahead of him he suddenly died in an automobile accident in Mexico. The dramatic quality of his life and death as well as his works caused students of literature to pay attention to him.

Daniel Fuchs wrote novels fully as good as West's. Fuchs didn't write a mess of junk over several decades either, like Ade. But he simply didn't write enough to catch the eye of many critics. He quit publishing novels when he was twenty-eight and didn't start again until he was sixty-two, considered a "has-been" by some critics and a "never-was" by others. Moreover, he had a reputation for having sold out to Hollywood. West did some of his best work in Hollywood but when Fuchs went out there his most produc-

Harvey Pekar, a native of Cleveland, Ohio, works here as a hospital file clerk and is a free-lance writer with articles in such publications as Down Beat, Evergreen Review, Journal of Popular Culture, *and the* Plain Dealer Sunday Magazine. *He has long been interested in lesser-known American writers; his profile of George Ade appeared in* Gamut, *No. 4 (Fall, 1981). He is also the hero (or anti-hero) of his own comic book series,* American Splendor, *which is illustrated by various artists (a sample from issue No. 9 appears at the end of the article). A collection of Pekar's comics will be brought out by Doubleday in the spring of 1986.*

tive literary days were behind him. Fuchs had some influential critics in his corner: Irving Howe, Alfred Kazin, Leslie Fiedler. If he had written a few more good novels in the late thirties or forties he might have attracted the attention he deserved. But Fuchs chose Hollywood and the film industry. Well, some people want to be known as great artists, others are more concerned with owning a nice house and having money in the bank.

Fuchs and West were among the best of the now large and distinguished roster of American Jewish fiction writers—a group that now includes such authors as Philip Roth, Saul Bellow, Bernard Malamud, Joseph Heller, Norman Mailer, and Cynthia Ozick. Before 1930, however, their numbers were small, not only in absolute terms but in relation to the overall American Jewish population. This is understandable: many of the Yiddish-speaking Jewish immigrants and their children had not yet acquired sufficient command of the English language to enable them to become writers. And most immigrant families were too busy making a living to worry about literature. Fuchs's immigrant background probably had a large influence, both constructive and destructive, on his writing career.

The first decades of this century were years of literary ferment, as writers explored the ideas of psychologists like Sigmund Freud and William James and the techniques of stream-of-consciousness. At the forefront of the experimentation were such Jewish writers as Gertrude Stein and Waldo Frank, who came from relatively cultured German-Jewish backgrounds and were writing more in the Western mainstream than from a Jewish point of view.

But also between 1900 and 1920 the work of Jewish writers with a Yiddish, rather than German, background began to appear. Among the most significant of these was Abraham Cahan, a native of Lithuania known for his efforts on behalf of labor unions as editor of the Yiddish *Daily Forward*, but also a good fiction writer, as his short stories and novel, *The Rise Of David Levinsky*, indicate. In Cahan's dialogue one hears the English of Yiddish immigrants, the Yiddish rhythms and expressions, which will be characteristic of many later American Jewish authors with a Yiddish background.

Anzia Yezierska, also a Yiddish-speaking immigrant, began writing short stories before 1920 and within ten years was well-known and respected. Her direct, unpretentious work, often dealing with Jewish working-class people, is notable for the light she sheds on the plight of the Jewish woman in conflict with the strictures of traditional Jewish society.

Sam Ornitz, American-born of Yiddish-speaking immigrant parents, probably best remembered as a member of the "Hollywood Ten" in later life, was one of the more interesting novelists to emerge in the 1920s; he is notable as a transition figure from the Yiddish immigrant writers, such as Cahan and Yezierska, to the brilliant young Jewish writers of the 1930s, Henry Roth, Nathanael West and Daniel Fuchs. After Waldo Frank, Ornitz was, along with Jean Toomer, one of the first American writers to use stream-of-consciousness techniques. His first novel, *Haunch Paunch and Jowl* (1923), was a muckraking book attacking political and judicial corruption. In it Ornitz includes a good deal of colorful information about slum life on the lower east side of Manhattan around 1900, and in this respect forecasts Michael Gold's 1930 *Jews Without Money*. In 1927 Ornitz published a strange novel, *A Yankee Passional*, which centers on a Christ-like protagonist, Daniel Matthews, and deals at length with hatred between Catholics and Protestants in the U.S.A. There are striking similarities between *A Yankee Passional* and Nathanael West's later (1934) *A Cool Million*. The heroes of both novels are naive, saintly young men from New England who are taken advantage of by cynical, self-seeking people and eventually martyred. Fascist or Ku Klux Klan-like organizations are present in both books. Both Ornitz and West portray America as an evil, nightmarish place, though West's writing is more ironically humorous and detached than Ornitz's. Fuchs in a letter and Henry Roth during a phone call both told me that Ornitz's writing impressed them.

Roth, West and Fuchs were stylistically unique, but all belong among the top writers of the time. Roth wrote only one novel, *Call It Sleep* (1934), but it is a lyrical masterpiece.

Daniel Fuchs is certainly less well-known than West and probably than Roth, but his work more than theirs forecasts mainstream American fiction from 1940 through

1960. After the burst of experimentation from the late nineteenth century to about 1935, many novelists became relatively conservative, taking time to absorb and sort through the innovations of their predecessors. Writers in the 1935-60 period seemed interested in writing stylistically updated realistic or naturalistic fiction, a good example being Mailer's *The Naked and the Dead*.

Fuchs was a naturalistically-influenced writer in his mid-30s who balanced humor and pathos admirably. He helped establish a genre of American Jewish fiction writing that led to works such as Isaac Rosenfeld's *Passage From Home*, Saul Bellow's *Seize the Day*, Bernard Malamud's *The Assistant* and Philip Roth's *Goodbye Columbus*. Fuchs is an original stylist but his novels are fairly accessible. They are earthy and (excepting *West of the Rockies*, published in 1971) deal with low- and working-class Jews who sometimes employ Yiddish and speak English with the Yiddish rhythms of Jews of Central and Eastern European origin. Fuchs's father came to the U.S. from Russia and settled with his family in Brooklyn, where he operated a candy and news stand. Fuchs's contact with various ethnic and cultural groups there was an education in itself and provided him with rich material for his books.

Three of Fuchs's four novels—*Summer in Williamsburg, Homage to Blenholt*, and *Low Company*—written in the 1930s and set in depression-era Brooklyn, are sometimes referred to as the "Williamsburg novels." In them Fuchs describes a harsh, often sordid world, but he usually gives characters their due, trying to see life from their perspective.

Despite their richness and accessibility, the sales of Fuchs's novels were pitiful. In 1937 he was supporting himself as a substitute elementary school teacher when he was hired by RKO on a thirteen-week contract to write film scripts in Hollywood. His initial stay there was brief; he returned to New York to pursue a fairly successful career as a short story writer. But he went back to film writing again in 1940, making it his career and Southern California his home. He did not publish a novel between 1937 and 1971. Fuchs received scant critical attention in the 1930s; after that a handful of scholars barely kept him from oblivion until the slight revival of interest in his work as a result of the republication of his Brooklyn novels in 1961. Since then he has been sinking out of sight again. Currently, virtually none of his work is even in print, a ridiculous situation in view of the fact that he is one of the better American novelists of the past fifty years.

Fuchs was twenty-five when his first novel, *Summer in Williamsburg*, was published in 1934. The novel's multiple plots are reminiscent of Huxley's *Point Counterpoint* or John Dos Passos's panoramic novels, but instead of giving readers a view of the U.S., Fuchs introduces them to a lower-class section of Brooklyn called Williamsburg. The central figure, Philip Hayman, based at least to some extent on Fuchs himself, is a twenty-year-old student at CCNY living with his parents in a Williamsburg tenement. Philip is trying to make sense of the world, trying to determine what road he wants to travel in life. He considers the case of his older brother Harry, employed by their immigrant uncle Papravel. Papravel is the leader of a gang of thugs working for a bus company trying to put a rival line out of business. Papravel and Harry want Philip to come to work with them but Philip won't, partly because of the influence of his morally righteous father. But as time goes on Philip sees that his father has grown old, tired, and bitter and wonders if maybe Papravel's approach to life isn't more sensible than his father's.

Philip's friend Cohen, a fellow his own age, is a dreamer, a schlemiel, pathetically ineffectual and incompetent. He wants to be a poet, a ladies' man, a revolutionary. He's bright, but physically unattractive, unstable, socially maladroit and unrealistic. He tries one pose, one activity after another and succeeds only in making a fool of himself. Even his suicide attempt is a humiliating failure, and his eventual death in a tenement fire has its absurd aspects. He awakes in time to escape the fire but dies when he goes back to his room for his pajamas.

Among Philip's neighbors is Miller, an orthodox Jew in appearance but not in philosophy, who tells Philip "that at bottom everything in the world [is] flat and common mud," and that everything comes down to money. "Let them talk, let them write, that is the thing and the only thing."

Then there's Mahler, the cobbler, born in Russia, exiled to Siberia, escaped to China, traveled across the Pacific to San

Francisco, and finally to Williamsburg—a simple good-natured fellow who lays no claim to great wisdom and only wants to sleep and drink wine in peace; and a whole panorama of mostly poor, struggling men and women—young and old, honest and dishonest, pitiable and despicable. In order to discover what made a neighbor kill himself, Miller advises Philip to "make a laboratory of Williamsburg to find out what touched him here, why these details affected him, and in what manner. If you must really discover the reason you must pick Williamsburg to pieces until you have them spread on a table before you, a dictionary of Williamsburg." *Summer in Williamsburg* is the dictionary Fuchs offers us.

Fuchs tells us in the introduction to the 1961 Basic Books edition of his novels that he wanted to portray the characters "fairly." This he largely succeeds in doing, though (through Philip) he is surprisingly intolerant and unsympathetic toward Cohen. His Williamsburg people are multi-dimensional. Thus Papravel is a brutal thug but also loyal to his men and generous to Philip's family despite Mr. Hayman's dislike of him.

Summer in Williamsburg offers a panorama of life but concentrates particularly on young adults, individuals on the verge of making crucial decisions regarding marriage and careers. Fuchs wants to show us people coming face to face with bitter reality, as he himself was doing, working as a substitute teacher in depression-era Brooklyn. Philip ends his summer in Williamsburg as he began it, with unanswered questions: "And what is to become of me?" At twenty-five, Daniel Fuchs was probably also asking himself that question.

Terrible things happen in *Summer in Williamsburg*, a murder, suicides, a life-taking fire, and, almost as bad, the daily aggravations and frustrations that may not be dramatic but that take their toll on his characters. Despite this I do not find *Summer in Williamsburg* depressing. Not all the characters in it—not Philip Hayman, not Daniel Fuchs—have given up hope at the end. They are alive and trying to determine if perhaps there is a way out.

Fuchs's way with language is exhilarating. He has written some fine lyrical and descriptive passages here. The book opens with these sentences:

> The thunderstorm broke very suddenly. With the first drops excited women's voices were heard, windows opened and wash was hastily taken off the clotheslines. It was one of those hard, mad rains that come down as with deliberate fury . . . Soon the yard became flooded. The sewer in the middle was clogged and water swirled and gurgled on top of it, in white foam. A boy on the third floor eating peaches amused himself by throwing down the stones. He aimed carefully for the center of the swirl.

Fuchs creates vivid effects not with fancy language but with appropriately chosen images that awaken our mind's eye.

The often ironic humor in *Williamsburg* mitigates some of the tragedy. The book ends with a triumphant Papravel making a speech to his boys: "Remember, there is still a God over America. America is a wonderful country. Where in the world could a Jew make such a man of himself as right here in America?"

The second novel in Fuchs's trilogy, *Homage to Blenholt*, is mainly a humorous, sometimes absurdist novel, although Fuchs ends it very seriously. The protagonist, Max Balkan, is a young man who lives with his parents and sister in a Williamsburg apartment. Max doesn't work, he sits around trying to think up get-rich-quick schemes such as "a self sustaining parachute for people to stay up in the air as long as they felt like." Though in a lighter vein, *Homage to Blenholt*, like Fuchs's first novel, has a large cast of men and women—especially young people—out of work or scrabbling for a living, and trying to settle the direction of their lives. The title of the novel comes from an episode in which Max takes his girlfriend Ruth to attend the funeral of Blenholt, a corrupt sewer commissioner whom Max thinks of as a modern Tamburlaine. The affair is a fiasco. During the procession a woman in a car threatens to hold up the parade. Blenholt's thugs slash her tires. Later, when the ceremony is in progress she takes the stage and demands immediate payment for her tires. While John T. Casparra, President of the Williamsburg Board of Business, is speaking, "the woman with the red smudges, the driver of the Buick sedan, the tires of which had been slashed," appears:

> She was marching down the aisle in vicious determined strides, her hat askew, her face flushed and distorted. Her jaws were clamped together so tightly that they could hear her teeth grind. On she

came resolutely, and the twenty men on the platform watched in anguish, unable to move a finger. She made the sharp turn at the stairs and pumped right up to the stage. The house was enormously quiet. Straight up to Mr. Casparra she walked, set herself into position, with her legs firmly apart and slapped his face with great force.

When someone seeks to quiet her she answers, "Who's asking you to stick your goddamned nose into this, you runt. You mind your own goddamned business. I want my money for those tires and I want it now."

Meanwhile a Mr. Atwater (pronounced "hot water" by Mrs. Balkan) from the Onagonda Onion Company has been calling to talk to Max about his ideas for producing onion juice. Max assumes he's going to get hundreds, maybe millions, for it and soon everyone in the neighborhood is thinking the same thing. He feels guilty for letting his father support him with his humiliating job carrying a sandwich board. He then grows expansive, thinking of other money-making ideas, planning to use his wealth and influence to assist his family and friends. The next day Max comes home carrying a five-pound bag of onions, his reward from the onion growers, who have been using Max's ideas for years before he thought of them. He is crushed and decides to get a job and marry Ruth.

The plot is resolved as one of Max's friends, seemingly a ne'er-do-well, gives him $300 won at the race track, so he can open a delicatessen. The book ends with Mr. Balkan getting ready to go to work. His wife mocks him as he does and, in her "earthy guffaws he recognized the clamorous demands of the world, its insistent calls for resignation and surrender, and he knew now that Max would never be the same again. Much had gone out of Max, aspiration, hope, life. His son would grow old and aging die, but actually Max was dead already, for he would live for bread alone." That's a moving statement, but not a particularly valid one. First, this "for bread alone" business is baloney. Max was living for money alone when he tried to peddle his schemes. His idea always was to make money, only he wanted it by the bucketful and didn't want to work hard for it. Second, we're talking about Max Balkan, a schlep who lies around his apartment and mooches off his parents, not Huckleberry Finn, running around the country wild and free. Max is not writing poetry or music. Unlike Huckleberry, Max isn't enjoying himself idling and sweating in Williamsburg. For all we know, he'll feel better with a job, he'll be a "*mensch*." People don't die just because they go to work, and thanks to his friend, Max was going to be able to go to work as a store owner, not a flunky garment worker. Many of Fuchs's poor boyhood friends probably wound up successful businessmen, professionals, or artists who lived relatively happy lives. Certainly they "moved up the ladder"; there is no large Jewish slum in New York today. Fuchs got out of being a substitute elementary school teacher, left Brooklyn and went on to a film-writing career in sunny California, so there is sometimes life after work.

Low Company, published in 1937, was the last novel Fuchs was to write for thirty-four years. It ranks with *Summer in Williamsburg* as his greatest achievement, but the tone is grimmer, even Dostoyevskian at times. The action takes place in and around Ann's, a seaside restaurant owned by the wealthy miser Spitzbergen. The main plot concerns Shubunka, a fat, repulsive, self-pitying owner of a chain of brothels, who is being driven out of business by a crime syndicate. In one of the sub-plots, restaurant regular Moe Karty, an accountant and gambler, embezzles $1,300 from his wife's hulking brothers, who beat him brutally when they find out about it. Karty is so frightened that he kills Spitzbergen trying to get money to repay them. Eventually Shubunka, fearing for his life, has to leave town for Troy, where he has a cousin in the produce business. He is last seen "waddling slowly on his bent legs down the Parkway to the subway station, a man wrapt in his own troubles, collected, walking with the tired tread of a man going to his place of business in the morning."

Sordid though it is, *Low Company* is well constructed and even contains a certain amount of humor. But Fuchs portrays a savage society, in which kindness and charity are virtually unknown. Karty, Shubunka, and the other characters know each other but are alienated from each other, each on his own track and so concerned with his own problems that he gives scant attention to anyone else. This is why Fuchs, in opening his novel, quotes from a Yom Kippur prayer

which asks forgiveness for "hardening of the heart." Only one character, Lurie, feels some compassion and regrets that his earlier judgment of people was "hard and ignorant."

Fuchs states in the introduction to the Basic Books edition of his Brooklyn novels that he was upset by their poor sales. It occurred to him to send a short story to the *Saturday Evening Post* as an experiment. A couple of weeks later they gave him six hundred dollars for it. He'd been working on a fourth novel but broke it up into short stories which sold very well. Goodbye to Fuchs-the-Novelist for about thirty-five years.

Fuchs concentrated on short story writing for the next several years. According to him, "I used to write one commercial story and one literary story every six weeks." The literary stories would frequently appear in *The New Yorker*, the commercial ones were often for *Collier's*. His method of writing commercial stories is told through a character named Rosengarten, obviously based on Fuchs, who appears in his 1979 novella "Triplicate." "The trick was to arrange some seemingly insoluble dilemma" for an "enduring," "sorrowful," "heavy-laden" but not "self-pitying " hero to solve. "It was a matter of aligning the sympathies of the reader according to a calculated continuity or plot. The ingredients were not only artificially put together, they weren't even interesting to Rosengarten the fourth or fifth time around. He wrote the stories with no real feeling . . . ."

A collection of some of Fuchs's best short pieces, *The Apathetic Bookie Joint*, was published in 1979. It includes a number of pieces that appeared in *The New Yorker* from 1938-42 and 1953-54, as well as some things done in the 1970's, including "Triplicate," printed here for the first time.

The '38-'42 pieces contain some good vignettes, in which the action takes place in only minutes or a few hours. Though there is humor, most of the stories deal with disillusion and failure. In the title piece, the central character is an accountant who can't pass his CPA exams and has to work for his bookie brother-in-law. He finds this humiliating and considers the people he deals with disgusting, while they constantly insult and laugh at him. At the end of the story, after being hassled by a police detective, he is wild with frustration and repeats, "I don't care if I live or die."

Fuchs, incidentally, often wrote about horse racing and betting in both his stories and his novels. From what I can gather, Fuchs himself spent a good deal of time at the tracks and his portraits of gamblers and gambling were based on first-hand observation. Other stories from this period deal with romantic relations between young men and women. Taken as a body today they, like his Brooklyn novels, contain a full measure of humor and poignance. In a couple of the stories Fuchs presents us with the theme of young women weighing the virtues of bright young suitors without money versus older, more financially secure men, a choice faced by Tessie, one of the central characters in *Summer in Williamsburg*. Here again Fuchs deals with the issue of whether young people should be "practical" or idealistic.

Few if any novelists of Fuchs's stature have defended Hollywood the way he has, but his first experience there in 1937, when he stayed for about three months, was at least in some respects an unhappy one. He writes about it in "A Hollywood Diary," an ironic story during which he gives the impression that the film industry is run by callous, wasteful, disorganized, stupid people. Nevertheless, Fuchs went on to become a Hollywood screenwriter for good in 1940. He was not uncritical of the movie industry and life in Southern California but certainly displayed a good deal less distaste for it than for Brooklyn. In an article for *Commentary* ("Writing for the Movies," February, 1962) Fuchs says, "Generations to come, looking back over the years, are bound to find that the best, most solid creative effort of our decades was spent in the movies, and it's time someone came clean and said so."

Alvah Bessie in *Inquisition in Eden* (1966) has given a revealing glimpse of Fuchs in his Hollywood days. Bessie tells of his own first day as a script writer, when he went to look up Dan Fuchs, and was impressed to find the names of William Faulkner and Richard Aldington also on the billboard directory:

> I was feeling pretty good as I walked down the corridor looking for Dan's office. For here were three writers I respected: two of them major novelists, in my opinion, and one, Dan Fuchs, a man whose humanity and warmth and sensitivity I had felt

first in his novels *Homage to Blenholt* and *Low Company* . . . .But when I walked into Dan's office, the first thing he said was, "Don't ever let me hear you make another crack like that."

"Like what?"

"When a producer asks what you think about a script—you said you think it's good."

"It *is*," I said, sitting in a chair opposite his desk.

"Of course it is," he said, deadpan. "But we've been put on the script to rewrite it, so it has to stink."

My mouth was probably open. This time he smiled a little and said, "Listen to me. The first thing you have to learn out here is that you can't make anything good. They won't let you. The original material stinks; but if you play it right, you can be on top of the heap in a couple years and making big money . . . ."

Big money—or rather the desire for it—was not something I had ever found in Dan's novels (or in the emotion that lay behind his total involvement with the poor and the exploited of the Brooklyn milieu with which he dealt). To the contrary, he had lived for years on the miserable pay of a substitute teacher in the New York school system, and I suppose I expected him to be the same in Hollywood as the sweet and somewhat melancholy man I had known in the Prospect Park section of Brooklyn.

One wonders, when reading Bessie's recollection, how sincere Fuchs was in his endorsement of the Hollywood film industry.

Between 1942 and 1971 Fuchs concentrated on screenplays; he not only didn't write a novel, he produced only a handful of short stories, four of which were printed by *The New Yorker* in 1953-54 and show Fuchs's style in transition. One of these, "Man in the Middle of the Ocean," set in New York, is about malice and aggravation, and contains some of the most truly nasty dialogue I have ever read. The other three, set in California, deal with various forms of disillusionment and failure. In contrast with these stories, Fuchs's 1930's material is more humorous, more exuberant and earthier, but that is perhaps to be expected. Fuchs was young in the thirties, middle-aged and writing about middle-aged people in the fifties. Fuchs was also writing about a different kind of person in the fifties—the nouveau riche, who as a class may be among the least likeable people on earth.

Fuchs had virtually no work published between the mid-fifties and 1971. In '71, however, a couple of his essays appeared as well as his first novel since 1937. In the essays, "The Earthquake of 1971," "The Williamsburg Bridge Plaza," and "Ivanov's 'The Adventures of a Fakir': a Story" (all in *The Apathetic Bookie Joint*) Fuchs calls forth images from his memory, using free association to string them together. The result is lyrical, touching. These are unhurried unstrained pieces that affect me the way good impressionistic music does.

West of the Rockies, the last novel (1971), has its merits but on balance is disappointing. It gives us a behind-the-scenes look at a female movie star in crisis. The plot and content are too much like other novels and movies depicting decay in Hollywood (particularly *The Goddess*), and the characters are too close to stereotypes.

"Triplicate," a fifty-four page novella published for the first time (1979) in *The Apathetic Bookie Joint*, is another matter. I consider it one of Fuchs's best works, a culmination of experiments he began in the mid 1950s. It's obviously an autobiographical piece, taking place around 1958. The central figure is Rosengarten, a novelist and screen writer who has moved to California from Brooklyn. Though married he is attending a party alone (his wife thinks it would somehow be unseemly for her to attend one of these Hollywood affairs with him). The party's host is Stanley Garrison, in his late forties, chubby, eager to please but shy, the son of extremely wealthy parents. Other important characters include the director James F., who never actually appears but is talked about a good deal. James F. stands up an actress he's supposed to meet at the party. Then there's Sally Renick, a retainer for movie star Paul Devaney, Louisa Lissak, a wealthy relatively young spinster who'd been involved romantically with James F. and whom Garrison wants to marry, and Rogers Hammet, once a highly respected and creative Broadway producer, now, in his fifties and burned out, a petty hustler.

"Triplicate" is told through Rosengarten with the use of techniques that can be traced back to Proust and Joyce. Fuchs uses free association, stream-of-consciousness writing, flashbacks, and even a "flashforward," but despite its seeming formlessness, "Triplicate" is fast-paced and has good continuity.

As the story evolves we get more and more of Rosengarten's memories of James F.,

who has had a remarkable number of "hit" movies but can't understand why people like them. Fuchs, through Rosengarten, also speculates about that, just as he'd previously wondered what made the actress in *West of the Rockies* a star. It's important to note here that Fuchs didn't wonder what made James F.'s movies good, he wondered what made them popular. Sometimes I think Fuchs makes little distinction between good art and art that sells well.

After fifteen pages Hammet walks into the party—crashes it, actually—and for twenty-three more pages we read about his rise and fall, his large vision, his once great energy which had waned to nothing, his irresponsible behavior toward his colleagues, his vicious gossiping.

Rosengarten had associated with Hammet years earlier when the older man had been interested in dramatizing one of his novels. The project had fallen through but Rosengarten was still grateful to Hammet for opening his eyes to a world he'd never directly experienced. Hammet accuses Rosengarten of selling out to Hollywood, of doing hack work. Rosengarten defends himself by saying that a magazine he'd written for, with high literary standards, had its restrictions and conventions too, that whether you wrote for Hollywood or *The New Yorker* (presumably the unnamed magazine) you were going to run into restrictions of one kind or another. What Rosengarten-Fuchs does not consider in "Triplicate" is the possibility of writing as good a novel or story as he can without worrying about commercial considerations and then trying to sell it. Fuchs had attempted that with his first three novels, but when they sold badly and he found he could make good money writing short stories, commercial considerations must have become more important than artistic ones. Why else would he have broken up what would have been his fourth novel into short stories?

After the long Hammet section and an overview of the party, the focus shifts into the future to the aging director James F. and his loss of his powers. But Fuchs gives the last page and a half to Hammet, who concludes:

> Sometimes, as you move along in a crowd a woman's face will suddenly flash out at you, a resemblance to someone who died a long time ago . . . and it comes to you with a pang—the life going on, everything as usual and your friend not there . . . The life going on in Knightsbridge and you not there. The young girls in the late fall afternoons, the smell of snow in the air, the feel of winter coming on, the people getting out of cabs, bringing home packages, going to restaurants, the street lamps lighting up, the bustle, the life—NO MORE, NO MORE.

Thus as an older man Fuchs looks to the past with the same pessimism that he looked to the future with, in his youthful writing.

Daniel Fuchs is now 76, an age at which we can reasonably take a retrospective look at his career. In correspondence with me he has not been eager to discuss his works or life, but the record speaks for itself. Fuchs was one of the pioneers—and remains one of the masters—of the Jewish-American novel, depicting realistically or naturalistically the lives of mostly poor people in urban immigrant and first-generation American families. His combination of naturalism and humor was unique in its day and it anticipated later writers like Malamud, Bellow, and Philip Roth. His novels and stories—with the exception of *West of the Rockies*—are intellectually substantial, emotionally moving, and technically well crafted. They are eminently worth reading now, as they were fifty years ago.

Fuchs was a realist with a naturalistic bent; one need only read old Miller's "dictionary of Williamsburg" statement to realize that Fuchs was a determinist throughout his career (one of the defining characteristics of naturalism in literature). He describes Hammet in "Triplicate" as "out of control," as if he's talking about an old, broken-down machine that can no longer function. There is compassion for Hammet's physical and mental deterioration, but Fuchs treats the aging man's condition as something out of anyone's control. He writes of the harm Hammet's breakdown causes from a scientific rather than a moral standpoint. There is a strong strain of naturalistic pessimism in Fuchs's work, evident, for example, in this sentence from the end of *Summer in Williamsburg*: "People were born, grew tired and calloused, struggled and died. That was all, and no book was large enough to include the entire picture, to give the completely truthful impression, the exact feeling."

Yet side by side with the pessimism, at least in the 1930s novels, is humor that goes beyond irony, such as the attack of the en-

raged woman on Casparra in *Homage to Blenholt*. Moments like these are not easy to find in the works of the Goncourt brothers, Zola, or Dreiser. Fuchs's humorous writing indicates that he knew life can be hugely enjoyable.

I have already mentioned the charge made against Fuchs that he "sold out to Hollywood." His relation to Hollywood is just an aspect of his fundamentally bourgeois values. With all its faults he apparently believes that southern California is a better place to live than Brooklyn. He writes frequently of Brooklyn's squalor and ugliness and the coarseness of its people. The richness of life in the Jewish neighborhoods of New York was not enough to keep him there, even though he was seemingly making a pretty good living as a short story writer. Instead, the money and glamour of the movies drew him to Hollywood. Fuchs has spoken with enthusiasm about the artistic accomplishments of Hollywood movie makers. Of course, movies have as much intrinsic merit as any artistic medium if their creators do not have to compromise the value of their work, but did Fuchs actually believe the films he loved starring Bebe Daniels and Norma Talmadge were aesthetically the equal of novels by Flaubert, Melville, Dostoevsky, or Joyce? Maybe he did, but I hope not.

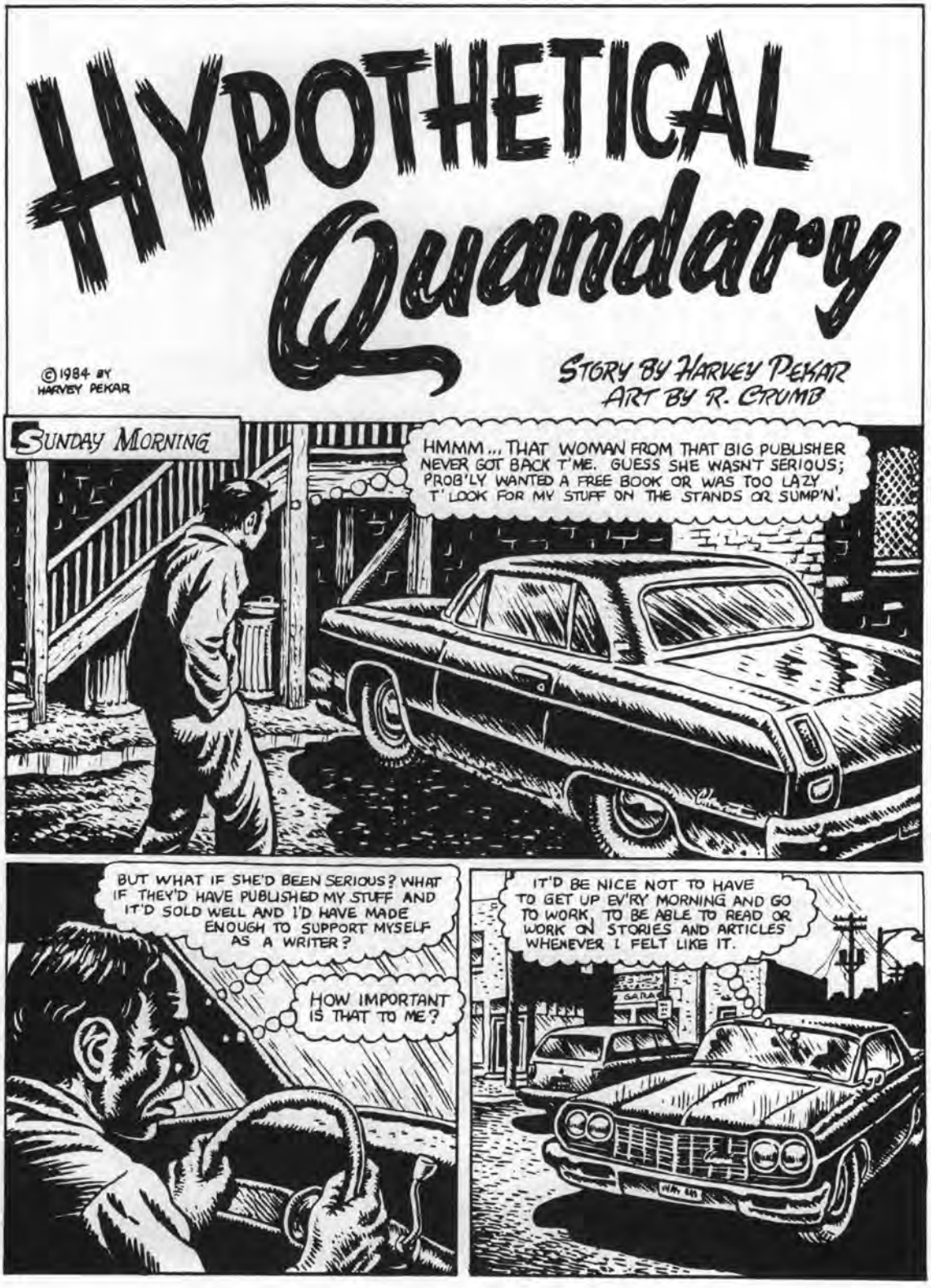
Fuchs's emphasis on the need for people to be "practical" can be narrow, as his portrayal of Cohen and the Communist Party in *Summer in Williamsburg* indicates. Cohen is described by Fuchs as ineffectual, impractical—a schlemiel. Speaking about his own past, Fuchs has mentioned friends in his neighborhood who were experts on Joyce, Proust and Henry James, but "wore the same pair of socks for a week." One wonders if perhaps Fuchs values people who change their socks every day more than scholars who aren't concerned about their physical appearance.

In any event, if an author can ever be said to be unfair to one of his characters, Fuchs is so to Cohen, who, after all, is a young man and still has time to choose a career. Of course Cohen is badly mixed up and deluded—not surprisingly since he's Fuchs's straw man, or straw schlemiel—but he doesn't harm anyone and doesn't deserve the scorn heaped on him by, among others, Philip Hayman, the character who seems to speak for Fuchs. Philip at one point calls Cohen "a load of crap."

In one episode, Cohen hears a Communist making a speech on the street and thinks that maybe by living for others he'll save himself. He goes to a party office where he meets a young woman named Shura who impresses him as someone with vast experience. She tells him that she will do something for him some day that will "wake him up." He takes her to a Greenwich Village cafe "full of derelict poets and gin imbibing homosexuals." There she ridicules him as callow and leaves him, going off with one of the self-important poets. After this incident Cohen abruptly quits the party and immediately adopts a negative attitude toward it, which Philip already has. Fuchs never seems to acknowledge that in the 1930s many gifted and idealistic young people were involved in the Communist Party and they did a lot of good for America in a number of ways, despite the fact that they were naive about Stalin. I'm sure Fuchs realized that the overwhelming majority of them did not favor totalitarianism. It is distressing, then, that he dismisses the American Communist movement so facilely, so smugly.

The episode just mentioned also shows Fuchs's smug attitude in portraying Greenwich Village bohemianism, as if there were no serious artists and writers in the Village, just a bunch of silly, posturing kids. Fuchs was poor and only twenty-five when *Summer in Williamsburg* was published, but he already shows middle-aged and middle-class stuffiness. It is almost as if young Daniel Fuchs came to believe the advice of his character Miller, who says that money is "the thing and the only thing."

Though I don't like some of Fuchs's bourgeois values, they do not significantly flaw his writing. Like Balzac, Fuchs was sympathetic to the poor but did not want to be in their ranks. His "commercial" stories should not be allowed to overshadow his top-notch work. The fact remains that no novelist has written better about the American Jewish working class. Since 1965, Malamud has won a Pulitzer Prize, Bellow a Nobel Prize, and Philip Roth's books have sold in the millions. Anyone who enjoys their work should get acquainted with Fuchs, because it was he who helped found their genre, and in some ways he is still unsurpassed in it. □


HYPOTHETICAL
Quandary
©1984 BY HARVEY PEKAR
STORY BY HARVEY PEKAR
ART BY R. CRUMB
SUNDAY MORNING
HMMM... THAT WOMAN FROM THAT BIG PUBLISHER NEVER GOT BACK T'ME. GUESS SHE WASN'T SERIOUS; PROB'LY WANTED A FREE BOOK OR WAS TOO LAZY T' LOOK FOR MY STUFF ON THE STANDS OR SUMP'N'.
BUT WHAT IF SHE'D BEEN SERIOUS? WHAT IF THEY'D HAVE PUBLISHED MY STUFF AND IT'D SOLD WELL AND I'D HAVE MADE ENOUGH TO SUPPORT MYSELF AS A WRITER?
HOW IMPORTANT IS THAT TO ME?
IT'D BE NICE NOT TO HAVE TO GET UP EV'RY MORNING AND GO TO WORK, TO BE ABLE TO READ OR WORK ON STORIES AND ARTICLES WHENEVER I FELT LIKE IT.


BUT THEN I'D SORT OF BE OUT OF THE STRUGGLE, SORT OF IN AN IVORY TOWER WATCHING THE MAINSTREAM OF LIFE GO BY RATHER THAN PARTICIPATING IN IT...
I'D BE ALIENATED BUT I WOULDN'T THINK I HAD THE RIGHT TO FEEL BAD ABOUT IT. I MEAN, I'D BE A WELL-PAID, FAMOUS AUTHOR. WHAT RIGHT WOULD I HAVE TO COMPLAIN ABOUT ANYTHING?
MAYBE MY WRITING WOULD SUFFER. I'VE GOT A PRETTY UNIQUE VIEWPOINT NOW... I'M A WRITER BUT IN A LOTTA WAYS I'VE GOT A WORKING MAN'S OUTLOOK ON LIFE. I'D HAVE TO AS LONG AS I'VE WORKED AT REGULAR DAY JOBS.
A COUPLA THOSE, ANNA RYE BREAD...
STILL, MAYBE I'M MAKING TOO MUCH OF THIS. AS LONG AS I'M ALIVE I'LL BE FINDING INTERESTING THINGS TO WRITE ABOUT, MEETING INTERESTING PEOPLE...
IF I LIVED A DIFFERENT LIFE I COULD STILL WRITE ABOUT IT.


BUT WOULD IT BE AS INTERESTING A LIFE? MAYBE IT'D BE TOO BLAND...
BUT THEN, KNOWIN' MYSELF, I COULD ALWAYS FIND SOMETHING TO GET SHOOK UP OVER AND WRITE ABOUT. LET'S FACE IT, I'M NOT GONNA BECOME A MELLOW MAN OVER NIGHT, NO MATTER WHAT HAPPENS!
ABC auto Glass
OH WELL, IT'S ALL HYPOTHETICAL... THAT WOMAN DIDN'T CALL ME BACK...
SNIFF
GAS
SELF-SERVE $1.03
AH, FRESH BREAD!
THE END

BACK MATTER

Supporting the Arts: A Comment

To the editors:

I have read the Spring-Summer *Gamut* and especially the section, ''Supporting the Arts,'' with great interest.

There are a number of interesting ideas introduced, albeit, not new, but well synthesized. There are also several omissions if one is discussing arts support.

1. The definitions of what constitutes the arts *have* changed and broadened in the last twenty years. This means that the job of teaching, judging, criticising, viewing, listening, analyzing has become ever more complex. For, just as Bach may stand forever (the multiple recognitions of his birthday this year attest to some unanimity on the subject), so may some recent contributors, i.e., the Beatles, who have contributed in unique and wonderful ways to the cultural heritage. Valuing one does not exclude valuing the other.

2. Support for the arts can only come if the arts *are* valued. Telling people that they are valuable does not automatically develop audiences. Teachers, faculties, media (or other communications vehicles) and the arts groups themselves must look at the opportunities to penetrate the barriers of disinterest and distrust and engage the American public in the arts appropriately. A program of the Cleveland Area Arts Council housed at Cleveland State University for the last 10 years hits at the heart of the matter, for it focussed on the arts education needs of teachers who transmit attitudes to children. The Education for Aesthetic Awareness program has affected well over 1000 administrators and teachers in the schools of the area. It may well be the most important legacy of the Cleveland Area Arts Council, since it relates most to future support for the arts. Proper education from childhood to adult maturity builds the audiences for today and tomorrow. If we do not know how to create an educational environment where the arts are valued, this will always be in jeopardy.

3. The Forum on Cultural Planning was about bringing new support ideas for culture to the city. From the many spokespersons involved, some have returned to assist the public or private sector in particular ways. Cleveland has a piece of arts legislation for consideration this fall that would designate 1.5% of the estimated construction cost of a building for art work. This idea was resuscitated at the Forum, and it has taken many meetings and commitment to get it to the point of introduction as a piece of legislation. The Mayor's office has been attempting to bring City and County together to examine the ways that the cultural resources can be best serviced.

Nina Gibans

Nina Gibans was the organizer of the Forum on Cultural Planning which was held in Cleveland last year and discussed in the last issue of The Gamut.

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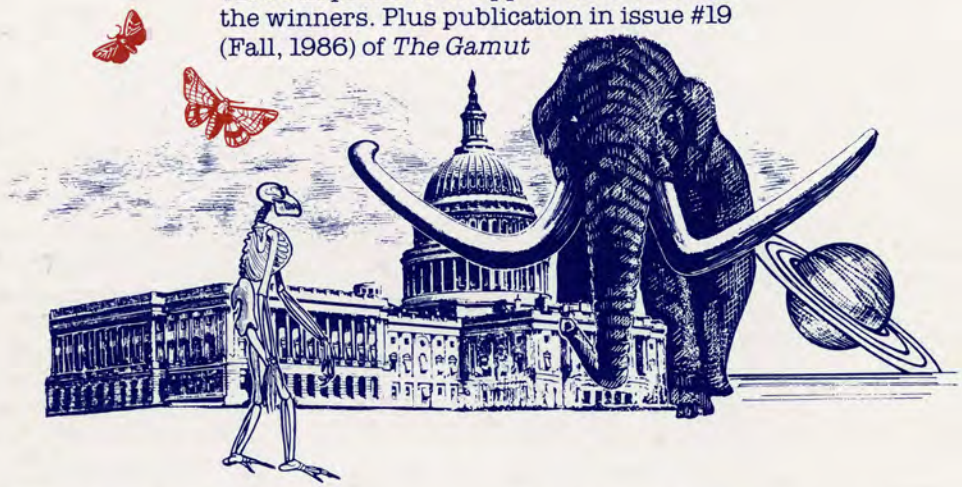
WHAT IF...?

A Futurological Writing Contest

$1000 in prizes to be apportioned among the winners. Plus publication in issue #19 (Fall, 1986) of *The Gamut*



Mode or genre

Essay, fiction, or verse

Subject

Imagine that some specific change occurs in human beings or in some aspect of our environment, some time in the near future (the next 100 years); then trace the effects of this change upon human life. The change may be improbable or probable, and your treatment of it may be serious or humorous, realistic or fanciful; but the best will in some way provide an insight into human life now and in the future.

Examples

A force appears which neutralizes or distorts electromagnetic waves; or the sex urge disappears; or the mean temperature of the earth rises / drops significantly; or the secret of eternal life is discovered. You may use these or, preferably, invent your own.

Restrictions

3000 words or under; original; not previously published

Deadline

Received in our office by May 15, 1986

Format

Typed or word-processed (on good quality printer); double-spaced; photocopies accepted. Illustrations encouraged (submit photocopy).

Entry fee

$2.00 per entry

Decision of the judges will be final.

Send entry, fee, and a self-addressed, stamped envelope (if you want your work returned) to:

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