L.C. Wooster was a naturalist and science educator whose career at Kansas State Normal School (later Kansas State Teachers College, now Emporia State University) spanned four decades. He was born in upstate New York and received his college education mainly in Wisconsin. During the period 1873 to 1882, he worked for the Wisconsin Geological Survey and the U.S. Geological Survey under T.C. Chamberlin. Shortly afterward, Wooster moved to Kansas, where he was superintendent of the Eureka Public Schools. In 1897, Wooster was appointed Professor of Biology and Geology at the Kansas State Normal School in Emporia, where he remained for the rest of his career. His primary interest was collecting fossils, and he also conducted local field studies, concentrating mainly on glaciation in northeastern Kansas and ancient drainage in east-central Kansas. He published many scientific articles and wrote books for use in his biology and geology classes. He is remembered today in place names on the ESU campus.

Keywords: Kansas State Normal School, fossils, glacial geology, T.C. Chamberlin, science education.

INTRODUCTION AND CONNECTION WITH CHAMBERLIN

Lyman Child Wooster was born August 1, 1849, to Lyman Wooster and Pamela Child in North Hammond, St. Lawrence County, New York. L.C. Wooster married Ellen Ada Bassett; they had four children, two sons and two daughters (Ancestry 2012). L.C. Wooster died in 1947 at Emporia, Kansas. Wooster was a naturalist, which meant he worked with biology, fossils, geology, and related subjects. He was also a science educator, a teacher of teachers, as well as an educational administrator. Wooster spent most of his career at Kansas State Normal School (later Kansas State Teachers College). He had a long life and remained active well into his 80s.

Lyman Child Wooster was born and raised in northernmost New York. His father was descended from the Wooster family of Connecticut which included Gen. David Wooster who served in the French and Indian and Revolutionary Wars (Blackmar 1912). His mother came from the Child family of Welsh and English origins. Wooster spent his childhood on a farm where he undoubtedly gained a lifelong fascination for fossils, in particular, and biology and geology, in general. Upstate New York was a focal point for geological discoveries and theoretical concepts during the mid-nineteenth century (Faul and Faul 1983).

As a young man, Wooster moved to Wisconsin, where he attended Milton College (1865-1867). He also attended the Wisconsin State Normal School from 1870 to 1873 (whether the Whitewater or Platteville campus is uncertain) and Beloit College from 1873 to 1875. He went to Yale University in 1881 and 1882 (Blackmar 1912). From 1873 to 1879, he worked for the Wisconsin Geological Survey, at which time he was in his late 20s and was a professor of natural science at the Wisconsin State Normal School (1878-1881). During this period, Wooster was one of six assistants under Thomas Chrowder Chamberlin, who taught at Beloit College. Wooster was involved in a state geologic mapping project, from which Chamberlin began to develop his ideas about continental glaciation (1882). In addition, Wooster was assigned to investigate the geology of northwestern Wisconsin where he studied conditions related to copper deposits (Wooster 1884).

At the Wisconsin Geological Survey, Chamberlin was the Assistant State Geologist (1873-1876) and was promoted to Chief Geologist (1876-1882) while still teaching at Beloit College. In 1881, Chamberlin went to the U.S. Geological Survey (USGS) as Chief of the Pleistocene (glacial) division. His main task was the mapping of glacial moraines from the Atlantic to the Dakotas. Wooster was one of Chamberlin’s principal coworkers during the first two field seasons. At this time, Wooster was in charge of mapping Michigan. He conducted field mapping during the summers of 1881 and 1882, tracing moraines across Michigan, and continued working at the USGS until 1884. Through his work in Michigan, Wooster developed a lifelong interest in the subject of glaciation. He furnished much information that was published later by Chamberlin (1886).

WOOSTER’S MOVE TO KANSAS

Wooster moved to Kansas with his wife in late 1882 or 1883 to become superintendent of Eureka Public Schools in Greenwood County (Blackmar 1912). He developed a 12-year education plan that emphasized language and natural science. During this time, he discovered two granite boulders nearby. The larger boulder weighed more than 360 pounds (>160 kg) and was located 13 miles (21 km) east-northeast of Eureka. The boulder has five planed sides and bears glacial markings (Wooster 1888). This is thought to be the boulder now set in the Wooster monument beside Wooster Lake at Emporia State University (Fig. 1).
Wooster culminated this first phase in his Kansas career as the superintendent of the Kansas educational exhibit for the World’s Fair at Chicago in 1893 (Blackmar 1912). Then, for unknown reasons, he relocated northward where he held the Chair of Natural Sciences at the North Dakota State Normal School (1893-1895). He attended the University of Chicago in 1897 where his mentor Chamberlin was Chair of the Department of Geology. In that same year, he received an honorary Ph.D. degree from Milton College (Blackmar 1912; Breukelman 1963).

In 1897, Wooster joined the faculty at Kansas State Normal School (KSN). As of 1889, KSN had become the largest institution of higher education in Kansas, and, in fact, it was the largest normal school in the United States if not the world (Hanschu 2013). The term “normal school” was widely used in the nineteenth century to describe colleges providing the education of public school teachers. Wooster took charge of the Department of Natural Sciences which included botany, geography, geology and zoology, although he quickly renamed it the Department of Biology and Geology (Breukelman 1963).

Wooster’s early initiatives included planning a new science building which was approved by the state legislature in 1905 and completed in 1907. Norton Science Hall was named for Henry B. Norton who was the first instructor of natural sciences at KSN (Fig. 2). Also in 1905, the state legislature approved granting of the baccalaureate degree, which placed Kansas State Normal School at the college level. In 1923, the institutional name was changed to the Kansas State Teachers College to reflect this elevated status, and the name was changed eventually to Emporia State University in 1977.
Some confusion is evident concerning the original name; however, as Kansas State Normal, Kansas Normal School and Kansas State Normal School are all mentioned in various sources (e.g. Blackmar 1912) including Emporia State University's current online history (ESU 2013a, b). It appears that Kansas State Normal School was the official name with the abbreviated initials KSN, as they appear on Plumb Hall (Fig. 3; Hanschu 2013). As the school grew and more courses were added, other variants of the name came into common use (M. Franklin, pers. com. 2013).

In addition to his administrative duties, Wooster continued to teach; he was responsible for training elementary and secondary teachers in the natural sciences. He wrote several geological and biological books intended mainly for teaching purposes, of which The Geological Story of Kansas (Wooster 1900) is probably the most significant. This book is now available online in the public domain through the American Library Internet Archive. He remained chair of the department until 1928, and finally retired from the faculty in 1938. His career in Emporia lasted more than four decades; thus, he had great influence on two generations of Kansas geology and biology public-school teachers.

**Wooster’s Kansas Geological Contributions**

By his own admission, fossil collecting was Wooster’s greatest love, and he pursued it vigorously in Kansas and across the United States (Fig. 4):

Your speaker’s [Wooster’s] own craze for collecting has led him to load his cabinets with fossils; he is very proud of the fact that he has collected fossil invertebrates and vertebrates from Massachusetts to California, and in every rock group from the Potsdam sandstone [basal Cambrian] to the Tertiary—in all 700 or 800 species of fossils and 200 or 300 species of rocks and minerals. (Wooster 1905, p. 27-28)

The term “cabinet” referred to his collection of specimens for teaching and research purposes. Wooster’s geological field work in Kansas included two main areas, glaciation and gravel deposition.

- Glaciation of northeastern Kansas – The glacial origin of pink and red boulders in northeastern Kansas was first recognized by Louis Agassiz during a trip in 1868 across the western plains region (Aber 1984). Wooster (1888, 1892, 1913) described striations, moraines, buried forest beds, and diverse types of erratic boulders (Fig. 5). He noted pronounced effects of weathering in contrast to fresh glacial deposits of Michigan.

- Chert gravel of east-central Kansas – Wooster described gravel capping high terraces and hill tops eastward of the Flint Hills-source cherty limestones (Fig. 6). His early interpretation was a “residual peneplain” (erosional plain) on which gravel deposits were left as the Flint Hills eroded and retreated westward (Wooster 1914).

Later, Wooster (1934) developed a more elaborate hypothesis of glacial flooding. He proposed that the ice sheet in northeastern Kansas had blocked the Republican and Smoky Hill rivers and forced water to back up and spill across central Kansas into the headwaters of the Cottonwood drainage basin. He interpreted chert gravels as deposits of these floods. Granite boulders and other erratics supposedly were transported by these floods from glacial sources (Fig. 7). This
was Wooster’s best attempt to explain erratic granite boulders near Eureka, but glacial flooding, as he proposed it, has been proven completely impossible (Aber 1997). The origin of these granite boulders still remains a mystery. Nonetheless, he made a remarkably good estimate for the age of glaciation in Kansas at half a million years ago. The best current dates are between 600,000 and 700,000 years old (Aber 1991).

**OTHER CONTRIBUTIONS OF WOOSTER**

Wooster joined the Kansas Academy of Science in 1889, and he remained an active member and published frequently (Fig. 8). He served as vice-president in 1898, 1901, and 1904, and he was president in 1905. From 1926-1929, he served again as vice-president and then president.
L.C. Wooster’s eldest child, Lyman Dwight Wooster (b. 1884), followed in his father’s footsteps. L.D. joined the faculty of the Western Branch of Kansas State Normal School in Hays, Ellis County in 1909, and he eventually became the fourth president (1941-1949) of the renamed Fort Hays Kansas State College, now Fort Hays State University (FHSU 2012).

L.C. Wooster became Professor Emeritus from Kansas State Teachers College in 1935, and he remained active through the late 1930s. He was then living at 1017 Union Street in Emporia. He died in Emporia in 1947, having lived nearly a century. Today his contributions are remembered in place names on the ESU campus—Wooster Lake and Bridge, Wooster Drive (Fig. 9). What became of his impressive fossil collection is unknown. Perhaps some specimens still reside in the ESU Johnston Geology Museum archives, but most were likely dispersed elsewhere.

REFERENCES

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