Spring 2002

Lux et Lex: Volume 8, Number 1

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**Recommended Citation**

Slater, Sandy; Hanson, Curt; and Spaeth, Janet, "Lux et Lex: Volume 8, Number 1" (2002). *Lux et Lex*. 15.

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SCHJELDAHL THE PIONEER

What do bag-making machines and communication satellites have in common? Gilmore T. Schjeldahl. A plastics, adhesives, and circuitry inventor, Schjeldahl was known as "Shelly." His story may be Horatio Alger in nature, one of hard work, perseverance, and perhaps a bit of luck. More significantly his story is one of scientific genius and entrepreneurship. As one engineer scientist observed, Shelly possessed "the ability to look at a process or product and grasp its essence."

The Elwyn B. Robinson Department of Special Collections has recently acquired the business records of Gilmore Schjeldahl, in addition to over two hundred photographs. The Schjeldahl Entrepreneur Records have been fully processed and include annual reports, correspondence, sketch designs and patents, product samples, and publications.

Shelly's youthful inventor's inquisitiveness about how things work was honed in Northwood, ND. He frequented the blacksmith shop, power plant, farm machinery store, and newspaper. He built a static eliminator for the town's newspaper press and his family's first radio.

Shelly attended but never graduated from high school or college, yet he founded five companies and received 16 patents. Shelly's early employment and educational experiences all directed his entrepreneurship. He took courses in electrical machinery maintenance at the North Dakota State School for Science, after which he joined the Civilian Conservation Corps for two years as a drafting assistant. Beginning in 1937, Shelly continued coursework in chemistry, biology, and engineering at NDSU, where he met his wife, Charlene. He was drafted in 1943 and served in the infantry during World War II, participating in the Battle of the Bulge.

After returning from Europe, Shelly and his wife moved to Chicago where he worked for Armour & Co. researching resins for a lightweight plastic packaging material, polyethylene. Although it was tough, the material would not seal. Shelly and Charlene experimented on a solution in their kitchen, where they developed a hot knife-sealing process that cut and sealed two plastic sheets simultaneously.

Shelly continued his experiments after he left Armour in 1946 and moved to Minneapolis, eventually establishing a bag-making operation in his basement. What he initially produced were pickle-barrel liners using a foot-operated cutting knife. In 1948, this operation evolved into his first company Herb-Shelly, Inc., named in honor of his salesman who had lent him operating capital. Shelly's Farmington, MN thermoplastic manufacturing business eventually produced a variety of polyethylene packaging materials and plastic bag liners. For instance, Shelly created the first plastic-lined airsick bag for Northwest Orient Airlines in 1949 (a bag is included in the collection).

In 1955, Shelly organized G.T. Schjeldahl Company in Northfield, MN, in another inauspicious location, the basement of a drugstore. He further developed his ideas and research with lamination and adhesives for bonding the then-new DuPont polymer called Mylar and his experimentation with atmospheric balloons. Shelly also continued manufacturing his uniquely designed bag-making machines. From the beginning, the Schjeldahl Company was diversified. Initially, two departments emerged: the Mechanical Division manufactured packaging machinery and the Polyester Film Division developed adhesives and balloons.

Shelly's discovery that created a revolutionary heat-sealing adhesive tape points to his genius. He found that his breath caused the surface of one of several resin samples to crystallize, becoming "less tacky and easier to handle." Shelly created an adhesive that provided polyester bonding of exceptional strength, in addition to electrical insulation between electrical parts and printed circuits. The adhesive tapes were marketed as Schjel-Bond, which evolved into an extensive adhesive product line.

The Schjeldahl Company began engineering and fabricating high-altitude balloons in the early 1950's for the Office of Naval Research at the University of Minnesota. By 1956, the company had constructed forty Mylar balloons, the smallest 8 feet in circumference, the largest 500 feet. One balloon made from 0.00025 inch Mylar attracted national headlines when it reached a record altitude of 27 miles and traveled from Minnesota to Kentucky in three days.

Commercially, Shelly applied his plastic and adhesive expertise to build unique "Schjeldomes," which were air-supported plastic buildings. By 1962, his own 340 foot long "Schjel-Mile" factory had expanded into a 54 acre "Schjel-Town" consisting of two "Schjel-Miles," one 540 feet long, a general office and laboratory, and other small buildings.

The accumulation of research, experimentation, and testing of high-altitude balloons laid the foundation for Shelly's pioneering participation in the United States space race with the...
ARCHIVES ON THE WEB

The Internet and the World Wide Web have revolutionized the ways in which archives "get the word out" regarding their manuscript holdings. The Internet is one of the most dynamic and exciting forces in our world. It is integral to the preservation, organization, and dissemination of archives and special collections.

EARLY HONOR, ACHIEVEMENT, and RECOGNITION

Institutions of higher learning do not realize a national reputation for excellence unless their students are recognized for their achievements. Sigma Xi, for example, was founded in 1883, less than thirty years were required for the University of North Dakota to earn national achievement. Between 1910 and 1930, Sigma Xi was instrumental in establishing journalism as a professional University of North Dakota students in 1913 when the prestigious national honor society for students in the field of journalism was established at Wesley College in 1916. Mu Chapter hosted the SAi national convention years later in 1923. "Music lovers of Grand Forks" were entertained by the delegates' public concert and a twilight musicale. When the music departments of UND and the College combined in 1926, the chapter noted with approval very brief introductions to manuscript collections, which can be converted to HTML (HyperText Markup Language) with a minimum of enhancement, or those which are likely to see an increase in information is a user trend seen in archives throughout the country.

Delta Phi Delta is the oldest national educational fraternity. The Chapter was organized at UND in 1922. The second Delta Phi Delta local chapter, however, was not formally installed until 1952 and was women's national convention that year. Men were not entertained by the delegates' public concert and a twilight musicale. When the music departments of UNO and the College combined in 1926, the chapter noted with approval very brief introductions to manuscript collections, which can be converted to HTML (HyperText Markup Language) with a minimum of enhancement, or those which are likely to see an increase in information is a user trend seen in archives throughout the country.
CHILDREN’S COLLECTION

When the Department of Library Science and Audiovisual
Instruction closed in 1995, the departmental library was moved into the
Chester Fritz Library, where it quickly became a valued part of the
academic book collection.

Many of the reference books were absorbed into the
general book collection, but the substantial children's collection was
kept separate and is currently housed on the third floor of the
Library. The books are all catalogued using the Dewey Decimal
system, rather than the Library of Congress classification system
used by academic libraries, because children's books in public and
school libraries are catalogued using the Dewey Decimal system.

The children's collection is purposely planned to mimic
the kinds of collections that both school and public libraries hold.
You might find a Sweet Valley High paperback next to a Newbery
winning hardcover book. This variety represents the world of young
readers, who appreciate a thought-provoking novel as well as a
television tie-in.

The non-fiction section includes books written for
children, as well as some curriculum material that relates to
children’s literature. These items encourage potential teachers to
integrate children’s books into the classroom experience. A few
young adult books are also in the collection, from classics such as
Maureen Daly’s Seventeenth Summer to Louis Sachar’s innovative
and award-winning Holes.

New books are added annually, selected by a librarian with
a specialty in children's books, with input from the education
departments on campus. Factors such as artistic and literary merit
are weighed in selecting books that illustrate the variety and
excellence of children's books today. Multiple copies of Newbery
and Caldecott winners guarantee a continuing presence in the
collection, and other award winners are carefully evaluated, too.
Also considered is the importance of a given book as a cultural
artifact: does it display some characteristic that makes it important
within its time? Will it tell teachers to be about the society that
promoted this book? What does it say to those future teachers?

An effort is made, too, to keep the classics readily
available, so multiple copies of well-loved and frequently read
books such as Charlotte’s Web by E.B. White and Laura Ingalls
Wilder’s Little House series are kept on the shelves.

Children’s books are frequently controversial, and it is
important for education students to have access to these books.
Students can have their first introduction to such books and the
experience of a book challenge in the controlled environment of the
classroom. These books allow students to evaluate the controversial
material themselves, determine how to establish
a collection policy, and learn the standards of intellectual freedom as
defined by the American Library Association. For these reasons, the
collection includes books that have had challenges.

Some of the books have been purchased through memorial
funds, celebrating the lives of those who have had an interest in
children's books. Such books are placed with the honoree’s name.
Particularly near to the Library’s heart are those selected and placed
with the name of Mayumi MacGregor, who worked in the Access
Services Department. “Moni,” as we knew her, truly enjoyed
child's books. She was a much beloved employee and, when she
passed away, employees of the Library collected funds to purchase
many books in her memory. Others have similarly been honored by
family members or friends.

Most of the collection’s users are students in Children's
Literature classes, although other classes have utilized it in the past.
Anyone with a valid UND library card is welcome to check out
books from this collection, and many students have found this a
convenient way to find reading materials for their own children while
they're selecting books for their research.

The presence of the children’s collection in the Chester
Fritz Library supports the curriculum of the education departments at
UND and is an indication of the Library’s support of the learning
programs across the campus.

Janet Spaeth, Reference and Research Services

Schjeldahl continued from Page 2

computers to control the systems. As a complement to Gil-Tech
Shelly created the Plastic Netting Machine Company in 1970, which
developed and produced devices for filling Gil-Tech’s rigid plastic
containers.

In 1974, G.T. Schjeldahl Company changed its name to
Sheldahl, Inc. to simplify the spelling. This had not been the first
spelling name change. Shelly’s immigrant grandfather changed
Schjeldahl to Schjeldahl for easier pronunciation. In 1975, Sheldahl
built the bioshield containers for the two Viking landers sent to Mars.

After a heart attack in 1978, Shelly founded his fifth
company, the Cathedyne Corporation. Always inquiring, he
 collaborated with his physician to improve coronary angioplasty
catheters. Cathedyne was bought by Angiomedics, Inc., a subsidiary
of Pfizer, Inc. in 1983.

Gilmore T. Schjeldahl died on March 10, 2002, in Lenox,
Massachusetts. His contributions to the country’s space program and
our everyday life have been enormous, whether they be thermal
control materials for the space shuttle, or automobile air bags and
antilock brakes, window shades for airplanes, or flexible circuitry for
children’s toys, to list but a few. The wealth and diversity of the
Schjeldahl records document these contributions, and more. They
document the creativity, curiosity, and the life of the inventor.

Sandy Slater, Head, Special Collections

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