

Hevelius and the Meaning of History

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I am grateful to those who have planned this celebration for the opportunity to address you on such a significant occasion—an occasion which marks a milestone not only for the Library but for scholarship at Brigham Young University. May I begin by congratulating all who are associated in the administration and operation of the J. Reuben Clark Library for the magnificent selection of materials they have collected for the use of BYU students and faculty. And in particular may I commend them, and all of the donors, on the acquisition of Johannes Hevelius's *Catalogus Stellarum Fixarum* as the millionth volume acquisition. It is a work of considerable importance in the history of science and typifies the quality and range of BYU's library holdings.

In these days of rapid change, social and economic upheaval, and political turmoil, we cannot afford to be panicked into neglecting our cultural heritage or our intellectual potential in favor of immediate fads or short-range ambitions. The Old Testament teaches us the danger of exchanging a birthright for a mess of pottage. The lesson should be heeded. The surest way for a society to doom its future is to forget its past. The best way to kill civilization is to burn its books and obliterate its history.

To live simply in the present, as so many have undertaken to do in this age, destroying systematically the links which bind them to preceding generations, is to leave oneself at the mercy of all those neuroses for which our society has proved so fertile a breeding ground. The modern odyssey—the search for identity—is doomed to shipwreck if it does not take unto itself the historic dimension of man's experience.¹

Long ago Thomas Jefferson insisted that

the study of history is the very heart of education. . . . In a republic, the purpose of history is to enable every man to judge for himself what will secure or endanger his freedom. Surely that is "precise" enough and "relevant" enough to satisfy anyone.²

Nothing is more relevant, in this day of conscious and sometimes mistaken relevance, than preserving our heritage, knowing our roots, and mapping our forward progress on the basis of where we have been. For without the preservation and study of the ideas, aspirations, accomplishments, frustrations, and failures of the past—of man's collective memory and experiences—each generation would have to begin again from primitive

origins and be doomed to commit the same errors as its ancestors. There could be no progress. It would be motion without movement, walking eternally on a treadmill.

But that is not what we want, and I don't believe that is what God intended for us. The knowledge of human history is to mankind what personal memory is to the individual. Without it we are lost in a sea of objects, forms, and sounds, with each day, or generation, beginning where the previous one began instead of where it ended. With it we may advance from one stage to the next, building upon the ideas, the institutions, and the knowledge of each previous age, just as our personal lives unfold and progress on the foundations and achievements of each successive day. The past

has a great deal to teach us—not only in the form of specific answers to questions which are totally relevant still, but also in the perspective we can gain in no other way. A thoughtful look at history is perhaps the most effective single way to sort out the significant from the transient . . . to find out what really matters in our long, uneven struggle to find better ways for man to live.³

It is the profession of some of us to acquire, preserve, and make available the documentary sources of our heritage. For others of us, our commitment is to study and learn from those sources so that our collective memories might be refreshed and the lessons of history made available to all. But it is the fate of each of us to profit or lose from the results of these efforts in relation to the way the lessons are applied. Civilizations that have failed to keep a knowledge of themselves have vanished from the earth. Others have followed distorted and grotesque paths as a result of believing falsified or distorted history.

But a library does more than collect and preserve the written and pictorial history of the past. It provides the greatest stimulation for the creation of new ideas. For in the pages of printed and written words lies the power to stimulate original and life-giving thought. If a ten-dollar book or a thousand-dollar manuscript were to cause one student or teacher to spawn a great idea, or create a new work of art, or improve an old system of government, both investments would be worth the cost.

Petrarch, the father of Renaissance humanism, was sensitive to the value of books. He wrote a friend in 1338 concerning his personal library of books:

They are friends illustrious in speech, intelligence, government, war, not difficult; they are content with a corner in my humble house, never reluctant or boring, eagerly obedient to my command, ready to come or go at my call. Now these, now these I interrogate, and they answer me at length, telling their tales and singing their songs. Some explore the secrets of nature, some give counsel on better living and better dying; some tell their own high deeds and those of past heroes, and make old times live again in their words. Some

drive away my distresses with their cheer, and bring back laughter to me with their fun. Some teach me to bear all burdens, to hope for nothing, to know myself. They are the artificers of peace, war, agriculture, law, navigation. They raise me up in adversity, curb me in prosperity, bid me look to the end, remind me of the swift days and of life's brevity. For all these gifts they ask a small price—only an open door to my house and heart, for hostile fate has left them few refuges in the world and only reluctant friends. If they are admitted, they think any lurking-place a mission, and lie trembling until the frigid clouds may pass and the Muses again be welcomed. They do not require that silken hangings cover my bare walls or that rich foods perfume my table, or that my halls resound with the clamor of many servants attending a throng of guests. My sober troop of books are content with their own provisions and share them with me, as I sit wearily on my rose-colored bench. They give me sacred food and pour me sweet nectar.⁴

I began to develop my own respect and love for books many years ago in a small one-room country grade school in Idaho. I still remember vividly the old coal stove located near the front of the room that we boys took turns firing during the winter days to keep the room warm; a water bucket and dipper in the opposite corner containing the drinking water brought in from the outside well two or three times a day, again by the boys on a rotational basis; six rows of desks, seven desks to a row, accommodating all eight grades. In the older grades our numbers were reduced by early drop-outs and necessary farm work so that grades five through eight needed only two rows instead of four. In the back of the room to the left were all the props, equipment and materials used in frequent plays and dramatizations of historical events and holidays, along with other cooperative projects from bird collections to working models of vehicles we had made to illustrate the history of transportation from the stone age to the present. And, unobtrusively tucked away in the rear right-hand corner of the room was the library, a four-by-six glassed-in cabinet containing the literary holdings of the school. Not much material there to start an academic career on, but what it did contain was exciting, challenging, and transcendent. What could be more welcome to an eight-year-old boy whose life outside of the schoolroom seemed to be a never-ending succession of cow milking, horse feeding, calf feeding, pig feeding, chicken feeding, egg gathering, barn cleaning, cow herding, wood hauling, hay hauling, potato picking, weed pulling, and everything else that went with life on the farm in the early 1930s? I don't recall how many books that little library contained, nor very many of their titles, but I do recall having read them all by the time I reached the sixth grade, and when I graduated from the eighth I had read many of them four and five times. There was nothing else to read. But enough reminiscing.

Many of you may recall some of the stories of Thomas Jefferson's great love and use of books. Jefferson, who owned one of the finest private

libraries in Colonial America, was deeply aware of the limitless value and importance of books in the development of education. In 1819 the state of Virginia granted the charter establishing the University of Virginia and appropriated \$15,000 to construct and equip the university. Jefferson, who was named as its first rector, immediately contacted a number of Boston booksellers and spent the entire \$15,000 for the purchase of books. When that was gone he sent someone to Europe to buy an additional number which he felt was necessary for the establishment of a meaningful university. This was the vision that made the University of Virginia one of the great institutions of higher learning in America.

It is also the vision that has inspired the leaders of our Church and this university in the creation and growth of a great research library here. Brigham Young set the tone more than 100 years ago when he wrote, on the occasion of the establishment of the university of the State of Deseret:

We are happy in saying to all that a brighter day is dawning on the intellectual prosperity of Zion; . . . and we earnestly solicit the cooperation of all the Saints, and particularly the Elders in all nations, to gather, as they may have the opportunity, books in all languages, and on every science, apparatus, and rare specimens of art and nature, and everything that may tend to beautify and make useful; and forward or bring the same to the Regents of our university.⁵

On a later occasion he said:

We should be a people of profound learning pertaining to the things of the world. We should be familiar with the various languages. . . . We wish Missionaries who may go to France to be able to speak the French language fluently, and those who may go to Germany, Italy, Spain, and so on to all nations, to be familiar with the languages of those nations.

We also wish them to understand the geography, habits, customs, and laws of nations and kingdoms, whether they be barbarians or civilized. This is recommended in the revelations given to us. In them we are taught to study the best books, that we may become as well acquainted with the geography of the world as we are with our gardens, and as familiar with the people—so far at least as they are portrayed in print—as we are with our families and neighbours.⁶

Not long ago President Hugh B. Brown wrote in the *Improvement Era*:

We seek to arouse in all who are young in mind, a broad and well-rounded acquaintance with and enthusiasm for fine books, that their increasing knowledge shall continue to be vigorous, dynamic, and zestful, that life may be worth living. Liberal education—the education that liberates the human mind from prejudice and provincialism—is education for freedom. The love of great books should be earnestly desired by every person. If we are to be free, our minds must be free. He who loves and becomes acquainted with great books is the richest and happiest of men.⁷

A university library has special needs to enable it to provide the multitude of services for which it exists. Its holdings must be deep in some areas, as well as broad in all. It must contain specialized and detailed sources along with extensive coverage on a less profound level. It must serve amateurs and professionals, creators and critics, researchers and reviewers. A single manuscript, such as the one we have acquired as the millionth volume, may be the source of many future creations and unlimited stimulation to hard work.

I have had the occasion and opportunity to study in many libraries and archives throughout Europe. Most of them possess large collections of original manuscript sources. In one of these, the small library of the Instituto de Valencia de Don Juan in Madrid, I was first struck by the thought that people in past ages, some of them at least, were speaking directly to me. The manuscript collection there was assiduously guarded by the library patron who looked after the holdings as a mother hen watches her chicks.⁸ When I opened the first bundle of papers—all of them dating from the second half of the sixteenth century—I stopped in amazement. Had these lines been written in gold? No, what had appeared to be gold turned out to be flecks of drying sand stuck to the ink which had turned golden brown over the years. But their glisten gave the appearance of newly applied gold leaf. I immediately felt a closeness to the author of those vellum sheets when I realized, from the amount of sand still stuck to the ink, that I might have been the first to read those lines since they were written four hundred years ago. I can't say that this experience caused a great flurry of production from my own pen, but it did reinforce my commitment to truth and its discovery and to the promotion of sound scholarship through good teaching and writing.

Brigham Young University now has several manuscript collections of its own. Some of our manuscripts, like the documents at the Instituto de Valencia de Don Juan, or the Archivio di Stato in Venice, or the Bibliothèque Nationale in Paris, or the Haus-Hof-und Staatsarchiv in Vienna, also contain flecks of golden drying sand that might, in themselves or by the words they adhere to, stimulate students today, or long after you and I are gone, to greater heights of truth and understanding. Today we are adding Johannes Hevelius's *Catalogus Stellarum Fixarum* to these previously acquired manuscripts.

Hevelius was the beneficiary of an age of scientific curiosity and innovation. He was born into a world of intellectual excitement and revolution. Religious ideas were still the most hotly debated subjects in Europe. The Reformation, less than a hundred years old, was a vital issue, from Cadiz to Danzig and from Glasgow to Naples. The religious separation of Europe into hostile confessional camps had begun long before, but the eventual

outcome of those divisions was not yet decided. Other issues and ideas, however far their content seemed to be from theological debate, seemed sooner or later to become involved in religion. Both Calvinist activists and determined Jesuits saw the religious implications of every articulated or implied view.

Yet by 1611, the year of Hevelius's birth, thoughtful men all over Europe were beginning to weary of the endless arguments and excesses to which religious devotion had driven them. Half a century of bloodshed and religious wars had awakened many to the futility of religious compulsion. For a few short years Europe basked in relative peace. The doctrines of militant Huguenots and the iconoclasm of Dutch rebels, as well as the ultradogmatism of the French Catholic League, seemed to be giving way to a social and political tranquility based on the deemphasis of religious politics and the affirmation of civil authority. The previous revolutionary movements and the religious disorders in France and the Netherlands, Scotland, England, and even Spain, left a scar of fear throughout the land and a deep longing for stability and order. But, as all too often, order came to mean authoritarianism. Peace was purchased at the price of despotism. Yet it was during this brief lull between two ages of European upheaval that great changes in the ideas men held about the physical world, and about the universe, were being effected.

For many years the notion advanced by Copernicus, that the sun was the center of the universe around which the earth revolved, had been taken with a grain of salt at best, and in most cases rejected outright. Two years before Hevelius's birth, Galileo learned that two Netherlanders had built a telescope for viewing the skies, and he immediately set to work to make a better one. With this amazing new instrument, Galileo soon convinced himself that, in the essentials at least, Copernicus had been right. He discovered the moons of Jupiter circling that great striped planet. He noted the phases of Venus, examined the craters of the moon, and saw proof of the sun's rotation by the movement of its spots. Galileo's countryman, Giordano Bruno, agreed with Copernicus—and paid with his life. How many more errors about the starry heavens had been passed on through the ages? Galileo intended to find out.

In the meantime, far to the north on a tiny island in the Danish Sound, Tycho Brahe, a dedicated Danish astronomer, was making daily astronomical observations at his Uraniborg observatory and compiling great quantities of data. His assistant, Johannes Kepler, learned quickly from his meticulous teacher and soon was contributing fresh insights and new ideas to the science of astronomy. The data provided by these observations, and by others, and the penetrating thought of men like Francis Bacon in England and Rene Descartes in France and the Lowlands resulted in a multitude of new conceptions and theories concerning the earth and the

universe. Some believed the planets circled the earth while that entire complex revolved around the sun. Others thought that space was filled with whirlpools of matter carrying the planets and stars in countless vortices of motion.

Into this age of conflict and order—of hatred and compassion, violence and peace, reason and superstition, the Baroque world of Bacon, Descartes, Galileo, Richelieu, Philip III, and Gustavus Adolphus, Shakespeare, Milton, Spinoza, Velazquez, and Rembrandt—Hevelius was born.

Danzig was the largest city in Eastern Europe in the seventeenth century. It was a bustling trading center, especially in grain which it supplied for much of Europe. Danzig had always been an important seaport ever since its linkage with the towns of the Hanseatic League during the late Middle Ages. It was taken by the Teutonic Knights in 1308 and remained in their hands for 150 years, but in 1466, after a long and bloody war, it was returned to Polish authority. King Casimir IV, of the famous Jagiellans Danzig flourished. In 1492 some 26,000 tons of grain were exported from the port. During the next century the size and prosperity of the city grew rapidly. By the seventeenth century it had some 60,000 people and exported an average of 175,000 tons of grain annually.

There were many merchants in Danzig and it is not surprising that Johannes' father, who was a fairly well-to-do brewer, expected his son to follow a business career. In spite of parental discouragement, Hevelius early developed an enthusiasm for mathematics and, under the guidance of the astronomer Peter Kruger, a fascination for the stars. At the age of nineteen, Hevelius was sent to the West to study and travel. He spent the next four years in Germany, Holland, England, France, and Italy learning much from observation and tutelage and becoming acquainted with the greatest scientist of the time, including Jacob Usher, Samuel Harlib, Peter Gassendi, Athanasius Kircher and Galileo. But the uncontrollable ravages of the Thirty Years War, into which Europe had blundered, made travel in central Europe extremely hazardous, and Hevelius returned to Danzig in 1643.

Throughout this time, Hevelius never lost interest in astronomy, but it was his observation of the eclipse of the sun on 1 June 1639 that rekindled in him the desire to devote his life to it. He began in earnest, with the help of the newly developed telescope, to make numerous stellar observations. His first interest was the moon, and he prepared a series of drawing of the various phases of the moon over a period of a month, showing how the details on the moon's surface varied from day to day.⁹ He made his observations during the night and the following day engraved them onto copper plates for eventual publication. Not only did Hevelius map the moon but he also named many of its physical features, some of which are still used today. During the next few years, he constructed the famous Stellaburgum, the finest equipped astronomical observatory in Europe, composed of a

large platform supporting and housing the many instruments which Hevelius had acquired and built. The Stellaburgum was supported across the roofs of Hevelius' three adjoining houses.

His next objective was an ambitious project of observation and mathematical calculation. He intended to make a complete catalog of all fixed stars, listing their names, constellation position, individual measurements of brightness, position by ecliptic coordinates (that is, the angular distances between stars), and positions calculated by meridian altitudes, along with the measurements of earlier observers. The value of such a star catalog was unquestioned, for it enabled astronomers to determine if changes were taking place in the constellations, and if so, the nature and amount of such changes. It was also valuable in determining the structure of the solar system as it provided a series of reference points from which the movement of the planets could be determined and the order of their motion calculated. The only catalog of the kind available at the time was Tycho Brahe's tables which had been published in their last edition when Hevelius was only sixteen years old. Hevelius had long recognized the need for a more accurate table of observations and a more extensive catalog of the fixed stars. From that time on his life was devoted to this project, which he pursued, along with countless other scientific projects, with meticulous care and unflagging patience.

By September 1679, thirty-eight years after it was begun, the *Catalogus Stellarum Fixarum* was almost completed and ready for publication. Then, on the night of September 26, disaster struck. Hevelius' homes and the Stellaburgum were consumed in flames. Very little was saved from the disastrous fire. All of his unbound books were burned; the instruments were mostly destroyed, including many priceless devices which Hevelius had designed and built; and most of the bound books in his library were lost either from the fire or from subsequent vandalism. Yet, miraculously, his manuscript of the *Catalogus* was saved and began a long and eventful journey across three centuries and two continents from Danzig to the Brigham Young University Library.

Saddened, but undaunted, Hevelius began the task of rebuilding his observatory and resuming his stellar studies. He submitted the first part of his *Catalogus* to the publisher, but, unfortunately, never lived to see it through. He died on his 76th birthday, 28 January 1678. Hevelius' wife Elizabeth, who had been a great asset to him, both as a wife and as a laboratory assistant, preserved the manuscript of the *Catalogus* until her own death in 1693, after which it went to her daughter, Katharina Lange. In 1707 Katharina's husband sold most of the remaining manuscripts and four folio volumes of Hevelius' correspondence. These are now located in the Bibliothèque de l'Observatoire in Paris. But the *Catalogus* remained

in the Lange house. During the siege of Danzig in 1734, near the end of the bitter war of the Polish Succession, the house was struck by repeated Russian artillery fire. Great damage was done to the instruments and to the unbound books, but still the *Catalogus* survived this second near-tragedy.

One year later Lange put up the rest of the Hevelius heirlooms for sale—all except some few instruments whose names he did not know and which he therefore could not list. Some manuscripts were also mentioned in the sale, but some, according to a relative, were left behind in an upper room because “it is so bitter cold there that we cannot look for them now.”⁸ These manuscripts, including the *Catalogus*, were given to the National Historical Society of Danzig in 1782. There they remained until 1939.

In January 1945 the German Occupation Army in Poland was Collapsing before the steady westward advance of the Red Army. The National Historical Library was evacuated to a small village outside of Danzig, where it was almost totally destroyed during the last days of fighting. Miraculously again the *Catalogus* survived, this time to reappear in West Germany after the war. There it was acquired by Ivan Volkoff and Adelheid von Hohenlohe, from whom we obtained it as the one millionth volume for the Brigham Young University Library. Here it will stay—but not rest—for it, along with the other books and manuscripts in this and future BYU libraries, will be used by students and scholars in the never-ending quest for knowledge, truth, and understanding to which Brigham Young University is dedicated.

The paper was originally presented at the celebration of the acquisition of the millionth volume by the Brigham Young University Library.

Dr. Jensen, an internationally known historical scholar, is former chairman of the history department at Brigham Young University. He has published widely in the field of Renaissance and Reformation history.

1. Page Smith, *The Historian and History* (New York, 1966), p. 248.
2. Walter Karp, *Horizon*, 12, no. 1 (1970):23.
3. J. Daniels Manley (publisher of Time-Life Books) to the author, October 1971.
4. Francesco Petrarch, *Epistolae metricai*, 1:6, quoted in Morris Bishop, *Petrarch and His World* (Bloomington, 1963), pp. 135–36.
5. “Third General Epistle,” 12 April 1850, *Messages of the First Presidency* (Salt Lake City, 1965), pp. 48–49.
6. *Journal of Discourses*, 26 vols. (London, 1861), 8:40.
7. “Get Understanding,” *Improvement Era*, 63 (1960): 628.
8. Jean Bernoulli, “Fortgesetzte Nachrichten von Hevels gelehrtem Nachlasse,” *Monatliche Correspondenz zur Beforderung der Erd-und Himmelskunde*, 8 (1803): 408–10. Quoted in Volkoff, Franzgrote, and Larsen, p. 62.