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About the Institute
The Hunt Institute for Botanical Documentation, a research division of Carnegie Mellon University, specializes in the history of botany and all aspects of plant science and serves the international scientific community through research and documentation. To this end, the Institute acquires and maintains authoritative collections of books, plant images, manuscripts, portraits and data files, and provides publications and other modes of information service. The Institute meets the reference needs of botanists, biologists, historians, conservationists, librarians, bibliographers and the public at large, especially those concerned with any aspect of the North American flora.

Hunt Institute was dedicated in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971 the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography and the Library.

OUR FAR-FLUNG CORRESPONDENTS

THE LEAP SECOND

BOULDER, COLORADO

ON Friday, May 11, 1973, at—give or take a few billionths of a second—5 P.M. Mountain Daylight Time, Dr. James A. Barnes, the chief of the National Bureau of Standards' Time and Frequency Division, which is here in the eastern foothills of the Rockies, concluded as he was leaving his office that he would no longer have to worry about a message from Paris he had been half expecting to receive before the end of that week. If the message had arrived, the sender would have been Bernard Guinot, who, as director of the Bureau International de l'Heure, determines more closely than any other human being on earth what time it is, and he would have been informing Dr. Barnes, as one of a number of eminent horologists and scientists around the globe, that it would be necessary to add one second at midnight on June 30th to the incredibly precise timekeeping mechanisms that the National Bureau of Standards oversees and by which less fastidious people, directly or indirectly, set their watches.

By May 11th, it was certain that, whatever M. Guinot decreed (he could also have instructed his associates to subtract a second), 1973 would be a shorter year than 1972. Indeed, 1972, after a series of prolonged international deliberations among physicists and astronomers, was unique in horological history: not only was it a leap year but twice in the course of it—on June 30th and again on December 31st—it had been further stretched by a precedent-shattering leap second, and so had become the longest year since 46 B.C., when Julius Caesar added eighty-five days to the year with his introduction of the Julian calendar. Whereas there are 31,536,000 seconds in a conventional three-hundred-and-sixty-five-day year, and 31,622,400 in a conventional leap year, in 1972 there were 31,622,402. To most people, that may not seem a consequential difference, but to M. Guinot, Dr. Barnes, and their professional colleagues a second is a substantial entity. They habitually think in terms of microseconds or nanoseconds—millionths or billionths of a second. And, though they do not often have occasion to work with attoseconds, they are unblinkingly aware of them; there are one quintillion, or 1,000,000,000,000,000,000, attoseconds in a second.

On June 30, 1972, when the first leap second sprang into being, there happened to be a scientific conference in progress here in Boulder, attended by, among others, M. Guinot, Dr. Barnes, and Dr. Humphrey Montague Smith, the head of Time and Service at the Royal Greenwich Observatory, in England. These pillars of timedom were able, accordingly, to witness the changeover together. It occurred here at 6 P.M. Mountain Daylight Time, and there was nothing especially complicated about it. The shift was merely a matter of abandoning one clock dial and designating as official another, next to it, which had been preset at a second later. By much of the small part of the world that knew anything at all about the leap second, its emergence was treated as a joke, and it inspired headlines like "IF TODAY SEEMS LONGER, IT REALLY IS" and "TODAY—AN EXTRA GRAIN IN THE SANDS OF TIME." The scientists at Boulder are not without their own brand of occupational humor ("We're never late for lunch around here," one of them told me, on what he had excellent reason to believe was the dot of noon), but in their view the leap second was an innovation that called more for jubilation than for jocularity, representing, as it did, the culmination of years of delicate discussion.

One Boulder man, a veteran Bureau of Standards physicist named Wilbert F. Snyder, was away on the eventful evening, attending a fiftieth-reunion dinner of his high-school class, in Marion, Ohio. It was 7 P.M. there. Each of the returning alumni had been told that after dinner he would be allotted exactly two minutes to reminisce about half a century of postgraduate life. When Snyder's turn came, he was tempted to tell about the extra second the class had just collectively, if unwittingly, enjoyed, but he didn't want to waste any of his precious hundred and twen-

"And how, you may ask, is such an offer possible?"