Using GIS for Research on the Historic Buildings and Grounds of Iowa State University

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1890 Photograph from @ISU_Archives on Twitter
Project Goals:

1. Locate and compile historic maps (and documentation) of Iowa State University
2. Georeference ISU maps into a comprehensive historical GIS framework
3. Analyze compiled maps – a “where and when” look at the ISU campus.
4. Locate and compile historic photography of ISU buildings and grounds, esp. of those no longer existing
5. Analyze photography for precise building location and additional documentation

Portion of the 1868 College Map (University Archives)  
https://historicexhibits.lib.iastate.edu/150/template/campusimages/Map1868lg.jpg
Project Criteria:

• Use “The Iowa State University Campus and Its Buildings, 1859-1979,” by H. Summerfield Day, as the primary reference for historic buildings and grounds

• Use open-source GIS software for inventory and analysis - QGIS

• Start with easily accessible internet sites for sources of historic maps and photographs

• Collaborate with ISU Library to add more robust map and photo collections and public access.
Goal 1: Locate and compile historic maps

- Paper Maps (Scan, document)
  - ISU Library
  - FP&M
- Digital Maps (Download, document)
  - ISU Library Digital Collections
  - Facilities, Planning, and Management (FP&M)
  - Internet Archive
- Project Documentation and Organization
  - Metadata and storage (Box)
Goal 2: Digital Images to Georeferenced Maps

- Once digital, images are processed for detail and high contrast.
- Maps are then georeferenced and overlayed with other ISU campus maps in QGIS. Transparency is also set so multiple maps can be seen at once.

A “georeferenced digital map” or image has been tied to a known Earth coordinate system, so users can determine where every point on the map or aerial photo is located on the Earth's surface.

1896 map georeferenced and overlayed on current map base layer
Goal 2: Digital Images to Georeferenced Maps
H.S. Day published six maps in his book “The Iowa State University Campus and Its Buildings, 1859-1979.” These six maps were digitized, geolocated, and overlayed to portray the changes in landscape, transportation, and buildings over a 104-year period from 1875 to 1979.

The six separate maps from “The Iowa State University Campus and Its Buildings, 1859-1979,” by HS Day
Goal 3: Analysis of Georeferenced Maps

• Once georeferenced, maps can be overlayed and compared over time

H.S. Day published six maps in his book “The Iowa State University Campus and Its Buildings, 1859-1979.” For this map, these six maps were digitized, geolocated, and overlayed to portray the changes in landscape, transportation, and buildings over a 104-year period from 1875 to 1979. While the newer campus buildings, portrayed in purple and blue, dominate this view of campus, older historic buildings which no longer exist are shown in green, yellow, orange, and red.
Goal 3: Analysis of Georeferenced Maps
Goal 3: Analysis of Georeferenced Maps

Existing campus buildings built before 1900, overlayed on 1898 Day map (orange) and current day base layer.
Goal 3: Analysis of Georeferenced Maps

Timeline of buildings built before 1900
Goal 3: Analysis of Georeferenced Maps

- Once georeferenced maps can be overlayed and compared over time.
Goal 3: Analysis of Georeferenced Maps

Detail of campus buildings built before 1900, with associated database
Goal 4: Historic Docs & Photography to Augment Maps

- **Photo Types**
  - Building photography
  - Aerial Photographs
  - Campus landscapes with multiple buildings

- **Sources**
  - ISU Digital Collections
  - ISU Special Collections
  - Ames Public Library Photo Archives
  - Photographs in internet accessible sites/documents
    - ISU Bomb
    - ISU General Publications
    - ISU Reports
    - HathiTrust
    - Internet Archive
    - Ebay postcards
Goal 4: Historic Docs & Photography to Augment Maps

Building and organizing photo libraries – Margaret Hall
Goal 4: Historic Docs & Photography to Augment Maps

Building and organizing photo libraries – Aerial Photography
Goal 5: Analysis of Historic Photography and Maps

- Building a GIS data layer to catalog historic photography to identify point of view and easy retrieval from the map.
Goal 5: Analysis of Historic Photography and Maps

- Using GIS to identify point of view

1875

The visible buildings (from left to right) are: Music Hall, Workshop, Chemical and Physical Laboratory, South Hall, Old Main, and the President's barn.

*ISU Special Collections Flicker Photostream.*
Cattle and Horse Barns,
Farmhouse from West

1875
Two views of the farm

Cattle and Horse Barns,
Farmhouse from West

Horse and Cattle Barns, from the East
Aerial Photos: Context of Buildings in the Landscape
Aerial Photos: Context of Buildings in the Landscape
Now and Then: Historical Comparisons with Maps and Photos

1913 and Current Maps and Photos, Lincoln Way and Lynn Ave.
Now and Then: Current and 1890 photos with 1891 map
Collaboration: ISU Digital Scholarship & Initiatives Project

- Work with the ISU Library Digital Scholarship & Initiatives group to highlight this project on their research site.

- Work began in Fall of 2023

- Site will include maps and photography archive which will serve historical data and geodata to researchers and the public
Collaboration: ISU Digital Scholarship & Initiatives Project

GIS/Map Browser

History of the Buildings of Iowa State University
A digital exploration of historic ISU
Collaboration: ISU Digital Scholarship & Initiatives Project

North Hall - Item 1 of 1

Title: North Hall with History
Date Created: 1880
Description: View of North Hall built in 1880.
Format: image/jpeg

North Hall — the first agricultural hall — was built in 1880. When Margaret Hall was built, North Hall was joined to it and became an annex. It stood approximately on the site of the wing of Home Economics Hall on which construction was begun in 1957. North Hall was torn down in 1926 when the Home Economics Building of that time was enlarged. Plainly visible in the photograph are grapevines to the east of North Hall which also were plainly visible and a temptation to students — a temptation which wasn’t always resisted.

The dwelling on the right belonged to Professor Budd in Horticulture and is the site of Botany Hall. The building almost completely hidden in the trees was Experiment Station Building. At the Centennial it was still standing, as Isabel Bevier House west of the Genetics Building.

Source

Preferred Citation:
“North Hall with History,” History of the Buildings of Iowa State University, Digital Scholarship and Initiatives

GIS/Map Browser
History of the Buildings of Iowa State University
A digital exploration of historic ISU

Browse Items

15 of 15 items

Chemical Laboratory
Chemistry Hall Ames Iowa

Feeding Barn
House and Cattle Barns Ames Iowa

Mortensen Cottage

View Full Record

View Full Record

View Full Record
Future Goals:
Future Goals: Updating the Day Book

with maps and photography.

019 – North Hall
AKA: Servant’s Hall, Margaret Hall Annex
1880-1926
018 – Feeding Barn
1880-1926

Cattle Barn, Feeding Barn?, Horse Barn (2nd). Horse and cattle barns on the campus of Iowa State College in late 1890s. Ames Public Library

FEEDING BARN
Built: 1880
Architect: Prof. T.L. Smith
Contractor: F.S. Whiting
Burned: 1901

The "Feed Barn" is shown on the 1883 map in a location about 600 feet east of the Farm Barn. This is at a location just at the southeast corner of the present Agronomy Greenhouse.

This barn was built in 1880 under contract with F.S. Whiting in the amount of $725. Painting and other costs brought the total expenditure to $792.10.

In 1890 Experimental Station Director Speer was authorized to use proceeds from sale of Station products for repair of the barn.

A fire starting in this barn in October 1901 destroyed it and the Experiment Station Barn.
017 – Boarding Cottage West
AKA: Stanton Hall, Hospital, Detention Ward
1880-1934

Main, Boarding Cottage East and West. Physical and Chemical, Laboratory of Mechanics, Workshop 1888 looking SW from Main
Future Goals: Updating the Day Book

AEROSPACE LABORATORY
Carpenter Shop, Pattern Shop
Aerosautical Engineering Laboratory
Located 100 feet south of Engineering Annex. Long axis east-west.

Built: 1898
Architect: Not recorded
Contractor: Zitterrell & Atkinson
Razed: 1923

The contract for construction of the Carpenter Shop was let in May 1898, in the amount of $4,387. In this department each student is supplied with a set of tools, most of which are new. These tools are kept, while not in use, in a pretty glass case just over each bench. Each tool as are not used such as obtained by checks, thus making each student individually responsible for tools used.(1)

The building was listed as "Pattern Shop" in the Biennial Reports through 1921. In 1924 it's name become Aeronautical Engineering Laboratory, probably with a change in function at that time.

AGRICULTURAL ENGINEERING MACHINE SHOP
Built: 1923
Architect: Nancy Geise, Professor of Agricultural Engineering
Contractor: Thomas Sloan,upt. Ridges Grounds

A capital appropriation of $5000 for this building was not allowed in 1926 or 1927. In 1930 the Board approved using money from the General Improvement Fund "when funds are available."(2)

The following spring the student paper reported on the work under way, referring to its being under construction on April 11 and expected to be completed in May.(3) It was then described:

The new addition is to be a storage shed for machinery that is being stored in various places at present. It will be open on the east. The brick work is the same as that of the present building. The construction is of special interest to the department because the bricks are backed up by a type of cement block that was developed in the department.

Since it was first built dividing partitions have been installed and doors added for better weather protection.

(1) Minutes, August 9, 1916
(2) Minutes, May 17, 1926
(3) Iowa State Student, April 11 and 23, 1931

In 1916 an additional sum of $300 was provided to build a chimney and forge, to provide steam radiation in the forge compartment, and to make "a few slight improvements in the remaining five compartments."(1) The building is shown on a 1923 map but does not appear on one made in 1926. No specific reference has been found to determine the exact date it was razed.

AGRICULTURAL ENGINEERING GARAGE
Tractor Garage
Built: 1914
Razed: 1925 (?)

Location: directly north of the north wing of Old Botany.

The first request for a building to house large equipment for the Agricultural Engineering Department appears in the Biennial Report for 1908-10 when the cost of a building 50 x 120 feet of steel frame, brick walls and slate roof was estimated at $6000. In the report two years later the cost estimate was $10,000.

It was September 1916, however, before any funds were allocated and then only $100 was provided--for "a shed which shall contain two stalls for freight trucks, one stall for Superintendent's automobile, and three stalls for the dept. of Ag. Engr."(2) It was a frame building, 23 x 73 feet open to the east.

(1) IBE Student, September 6, 1898
(2) Minutes, September 1914
Future Goals: Updating the Day Book

AEROSPACE LABORATORY (DAY 640)
AKA: Carpenter Shop, Pattern Shop Aeronautical Engineering Laboratory
Built: 1898
Architect: Not recorded
Contractor: Zittanell & Ashurnan
Razed: 1973
Location: 100 feet south of Engineering Annex. Long axis east-west.

AGRICULTURAL ENGINEERING GARAGE (DAY 101)
AKA: Tractor Garage
Built: 1914
Razed: 1925 (?)
Location: directly north of the north wing of Old Botany.

The first request for a building to house large equipment for the Agricultural Engineering Department appears in the Biennial Report for 1908–10 when the cost of a building 50 x 129 feet of steel frame, brick walls and slate roof was estimated at $9000. In the report two years later the cost estimate was $10,000.

It was September 1914, however, before any funds were allocated and then only $100 was provided—for a shed which shall contain two stalls for freight trucks, one stall for Superintendent’s automobile, and three stalls for the dept. of Ag. Eng. (2) It was a frame building, 23 x 73 feet open to the east. In 1918 an additional sum of $300 was provided to build a chimney and forge, to provide steam injection in the forge compartment, and to make a few slight improvements in the remaining five compartments. (1)

The building is shown on a 1923 map but does not appear on one made in 1926. No specific reference has been found to determine the exact date it was razed.

(1) ISC Student, September 6, 1918, (2) Minutes, September 1914

The contract for construction of the Carpenter Shop was let in May 1900, in the amount of $4,387.

"In this department each student is supplied with a set of tools, most of which are new. These tools are kept, while not in use, in a pretty glass case just over each bench. Such tools as are not used much are obtained by checks, thus making each student individually responsible for tools used." (ISC Student, September 6, 1900)

The building was listed as "Pattern Shop" in the Biennial Reports through 1932. In 1934 its name became Aeronautical Engineering Laboratory, presumably with a change in function at that time.
Future Goals: Immersive Technology

- Use maps and photography to build 3D SketchUp Models of historic buildings that are no longer existing.

- Build 3D virtual reality campus maps and models of any time period.

- Create virtual 3D immersion walking tour of campus based on a target year.