

## **Report on Excavations of the Minshall Laboratory, June 12-June 28, 2012\***

Excavation Team: Rebecca Schindler, Associate Professor of Classical Studies; Pedar Foss, Associate Professor of Classical Studies; Danica Andersen, Student class of 2015; Kathleen Raymond-Judy, Student class of 2015.

### **Introduction**

In celebration of DePauw University's 175th anniversary, the university administration encouraged departments and programs across campus to develop projects that would serve to highlight DePauw's rich history. DePauw's campus has changed dramatically in the 175 years since the university was founded as Indiana Asbury University in 1837. Many buildings have come and gone during that time, some destroyed by fires, others intentionally torn down. It was the original intent of our team to excavate West College, which was built in 1837 and the northeast corner of which should be located between the current ROW Library and Asbury Hall. However, neither Foss nor Schindler have the proper Indiana state licensing to excavate a historic building constructed prior to 1870. Thus, we turned our attention to the Minshall Laboratory (commonly referred to as 'Minshall Labs' or 'Old Minshall').

There were several reasons to choose this site for a campus excavation project. Minshall Laboratory stood on the east side of College Street (now Burkhart Walk) across from the Phi Kappa Psi fraternity, and to the west of East College (built between 1870 and 1883) and the Memorial Student Union (begun in 1950). This area is now a grassy lawn and the only impediments to excavation were trees and fiber-optic cables (well-documented on the current campus GIS). When Minshall was torn down, most of the debris was bulldozed into the basement and then covered with fill. This debris was likely to include artifacts from the life of the building, artifacts that might not otherwise be noted in the documentary history of the university. Finally, the southern half of the building covered the area where the new campus dining hall will be constructed; this was likely to be the only opportunity to excavate this site in a systematic manner. The excavation of the Minshall Laboratory had three specific goals: 1) to locate the walls, and therefore the footprint, of Minshall as a historic campus building (on the problems with the campus maps, see below); 2) to recover, and preserve in the archives, any notable artifacts from the building and its activity as part of the 20th century life of our campus, and 3) to ignite interest in DePauw's history through a project that would bring together faculty, students, staff, alumni, and Greencastle residents.

### **History of the Building<sup>1</sup>**

Before the Minshall Laboratory was built, science classes and research took place in West College, the original building on the Indiana Asbury Campus (now DePauw University). When that building burned in 1879, the sciences were moved into the basement of the newer East College building, where they remained for the next 16 years (Fig. 1). That was a dangerous situation due to extremely ineffective fume hoods and poor ventilation for the lab experiments being held there. In fact, Dr. Philip S. Baker died in 1901, reportedly of health complications after inhaling chlorine gas. Despite being instrumental in planning the Minshall Laboratory, he

never got to appreciate it in its completion. In that same year (1901), D.W. Minshall, a wealthy banker from Terre Haute (Fig. 2), donated a large sum of money to DePauw University for a new science laboratory. On January 7, 1901 - the very same day the first check from Mr. Minshall arrived - the cornerstone of Minshall Laboratory was placed. The building was dedicated on June 11th, 1902, graduation day for that year's class. The first classes were taught there in January of 1903, at which time the building was officially established as home to the Chemistry and Physics Departments. In 1931, an auditorium for larger lecture classes and demonstrations was added. Minshall Laboratory was three stories high with construction similar to East College: solid limestone foundations that extended above the ground level with above-ground basement windows, and brick superstructure above (Fig. 3).



Fig. 1: Lab experiments in East College<sup>2</sup>



Fig. 2: D.W. Minshall

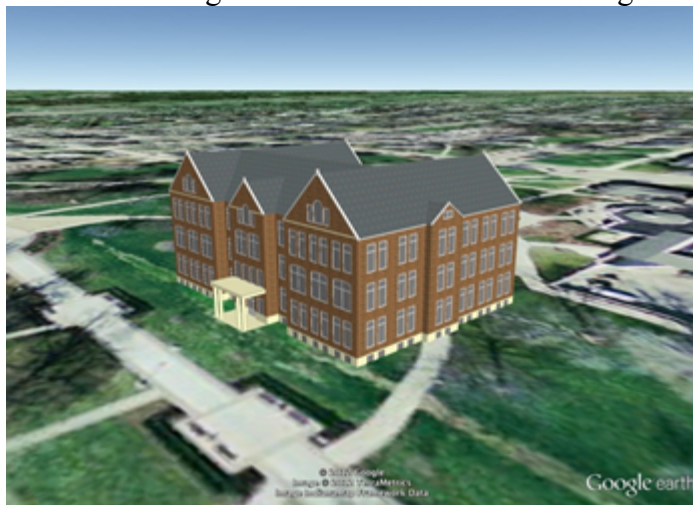


Fig. 3: GIS Reconstruction of the Minshall Laboratory.

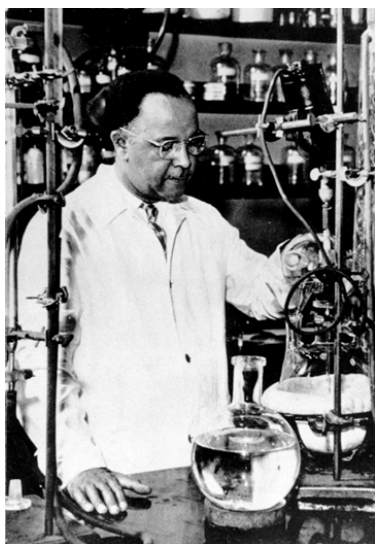


Fig. 4: Percy L. Julian



Students in general physics lab in  
Minshall Laboratory, ca 1960

Fig 5.

Over the years Minshall was home to both classes taught by esteemed professors and the research of many extraordinary scientists, such as Percy L. Julian (Fig. 4). For seventy years people taught, studied, learned and worked within Minshall's walls (Fig. 5). During this time, however, DePauw was growing and, as the number of students increased, so did the need for more faculty, lab equipment, and funding. Minshall no longer fulfilled the needs of the Physics and Chemistry departments; although built to last many more years, it was too small and its facilities had become too outdated. In 1967, DePauw's President, William Kerstetter, included a new science and mathematics building in his "Design for a Decade" plan. The new building, later named in honor of notable alumnus Percy L. Julian, was both spacious and completely modern (Fig. 6). September 30, 1972 was the dedication ceremony for the University's new Science and Mathematics Center. After the construction of the Percy L. Julian Math and Science Center, the University gave the go-ahead to plan the demolition of Minshall Labs. The last lecture ever given in "Old Minshall" was in May of 1973, and in the summer of 1973 the building was torn down.



Fig. 6: Percy L. Julian Math and Science Center, 1972

## Excavation Methods

As a historical archaeological project, research on the Minshall Laboratory began with the documentary evidence in the university archives. Much of this material is preserved in the form of photographs and documents pertaining to the history of Chemistry and Physics at DePauw. There are actually very few written documents relating to the building itself. For example, although we know who donated the money for the building and when the money was acquired, there are no records of the architectural plans, the sources of the building material, or specific inventories of lab equipment. There is, however, a plaque next to the four preserved entrance columns from Minshall, now situated near the Memorial Union Building, that cites the limestone columns as coming from southern Indiana. The excavation of Minshall Labs presented an opportunity to supplement our documentary knowledge of the building with artifacts of ordinary, everyday life. This dig was likely our only chance to access information from the building's artifacts as construction of a new dining hall in this general area will destroy a majority of what is left. Knowledge gained from the dig could also be useful in planning the dining hall. For example, knowing the depth and location of Minshall's foundation walls will help minimize complications during construction.

Regarding the precise location of Minshall Labs, three maps from DePauw's 20th century history indicate the building's placement. The earliest map documenting Minshall Labs is a Sanborn Fire Insurance map from 1913 (red map on Fig. 7), which does not include the later auditorium. The second map, from the DePauw Archives, is from 1934, and is the first map to show the auditorium (yellow map in Fig. 7). The final map is from 1971, two years before Minshall was destroyed (blue map on Fig. 7). In order to geo-reference the three maps with the current campus GIS (Geographic Information System), we used a GR-5 unit with 1 cm accuracy to take GPS points on three campus buildings that were contemporary with Minshall Labs: Harrison Hall (Fig. 8), East College (Fig. 9), and the Memorial Union Building (Fig. 10). However, even after rectifying the maps in the GIS, they do not line up with one another. They generally agree on the north-south axis (about a one meter range), but differ widely (up to five meters) east-west. The 1971 map disagrees most significantly on the east to west axis. College Street, which ran in front of Minshall, could not be used as a reference because it has since been paved over. The Phi Kappa Psi fraternity also could not be used as a contemporary point in part because it was built after the 1913 map, and more importantly, it is not included on either of the later campus maps because it is not University property.

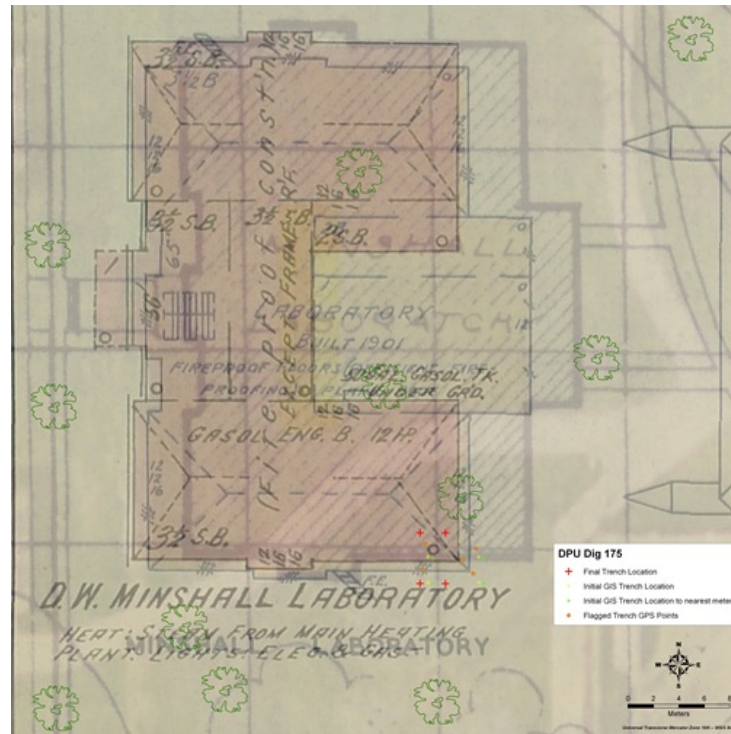


Fig. 7: Overlaid maps, trench marked with red crosses.



Fig. 8: Harrison Hall



Fig. 9: East College





Fig. 10: The Memorial Union Building

An original excavation goal was to locate the building's southeast corner by positioning a trench 4m east-west and 2m north-south. However, because of the discrepancy in the maps - nearly 5m east-west - such a trench could potentially miss the wall entirely, which would be a problem. In the end we opted to try and locate at least the southern wall of Minshall Laboratory, while also having adequate space for excavation in the basement. Thus, the first trench excavated was oriented 4m north-south and 2m east-west (a second trench was opened later, extending one meter farther to the north, which is only 1.5m east-west).

In order to avoid obstacles (trees, sidewalks, underground cables), the exact location of the first trench (Trench 1000) was plotted on the campus GIS (Fig. 7). We then used the GR-5 unit with 1 cm accuracy to find the real-world points (Fig. 11). This was done by referencing the GPS to a known survey point located on the south end of Burkhart Walk (near the intersection with Hanna Street).<sup>1</sup> During the excavation this datum point was also used to measure elevations. The first trench was thus located to the northwest of the Union Building's loading dock (Fig. 12).

A known survey point is static point in DPU's campus which we have exact GPS coordinates for, and by using that known point we can use our roving GPS unit to determine the location of other points. The GR-5 unit (Fig. 11) communicates with satellites to determine the location of a point, by sending signals to the satellites and calculating how long it takes the signal to reach the satellite and return to the GPS rover. The more satellites that can be used to calculate a location, the more accurate the calculation will be. The GR-5 unit uses both U.S. and international satellites and is therefore very accurate--down to a centimeter. The known survey point is useful because the instrument can take the difference between the calculated location and the actual location of the survey point, and use that difference to determine the exact location of the GPS rover in other locations. We used this technology to mark out our trench so we could determine

exactly where the wall of Minshall Labs is located. By knowing the exact location of the southern wall of Minshall Labs, we can use those GPS coordinates to adjust our three campus maps (Fig. 7) to reflect the actual location of the building.



Fig. 11: GPS unit on tripod



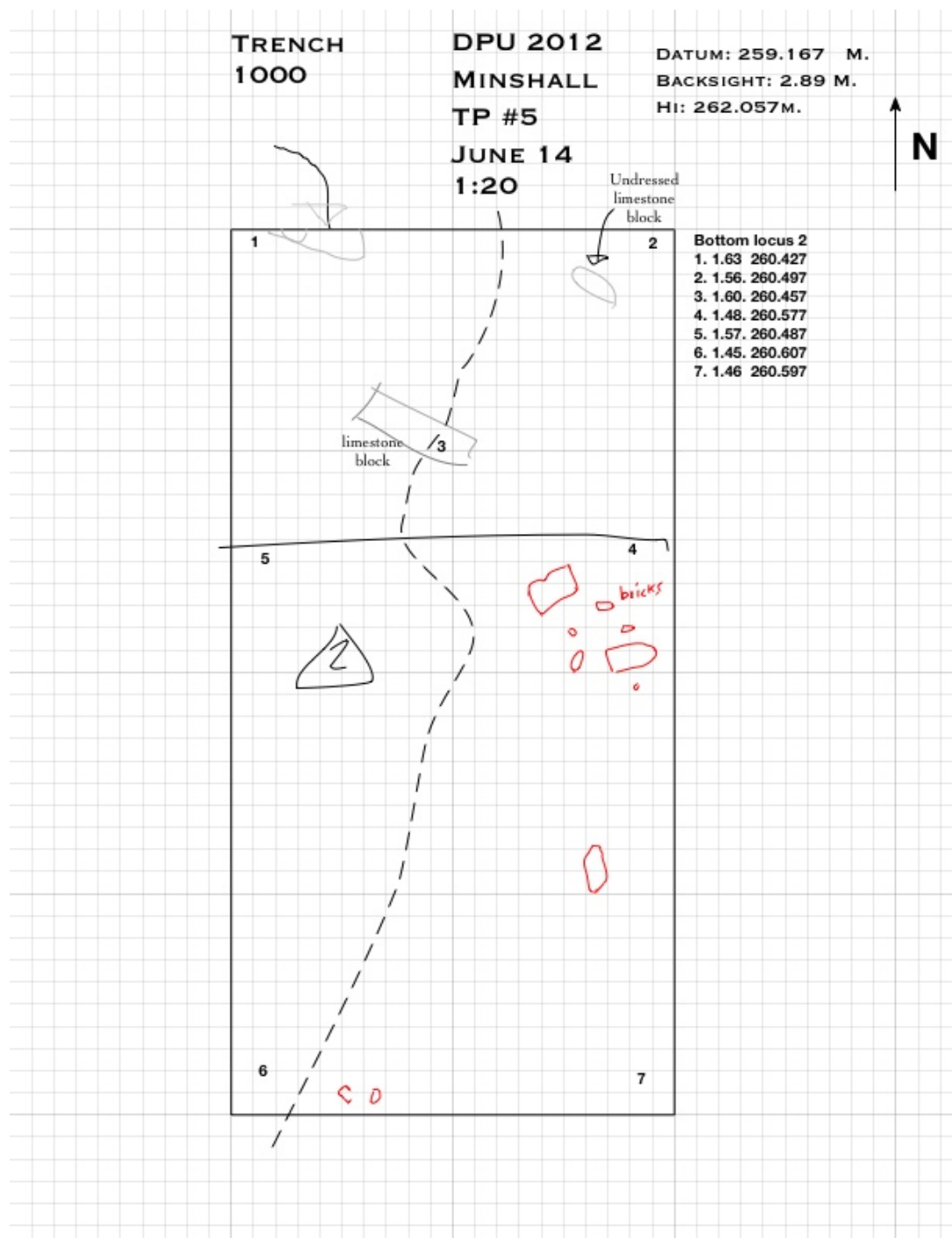
Fig. 12: Trench 1000 view north prior to excavation

The beginning of the Minshall dig coincided with DePauw's Alumni Weekend. Although excavation could not be conducted until after the alumni had left campus, this event presented an opportunity to discuss the dig with DePauw graduates who had studied in the building and to foster greater interest in learning about DePauw's history. On Friday, June 8, 2012 we gave a presentation about the purpose of the dig, what we had learned thus far from archival research, and what we hoped to find. In turn, we also learned from them: many of the alumni present at our talk had taken classes in Minshall. For example, many former students mentioned sneaking in through the fire escape at night to finish lab report, and one lady told us we may want a Geiger counter in case we ran into the part of the basement below the physics department, because of rumors she had heard about radioactive experiments. Fortunately, this rumor was later laid to rest by a man who used to work in the building—apparently those experiments took place in a completely different part of the building from our excavation.

Digging began by removing the sod and the top soil with a large pick. Our dump was located to the north of the white-picket fence that surrounds the loading-dock for the Union Building. As excavation continued, we used the large pick to remove more compacted layers. However, when we began to encounter more rubble-filled layers, it was better to use hand-picks for digging and a brush and dustpan for removing the loose soil, in order to not damage or disturb the artifacts. It was unseasonably hot in June 2012, and we quickly established a schedule of starting early in the morning, while it was still cool, and ending work early in the afternoon, to avoid the heat of day.

Record-keeping was a main priority. Each day we took record photos of the trench/s, measured elevations, drew top plans, recorded data for individual strata on locus sheets, and wrote a narrative entry in our notebook. The top plans recorded the dimensions and locations of loci within the trench as well as the location of particular artifacts. The top plans were made on an iPad using the iDraw program. There are several advantages to this method: the ability to zoom in while drawing allows for greater accuracy, and the different line weights, colors, and textures available in the program allows the articulation of specific features. One of the techniques experimented with during the dig was using the iPad to take an aerial photo of the trench and then importing the photo into the iDraw application. By scaling the photo to the dimensions of the trench, we were able to trace where important features were located. This allowed our team to move at a quicker pace than measuring every feature in the trench. It is also possible with this program to give a perception of depth through the use of thinner lines for items located further down in the trench, and thicker lines for items nearer the ground level, but also outlining features that also used thinner lines to indicate different elevations within the rock or stone itself - also a common method in hand-drawn top plans. Once the prominent features had been marked out, elevations would be taken and recorded both on the digital top plans and the corresponding locus sheets. To see an example of a regular top plan and one with a superimposed aerial photo, see figures 13 and 14.





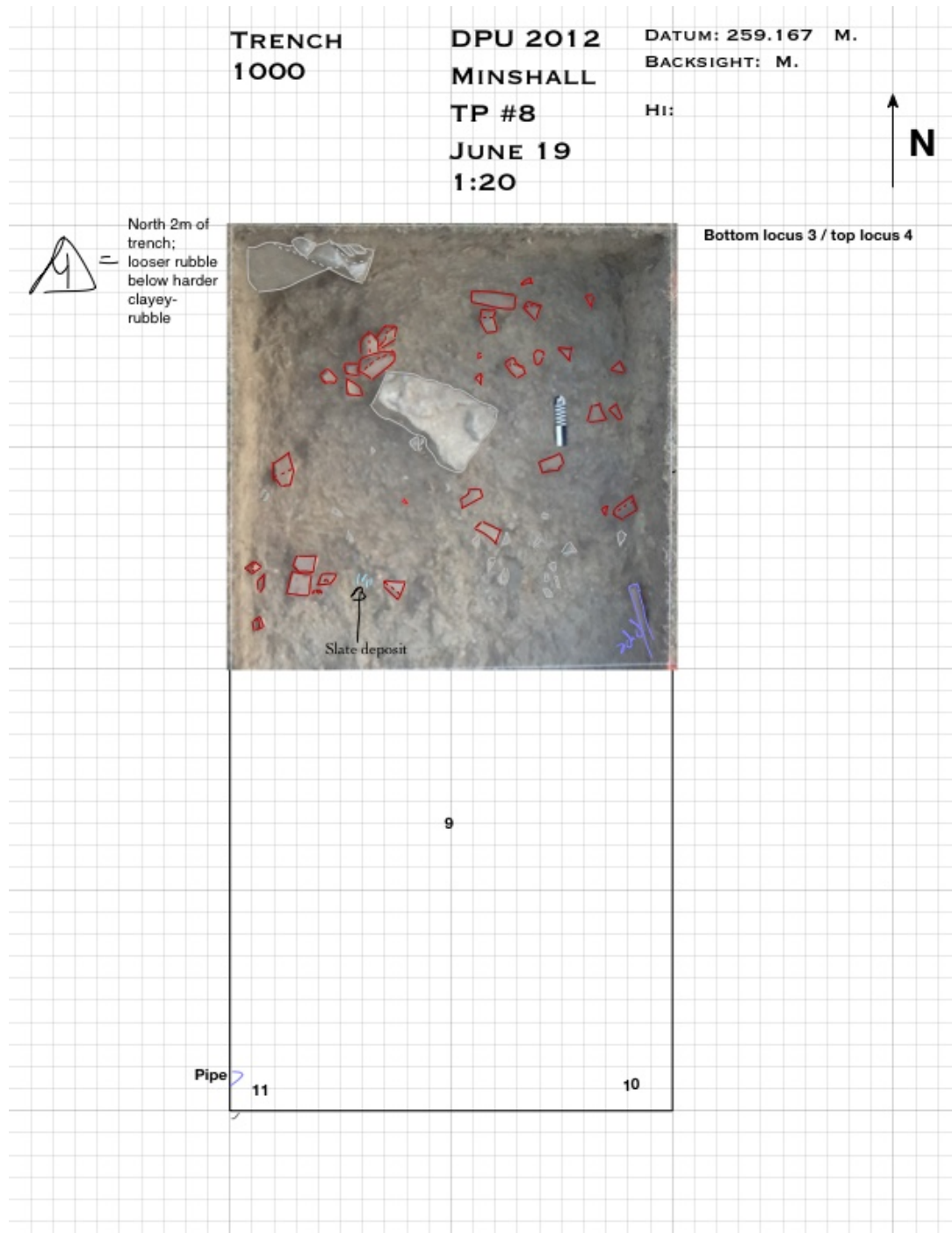


Fig. 14: Top plan of bottom of locus 3 and top of locus 4 - with overlay of aerial picture.

A locus - plural, loci - is a term used to separate out the changes seen in the soil. When the texture, color, or inclusions of the soil change that is the chance to determine whether there is a new, distinct layer, or whether it is just a fluctuation within the locus. Every layer is given a locus number - beginning with 1 and continuing up from there. Locus sheets are where information about each specific locus is recorded, including elevations of both the top and bottom of each locus, soil color, and inclusions of rock and clay. Locus sheets and top plans

together give us a clear picture of what was found on any given level, and also allow us to cross-reference observations. This often result in having the same information in more than one place, but in this way it was certain that all the information was present, and that none of it would be lost. These records also included specific lists of the number and type of artifacts for each locus.

## Stratigraphy

In order to get to a reasonable depth in a limited time with limited resources, our first trench, ‘Trench 100’, was 4m x 2m. In Trench 1000 six separate loci were identified, not including the sod, which was referred to as “Locus 0”. Locus 1 was the topsoil below the sod. The second locus identified was a yellow clay fill that was almost completely clear of rubble. This covered only the northwest part of Trench 1000, but was noticeably sloped into the Northwest corner as seen in figures 15 and 16. The rest of the trench was covered by the earlier Locus 3, which also extended beneath Locus 2. Locus 3 contained much more rubble and was slightly more compact than the fill above it. Because Locus 2 was only in the northwest side of the trench, and both Locus 2 and Locus 3 sloped deeper into the northwest corner towards the area where we suspected the basement was located, we decided to section the trench and continue digging only in the northern half. In part, this made it easier to follow the layers, and in part it made finding the wall and basement more likely to happen within the timeframe available.



Fig. 15: Picture of west balk showing the slope of Locus 2 in Trench 1000.



Fig. 16: Drawing of west baulk showing the loci in the soil.

Locus 4 was even more compact. Under the south part of Locus 4 was more of the rubble-free yellow clay. Under the north part was soil similar to Locus 4, but darker and looser, so we changed loci. Locus 5 was located only in the north side of the trench. The yellow clay was nearly level for over half a meter and then it sloped steeply down to the north and continued under Locus 5. Locus 5 popped easily off the top of what was below it: towards the south, the slope of yellow clay; and to the north, Locus 6. Locus 6 was extremely loose and had more rubble in it than actual soil. Most of the bricks in Locus 6 were complete, rather than in pieces as most of them had been in previous layers, and underneath Locus 6 was the wall, running east-west as expected. The wall, also as we had expected, was made of large blocks of rough-hewn limestone mortared together. Locus 6 continued on the north side of the wall, going down between the wall and the north baulk, but that space was less than thirty centimeters wide. This area was not large enough for us to dig in.



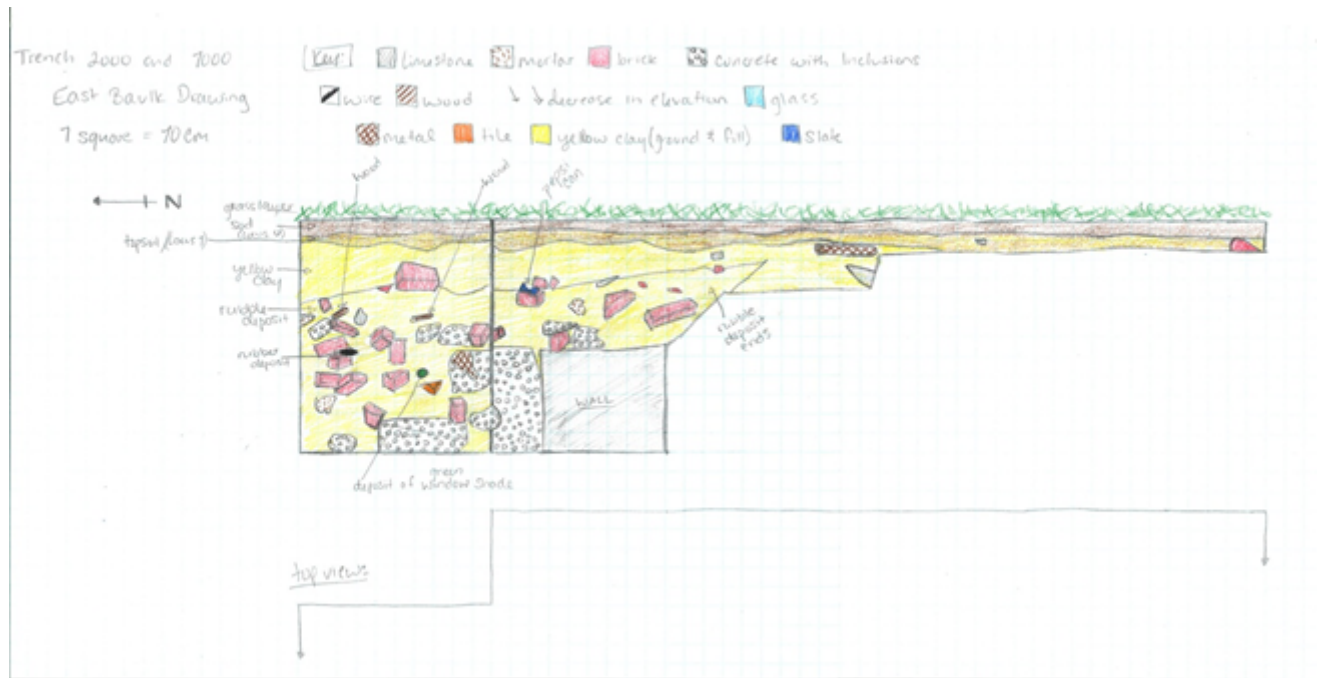


Fig. 17: drawing of the east baulk.

Because the south wall of Minshall Labs was located nearly at the northern edge of our trench we decided it would be necessary to open up a second trench, Trench 2000, on the north side as an extension of Trench 1000 in order to dig into the basement of Minshall (Fig. 18). In the second trench we found many of the same loci. First there was the sod and the topsoil, followed by the rubble-free clay fill, Locus 2 (which in the smaller trench covered the entire trench), and then the clay-rubble mixes of Loci 3 and 4. Locus 5 from Trench 1000 (which shall now be referred to as 1000.5) did not appear. Locus 5 from Trench 2000 was therefore the same as Locus 6 from Trench 1000. This locus shall now be referred to simply as Locus 6. Under Locus 6 on the north side of the wall was a flat layer of the rubble-free yellow clay. This layer was very hard and almost completely level. The material, depth, lack of inclusions, and levelness together indicated that this was the basement floor. Thus, Locus 6 is the rubble that was bulldozed into the basement of Minshall and thus sat directly on top of the floor (Fig. 19). Multiple accounts from people who had worked in the building confirmed that the basement floor was packed earth. At this, our lowest point, the trench was 1.13 meters deep.



Fig. 18: View of Wall in Trench 1000. Trench 2000 partially dug with a mini baulk still intact between the two Trenches.



Fig. 19: Rubble layer in basement of Trench 2000

## Finds

We found destruction debris much higher up than we expected. Chunks of bricks, along with other material, began showing up as early Locus 1 and 2, not even 20 cm (about 8 inches) down from ground level. This was both surprising and exciting.

	LOCUS						
FINDS	0	1	2	3	4	1000.5	6
Nails and screws	1		1	27	10	12	37
Charcoal	5	2	11	18		7	
Slate		6	15	63	11	17	48
Window Glass		11	7	247	70	73	Too many to count
Bricks	2	31	16	183	96	86	249
Limestone		3	4	11	27	14	10
Tiles and ceramics		6	7	87	30	21	222
Wire				7	1	1	6
Pipes				2	1	2	
Rubber				1		1	89
Vessel Glass		2	1	4	17	3	8
Plaster		1					80
Mortar		4	4	11	5	6	68
Concrete				5	4	4	151
Wood				1	4	1	28
Metal (lump pieces)		1		18	1	10	11
Metal (shaped pieces)		2		5	1	3	2
Slag		1	1				
Porcelain				5	4		45
Plastic		2	1	3	1	1	
Paper				1	2	1	2
Other			1		1	2	7

Fig. 20: Table of finds, by locus.

The first significant find was found in Locus 1000.5, wedged between two bricks in the east baulk (Fig. 21). It was a crushed Pepsi can. This can is significant because it is a commemorative can made to celebrate Pepsi's 75th anniversary, in 1973 (Fig. 22 (a) & (b)). This date confirmed our research, which said that Minshall had been torn down in 1973. The can was a 'terminus post quem', which means that we can know that anything above the can had to be from 1973 or after.





Fig. 21: Pepsi can in situ



Fig. 22 (a) & (b): Cleaned Pepsi can

Throughout our time digging in both Trench 1000, we had to be conscientious of digging around a large limestone block that showed up quite near the surface in the far northwestern corner. For a while, it was unclear whether this block was a foundation block knocked out of place, or whether it was a piece of the building from higher up. As Trench 1000 was excavated, it became apparent that this limestone block was indeed an architectural fragment from the building, due to sharp corners, and a rounded section found near the bottom (Fig. 23). Research in DePauw's archives unearthed photos that showed a cornice of the building that looked similar to our architectural fragment (Fig. 24 (a), (b), & (c)).





Fig. 23: Picture of Limestone block in Trench 1000.



Fig. 24 (a): Uncovered Limestone Architectural Fragment; (b): Zoomed-out location of cornice

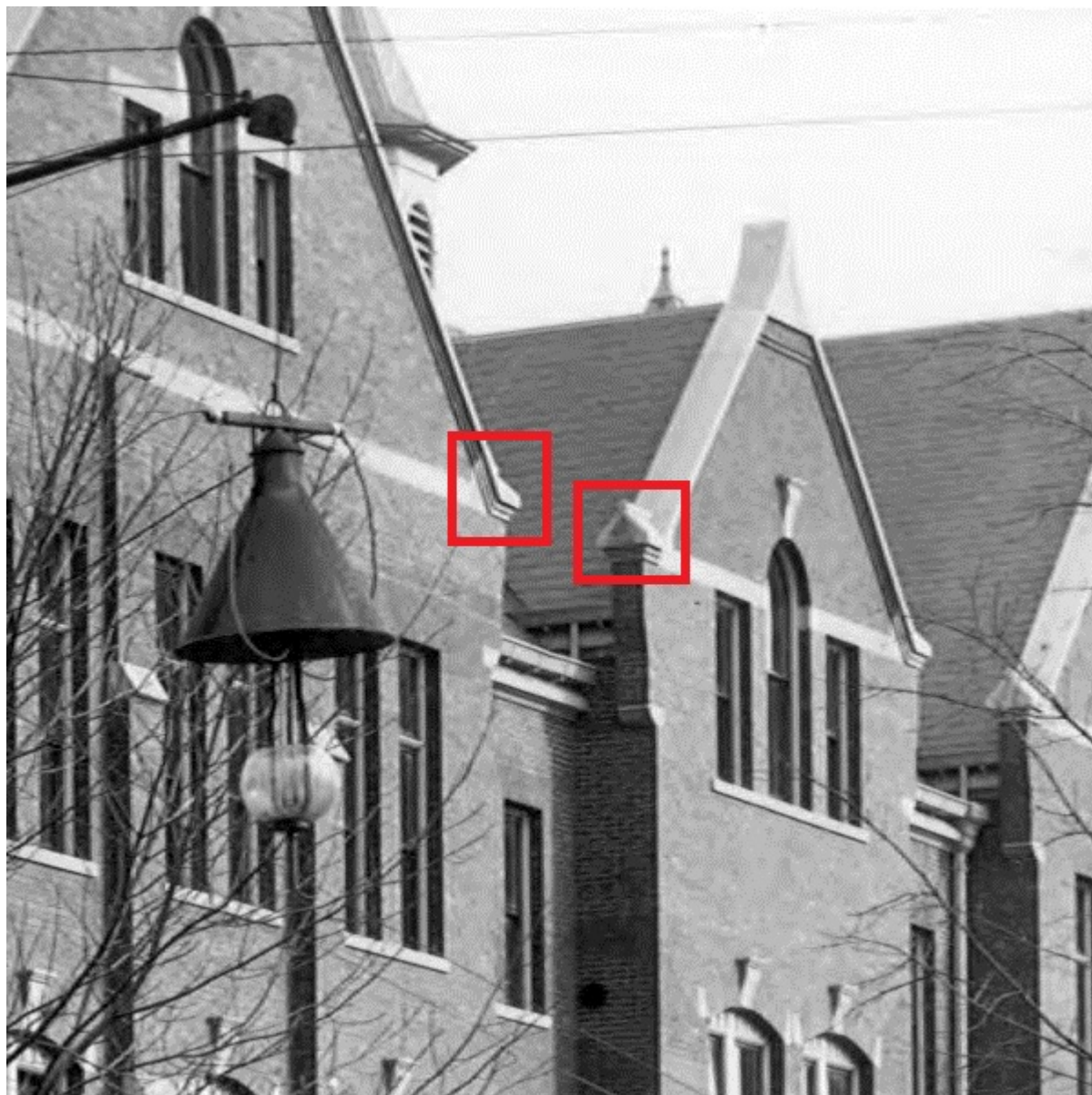


Fig. 24 (c): Detail of cornice on Minshall Labs

Throughout digging in both Trench 1000, but also in Trench 2000 porcelain continued to show up in different forms. We found chunks of white porcelain near the beginning of our dig in Locus 3 of Trench 1000 (Fig. 25). Chunks similar to these continued to show up, but not in large enough chunks to indicate where these might have come from. Chunks such as those shown in figure 25 (a) are a little thicker and more durable and started the suspicion that a bathroom might have been above the southeastern corner of the building. We later found other pieces of white porcelain that had unusual shapes (Fig. 25 (b) & (d)), and these seemed to strengthen the bathroom hypothesis. This hypothesis was never able to be proven, and white porcelain chips (Fig. 25 (c)) were also found that were thinner and finer, and seemed to not be from a bathroom, but rather seem to have been used in lab. A different sort of find that also led to the hypothesis that there was a bathroom over this corner of the building, was the discovery of decayed paper



product (Fig. 26) in clumps that were found near deposits of orange tile (Fig. 27), and porcelain. However, due to a lack of building-plans for Minshall Laboratory, it is impossible to know at this point whether our hypothesis is correct.



Fig. 25 (a): Chunks of white porcelain



(b): White porcelain with square cut-out



(c): Fine, thin porcelain chips



(d): Ribbed porcelain with letters 'A' & 'F'



Fig. 26: Remains of decayed paper product



Fig. 27: Orange tiles

As we began digging into the true rubble layer of Locus 6 in Trench 2000, we found several pieces of curved, clear vessel glass with an iridescent sheen to them. By their shape they appeared to have come from the neck of a large bottle, several of them could be fit together, and one of them appeared to be a handle. Bridget Gourley, a DePauw chemistry professor, identified them immediately and without hesitation as pieces of a 2-liter concentrated acid bottle (Fig. 28(a) & (b)). Her identification of these pieces confirms the use of the building for scientific purposes and specifically the use of the basement for storage.



Fig. 28(a) & (b): pieces of clear vessel glass

Near the bottom of Locus 6, we found a dowel wrapped in many layers of thin, dark green fabric. The fabric was old and decayed and therefore very fragile (Fig. 29). It fell apart when touched, which made it difficult to extract. Below it were two pieces of painted wood lying perpendicular to each other. Within the corner formed by these two pieces of wood, lying together where they had fallen and broken (Fig. 30), were many, many shards of flat, clear window-pane glass—a whole window's worth, in situ, complete with what was clearly their window-frame and window-shade (Fig. 31).

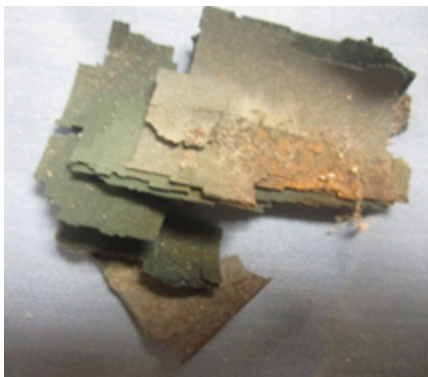


Fig. 29: pieces of window-shade fabric



Fig. 30: window glass in situ





Fig. 31: view of trench showing window frame

Another interesting set of finds included several pieces of a light bulb, found next to some broken glass tubing (Fig. 32). One piece of the glass tubing is connected to electrical wiring, so we are not sure whether their proximity is simply coincidence, or if it would have ever been used together with the light bulb.



Fig. 32: light bulb and glass tubes

## Conclusion

The main purpose of this excavation was to learn more about the construction and deconstruction of Minshall Laboratory. Much of our results was confirmation of information available in the DePauw archives: that the basement floor was packed earth and that the foundation walls were limestone. The rubble found directly above the floor of Minshall confirmed that at the time of demolition, the building material was pushed into the basement and buried. After the destruction,

the area was filled with yellow clay to level it out. By digging down to the ground-level that would have existed in 1902 when Minshall was built, it became more apparent how the foundations were constructed. The presence of the 2-liter concentrated acid bottle agreed with what we'd heard about the basement being used for storage, and that things were left behind when the Science Departments moved out prior to demolition. The 75th Anniversary Pepsi can confirmed the year of destruction as 1973. The historical data of the building included in this report was in part due to the excellent information contained in the Archives, but was also because this particular building has a "community that's invested in" it (Prof. Schindler) and many people shared their stories, memories, and knowledge of the building.

Archaeology really is all about luck. Finding the wall within the confines of our trench, and realizing we needed to extend the trench north with enough time to excavate, was quite rewarding but also fortunate since in the end, all 3 maps were incorrect on the placement of Minshall Labs. There were many opportune finds throughout our trench that were able to provide us with more information: The 75th Anniversary Pepsi can allowed us to date the demolition to 1973, the 2L concentrated acid bottle confirmed information showing that Minshall's basement was used for storage, and the Limestone Cornice fragment was able to be identified in photos from DePauw's archives, confirming that the building collapsed, and was not taken down floor-by-floor. The trench was well-placed and provided valuable information both for the archives, but also for the students to learn from. Though small enough for our group to dig, the trench displayed a good variety of soils and finds while also having distinctive loci that could be identified and dug independently. The students were able to learn about the workings of a trench, from marking out the strings to drawing the final baulks, as well as the use of tools: including the large pick to dig out the clay and the paintbrush to clean the more fragile artifacts. There was a good example of a cut, in the foundation trench for the wall, and of a fill, in the pure yellow clay that formed Locus 2. The limestone block had to be pedestaled, the stratigraphy was quite clear, and the can served as an example of a 'terminus post quem'. The excavation of the southern wall of Minshall Laboratory proved to be an informative dig that celebrated DePauw's 175th Anniversary by continuing the education of its students, but also the community.

## DePauw Campus Dig 2012

<sup>1</sup>This section is a summary based on: Donald J. Cook, *Sesquicentennial Historical Pamphlets: Chemistry at DePauw* (Greencastle, Indiana: DePauw University, 1987), 5-29.

<sup>2</sup>Historic Photographs of the campus buildings are from the DePauw University archives:  
[http://digital.library.depauw.edu/cdm4/search\\_archives.php?CISOROOT=/archives](http://digital.library.depauw.edu/cdm4/search_archives.php?CISOROOT=/archives)

\*This project would not have been possible without the support of DePauw University's Facilities Management team. We would like to acknowledge the assistance of Beth Wilkerson, Director of DePauw's GIS center, and Wes Wilson, Depauw University's archivist.

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<sup>i</sup> [insert coordinates for the datum]