The Bicentennial: Science Loses Out

It has been rumored that someone's idea of an arresting way to celebrate America's science and technology for her 200th birthday is to build a firecracker that could be seen from the moon.

The imagined project reflects the kitschy nature of many of the events planned for the nation's Bicentennial. But as a reflection of enthusiasm on the part of the country's scientific community, it is way off the mark. As far as the Bicentennial goes, science has hardly gotten off the ground.

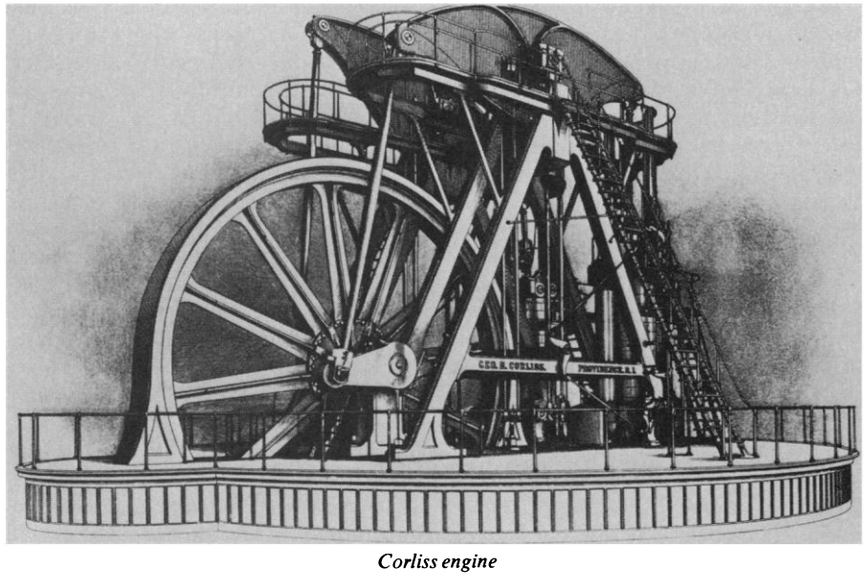
For a nation built on science and technology, whose political system and wealth have permitted extraordinary scientific freedom and led to the heaviest use of technology of any country, it is ironic that most Americans will see out 1976 knowing little more about American science than the usual lore about Ben Franklin and Thomas Jefferson.

The official Bicentennial structure is not designed to encourage any coherent assessment of the role of science and technology in the United States. The American Revolution Bicentennial Commission, set up in 1966, was originally composed of a high-minded group of people who wanted to tie the Bicentennial in with the establishment of concrete national environmental, social, and other goals. But the Nixon team was cool to this approach and the group eventually metamorphosed into one dominated by Presidential political pals. No one could agree on anything meaningful and significant, and the commission was eventually dissolved amid cries of politicking and commercialism.

Plans for a grand national focus disintegrated and were supplanted by the concept that the Bicentennial should be a grass roots affair, with everybody doing his own thing. So in 1973, a more modest version of the commission, the American Revolution Bicentennial Administration (ARBA) was created as a clearinghouse for information and a disseminator of money. ARBA got a $20 million authorization from Congress, of which $11 million has been appropriated.

The theme of the Bicentennial is tripartite: Heritage (the past), Festival (the present), and Horizons (the future). Three agencies, the National Endowment for the Humanities, the National Endowment for the Arts, and the National Science Foundation (NSF), have been designated to assume leadership in these respective areas and to pass on money from ARBA to worthy projects.

Historical and artistic endeavors have been moving apace. But science has missed the boat. The NSF has been doing its best to make do with the $200,000 ARBA grant it received, but it all seems to be a matter of too little and too late. In early 1973, when planning in other sectors had been going on for some time, NSF held a conference in Tucson, Arizona, on what to do about science, technology, and the Bicentennial. "Science and technology will want to make a significant statement for the Bicentennial," proclaimed the ensuing report, a statement that now appears to have been ill-founded. A slew of ideas were proposed, including a television series on science and technology in the United States modeled on the series "Civilisation;" a Hall of Human Genetics where people could develop their genetic profiles with a computerized console; a simulated moonscape people could walk through; and gorgeous monumental replicas of such major discoveries as the DNA molecule and the quantum-mechanical atom. There were various suggestions for opening the world of science to the lay public—including the recommendation that for every professional lecture a scientist makes in 1976 he or she should also give a lecture to a lay group.



Corliss engine

Virtually none of these schemes is likely to be realized. Although the NSF report seemed to assume that "the scientific and technological community" would carry the ball, the fact is that this community seems to be at least as bored by the Bicentennial as anyone else is.

Following is a brief listing of what is going on among the various segments of America that might be expected to take advantage of the Bicentennial occasion:

• Television: According to David Prowitt, a producer of science-related TV shows who conducted a survey early this year, plans for Bicentennial shows celebrating science are just about "zip." This is despite the fact that TV is an ideal medium for communicating such complex subjects and is available to practically everyone. The major exception is a cooperative arrangement between NBC and the British Broadcasting Company for a 2-hour special on the impact of scientific inventions on U.S. history. Most TV ideas have come to naught, though. The Smithsonian Institution had hoped to do a series with the support of duPont, but duPont said it is trying to save money and declined to participate. So the plan fell through. Said Prowitt's report, "the Bicentennial television audience will get far more of an impression of America's founders than of its future and of its frontiersmen and politicians than of its scientists and inventors."

• State Bicentennial commissions: A few states and localities have science-related projects. Colorado has plans to clean up various aspects of its environment, and Iowa will have a world food conference. Substate regions, for the most part, prefer to concentrate on highlighting their own heritages, staging plays on history, calling attention to their own peculiarities, cleaning up their antiques, and so forth. The "Horizon" aspect is being largely ig-

nored—in fact, there is little or no coordination between Bicentennial organizations and the various commissions on the year 2000 springing up around the country.

• Federal agencies: Apart from the NSF, science-based agencies are hardly lifting a finger. There appears to be some routine film-making and upgrading of visitors' centers under the Bicentennial aegis. The National Aeronautics and Space Administration (NASA) boasts the most sensational project: every effort is being made to have the Viking spacecraft land on Mars on 4 July 1976. This is perhaps the most conspicuous example of a common practice: putting the Bicentennial stamp on things that were happening anyway. (NASA can at least be credited with thinking ahead. A document prepared in 1966, before the space program got its wings clipped, noted that the manned flyby of Mars in 1976 "could offer a good topic for celebration" of the Bicentennial.)

• Private industry: Corporations, especially those hard hit by the recession, seem to have the blahs about the Bicentennial. High-technology enterprises, which could be expected to seize the opportunity to demonstrate the role of technology in shaping the country's past and future, tend to be more likely to subsidize historical rather than scientific projects. IBM is an exception—it has given a $500,000 grant to the Metropolitan Museum of Art for an exhibit on Jefferson and Franklin. The exhibit is now touring Europe and will travel around this country throughout 1976. Xerox Corporation is donating its conference center in Virginia for NSF Bicentennial symposia; American Express plans to wash the Statue of Liberty. But many companies seem to share the sentiments of a duPont spokesman who thinks the Bicentennial has already turned into a "200-year-old bore." Corporations are not particularly turned on by projects for which their support has been sought, and in fact they haven't given the matter much thought.

• Scientific societies: Often cited by Bicentennialists is a large traveling exhibition on chemistry, called "Taking things apart and putting them together," created by the American Chemical Society (ACS). Less known is the fact that the exhibition is for the purpose of marking the 100th birthday of the ACS. It has nothing to do with the Bicentennial—indeed, the exhibition readily qualified for the Bicentennial imprimatur but ACS saw no point in applying for it. (The logo was supposed to be a mark of quality, but its indiscriminate application has cheapened it.) Other societies, including the AAAS, are planning to put a Bicentennial slant on their annual meetings. The National Academy of Sciences and the American Academy of Arts and Sciences are considering holding special Bicentennial forums, but plans are still vague.

• Museums: These have taken the lead in celebrating science and technology. In Philadelphia, where the heaviest concentration of science-related projects has been developed, the Franklin Institute is putting on several major exhibits including models of alternative future environments (high, low, and medium technology), and an exhibit on the relationship of science and technology to the arts. The Smithsonian Institution will carry the Bicentennial banner in Washington, D.C., with several major exhibitions and the opening of the new Air and Space Museum. The Museum of

Interior Secretary Resigns

The resignation of Interior Secretary Stanley K. Hathaway on 25 July because of a temporarily incapacitating state of depression brought to a poignant end what may stand as a particularly disturbing story of politics dominating appointments to high office.

The story began early last spring when President Ford nominated Hathaway, who had just finished two terms as governor of Wyoming, to succeed Interior Secretary Rogers C.B. Morton. Hathaway had accepted the nomination at the urging of friends like Senator Clifford P. Hansen (R–Wyo.), who very much wanted to see Interior headed once more by a Westerner who had grown up politically with the resource-user interests that have long held sway in the Rocky Mountain region.

In accepting, Hathaway turned down a federal district judgeship with life tenure and none of the tensions and uncertainties of a Cabinet job. Ironically, a committee of the American Bar Association had looked into Hathaway's background and was prepared to recommend him as well qualified.

Measured against the often conflicting responsibilities of an Interior Secretary, Hathaway's qualifications for the Cabinet post were not self-evident. As governor, he had been highly popular with a small and homogeneous constituency of Wyoming ranchers, farmers, and small town lawyers and business men. But Hathaway had shown no special ability to accommodate Wyoming's conflicting needs for economic growth, environmental protection, and careful resource management. Wyoming's several small environmental groups were especially critical of his administration's wholesale leasing of state coal lands.

Why did the White House choose someone with Hathaway's mixed and mediocre record? In part, this choice reflected President Ford's desire to ingratiate himself with Republican party conservatives, the Rocky Mountain states. Indeed, the President has told some visitors that he regarded the Hathaway appointment as a big plus for the 1976 election year.

From what the secretary's friends have revealed, Hathaway took in a hard, personal way the criticisms he received during the more than 2 months his confirmation was pending. After the confirmation ordeal, Hathaway experienced other problems.

One was simply the crossfire of demands that any Interior Secretary must learn to cope with. This was inevitable, but the White House was reported to have imposed another and quite unnecessary problem on Hathaway: Although he wanted to promote an experienced career official to the key post of Undersecretary, the White House insisted that the job be filled by William S. Banowsky, a 38-year-old Churches of Christ minister and president of Pepperdine University in California.

Banowsky was commended for the job because he is identified with the Republican right wing that Ford is courting in order to head off possible competition from Ronald Reagan for the presidential nomination next year. On 23 July, Banowsky announced that he was not a candidate for the job. Prior to this he had called on key senators and reportedly had found that he would have trouble obtaining confirmation.

By then Hathaway had been hospitalized for several days. His wife, apparently deeply upset by her husband's condition, also was entering a hospital. Although both are expected to fully recover within a few months, their experience will stand as a pathetic testament to the vagaries of political patronage and its frequently unhappy consequences.—L.J.C.

Science and Industry in Chicago is weighing in with a grand exhibit called "America's inventive genius."

So, it would seem any Americans hungering for immersion in science and its contributions to the Republic will have to go where they always have gone—to museums.

The NSF has laid aside whatever fancy dreams it had and is concentrating its resources ($300,000 of its own money from the public understanding of science program—the $200,000 from ARBA has already been given out in grants) on a series of three international symposia, called "Knowledge: 2000." The Xerox Corporation is donating the use of its international training center in Leesburg, Va., with its spectacular assortment of communications equipment, for the meetings. The symposia are designed to fill in the rather large gaps in projects nationwide—the paucity of corporate involvement, the lack of futures orientation, the thin interest in science and technology, and the absence of international cooperation. The symposia will deal, respectively, with the generation, transmission, and use of knowledge. The meetings will be tightly structured, with participants drawn from six sectors of government, business and academia. The chief purpose is to distill discussions into hour-long video tapes accompanied by discussion guides and action guides. These are to be disseminated as widely as possible, and it is hoped the films will be good enough to interest the Public Broadcasting System.

Apart from this noble effort, science is getting short shrift. Why? The easy answer is that there has been a singular lack of leadership from Washington. ARBA has failed to exercise even the kind of initiative that its limited mandate permits—that is, ideas—and has settled down to a level of visibility that would be the envy of any subversive organization. As for the President, people can be pardoned for guessing that his idea of the best way to celebrate 1976 would be a Gerald Ford victory in November. A government official who attended one of the White House's periodic Bicentennial discussions came away appalled at the vacuousness of the talk, which was mainly devoted to questions of who would be allowed to use the Bicentennial logo and raise the Bicentennial flag.

As far as the scientific and academic communities are concerned, the whole thing got off on the wrong foot. Many scientists have perceived the Bicentennial as a vast public relations caper, which may have prevented them from perceiving opportunities for enhancing public understanding of science. Detlev Bronk of Rockefeller University believes "the whole thing is badly loused up" and describes with distaste certain souvenir bedspreads with American flags emblazoned on them. (Bronk, who headed an ad hoc NAS committee to see what could be done about the Bicentennial, says NAS approached a television executive with an idea for a series on science but failed to inspire any interest.)

Certainly, the Bicentennial spirit has caught on in many communities, but the absence of any philosophical framework has hindered any cohesive national recognition of the occasion. Most people *Science* talked to thought the Bicentennial looked like no more than a massive accumulation of county fairs and 4th of July type festivities.

This circumstance has worked to the disadvantage of science. The Nixon blight, the current climate of anti-intellectualism, the recession, and the distortion of the concept of patriotism wrought by the Vietnam war—none are conducive to a unified and serious appraisal of the past and future of the United States. The nation is too young to have the sense of history that is woven into the consciousness of Europeans, and too sophisticated to fall for anything simple. Back in 1876, the Centennial celebration, in Philadelphia, was built around a technological symbol of the dawning age: a Corliss steam engine. President Grant turned it on, and it supplied the power for all the exhibits. In 1876, the public gawked at such wonders, says Joel Bloom of the Franklin Institute. Now they are more skeptical, and the attitude is, "What will it do for me?"

A truly national celebration requires vision. They had it in 1776, but times have changed. The kind of imagination that is going into the current celebration is exemplified by ARBA's vision for the 4th of July in 1976. On that day, a Sunday, the nation's people are to spend the morning in prayer. The afternoon is to be devoted to town meetings and speeches, and at 4 p.m. (11 a.m. Hawaii time) all the bells in the nation will ring out simultaneously. Then there will be fireworks and a 4-day weekend.—CONSTANCE HOLDEN

ERTS: Americans Took Pictures of Soviet Union—To Be Friendly

The 1972 U.S.–U.S.S.R. joint space agreement, which reached its apogee with the recent Apollo-Soyuz mission, has been, by and large, an open and well-publicized instrument of détente. But it includes an unusual, slightly bizarre chapter. In late 1972, a group of U.S. scientists went beyond the letter of the agreement and unilaterally decided to program an American satellite to take an unusually large number of pictures of the Soviet Union—pictures they believed their Soviet colleagues wanted but could not ask for directly.

Known as ERTS, the satellite took pictures of land areas worldwide for 2 years, using technology for multispectral, low-resolution ground imaging which, as far as is known, the Soviet Union did not have. (ERTS has been officially renamed Landsat-1; its successor, known as Landsat-2, is now in orbit.) ERTS' colorful pictures of vegetation patterns, water, geological, and other features have become popular aids to scientists since the satellite, the first of its kind, was launched in July 1972.

The Americans' quiet decision to program the satellite to take repeated pictures of certain places in the Soviet Union was meant as a friendly gesture, a tacit form of scientific aid aimed at furthering the cause of détente.

The ERTS satellite was used mainly to carry out the experiments of more than 300 scientists from all over the world, but principally from the United States. The satellite is entirely unclassified and its work, with few exceptions, has been widely publicized.

The Soviet scientists who were to benefit from this aid were never directly informed about the programming decision. The American officials also deliberately avoided giving the resulting ERTS pictures to the Soviets.

This gingerly approach was taken because the Soviet government is sensitive about American satellites flying over the Soviet Union. The decision to repeat its coverage of certain places "was a diplomatic risk" says Arch B. Park, who at the time was an official of the National Aeronautics and Space Administration