Letters, Email, Bouquets & Brickbats

Issue #3

January 26, 2024

This page is not a permanent part of this newsletter. It's included here for those duplex printing (double-sided printing) this issue after downloading this PDF.

The C♦DPHS is an association of individuals dedicated to the preservation of the history of our community. To the preservation of the region's oral history, literary history, social history, graphic and pictorial history, and our history as represented by the region's artifacts and structures. To the preservation of this history for future generations. To the art of making this common heritage accessible to the public. And to the act of collaborating with other individuals and organizations sharing similar goals.

The Clayton ♦ Deer Park Historical Society's

Letters, Email, Bouquets & Brickbats

—— or ——

Bits of Chatter, Trivia, and Notices — all strung together.

We encourage anyone with observations, concerns, corrections, or additional materials related to these newsletters or the history of this region to write or email the Society. See the "Society Contacts" box on the last page of this issue.

Contacting the Society:

Recollections of Brickmaking at Clayton, Washington: Conversations With Eddie Olson & Others. Part One.

—— Wally Lee Parker ——

Regarding the Following.

The following material has been condensed from a series of interviews I conducted in the late 1990s and first several years of the 21st century with longtime Clayton resident Eddie Olson. These tape-recorded discussions were carried out at Eddie's Furze Road home, just northeast of Clayton. I'm also including quotes provided by Lewis 'Shorty' Daugherty — those from an interview conducted at Shorty's Deer Park residence on the evening of January 11th, 2004. Longtime area resident Jack Lewis, also a former employee of Clayton's brick plant, stopped by and added a few comments, as did several others.

The italicized paragraphs in the body of the text are my restructurings of my interviewees' words as extracted from the tapes, or quotes derived from other sources. Those quotes not attributed to my interviewee's are indicated as such. The standard-font portions are my thoughts and recollections drawn from my own research and opinions.

Portions of these interviews have previously appeared in various articles published in the Deer Park Tribune, in the Clayton ♦ Deer Park Historical Society's inhouse publications — the Reports and the Mortarboards — as well as in my own print and online blogs — The Bogwen Report and The Bogwen Report Online.

—— W. L. P. ——

… the way it used to be ...

Eddie Olson was a friend of my family almost from the day we arrived from California late in 1947 and purchased our Williams Valley farm in early December of that year. Early the next year my father, Owen Lee Parker, went to work at the Washington Brick & Lime Company's factory in nearby Clayton. The interview notes to follow are bits extracted from my taped interviews with Eddie, an employee of the same plant from 1936 until its closure in 1957.

Eddie began by recalling, "*Your dad, Owen, worked as a swing shift fireman — firing the kilns and tending the boilers from 2 o'clock in the afternoon until 10 at night. Him, David Baker, and sometimes one other guy worked that shift.*

"*Owen did a lot of brick work too — such as repair work around the kilns. There was always work to be done on those — on the fireboxes and such.*"

With that, Eddie began bringing the long-disappeared factory back to life. And even though as of the time of this writing it was around 70 plus or minus years ago, I still have a few vivid memories of Clayton's brick plant myself. For example, I do recall that one afternoon

Photo by Bill Sebright — May 8th, 2004.

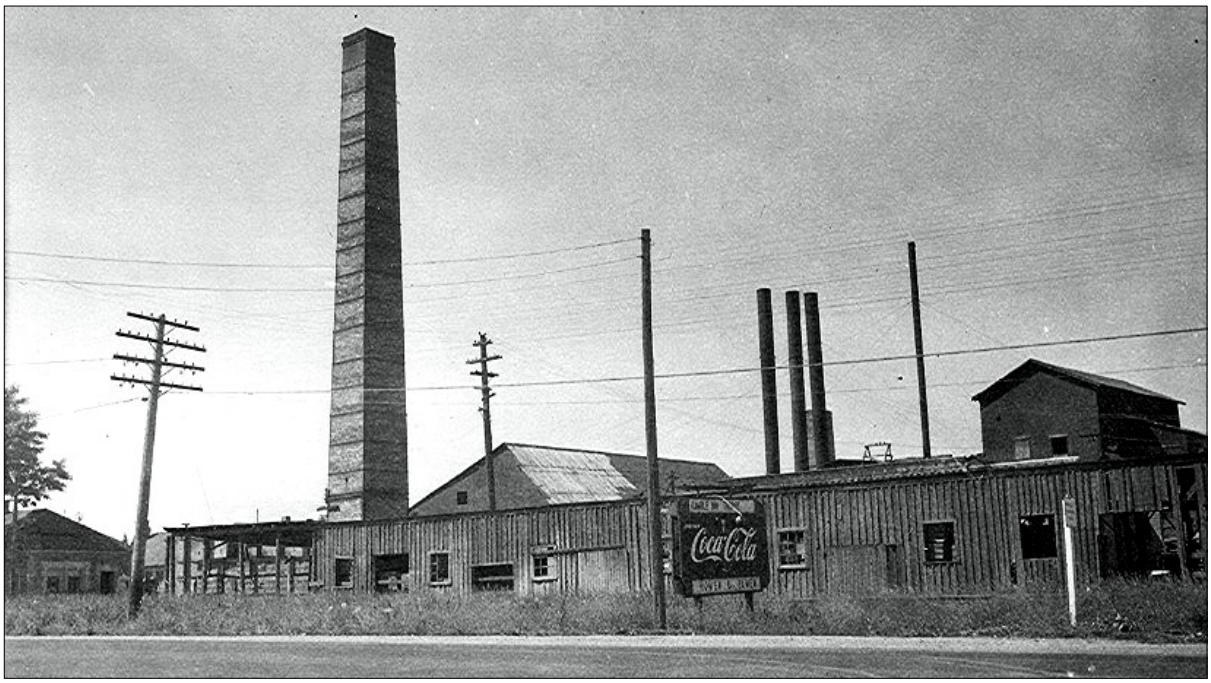
Eddie Olson.
March 12, 1917 — May 22, 2016.

my mom and I stopped by the plant for some reason and found Dad working on the underground flue running south between kilns number fifteen and sixteen, (*see diagram on page 22*) said flue part of the underground passages leading to the brickyard's tallest smokestack. The ground was open, and my dad was laying a new arch over a caved in segment of the flue. He was using a brick-wide strip of sheet metal curved into a half-circle that acted as a form over which the brick arch could be laid. He'd mortar a row of brick over the metal, then slide the metal out from under, leaving the brick arch standing on its own. The process was carried out again and again, until the damaged part of the tunnel for the kiln's combustion gases had been repaired.

Eddie said, "*I was twelve years old when the family moved to Clayton. My birthday is the 12th of March, so that would probably make it 1929, or the first few months of 1930.*

"*One of my first memories of Clayton — maybe my dad was working in the shed, or something — I don't remember why — but for some reason I was walking through the brickyard's big clay shed. Jim Stelting was driving the company's old Fordson tractor. It was fitted with a frontend scoop. He'd take scoops of different colored clays, mixing them to get the blend and color wanted. Just for fun Stelting would retard the spark on that old tractor, and that thing let off one harsh blast of a backfire. Scared me to death. Everyone said he did that just to see people jump. I ran out of there and never went back — well, until I started working there myself.*"

The above Fordson driving clay-worker was Ernest James 'Jim' Stelting. Jim was born in Tennessee on the 24th of January, 1897, and



A Clarence Glasbrenner Photo: From the Clayton ♦ Deer Park Historical Society archive.

The west end of Washington Brick, Lime & Manufacturing Company's Clayton Factory — circa 1950. Note the three black smokestacks rising above the plant's boiler room.

had been a resident of Clayton since approximately 1909.

I told Eddie I'd been told a story about early Clayton by Jim's wife, Ruth Josephine (*Olson*) Stelting. Born May 19th, 1901, Ruth was a lifelong resident of Clayton, her father, Martin Olson, apparently settling in the area about 1888, some 6 years before Clayton was founded. Her family owned a store in Clayton before 1908's fire (*see 'further reading' box below*) incinerated the entire business district. The family grabbed everything in the store they could and piled it out in the street. Then her dad set her on top of the pile and told her not to let anybody steal any of it. To that she was thinking, "*And exactly how am I supposed to stop people taking things*?"

Eddie added, "*The Steltings established another little store after the 1908 fire — that store just east of where the store lost in Clayton's 1957 fire was located. The Steltings called their replacement business the Clayton Purity Store. Ruth's dad's name was Martin Olson. He carried a watchman's clock around the brick yard for quite a few years.*

"*When working graveyard shift, I carried the watchman's clock. I began work at 10 o'clock at night and made hourly rounds to all the timeclock stations until 6 in the morning*."

… the watchman's clock …

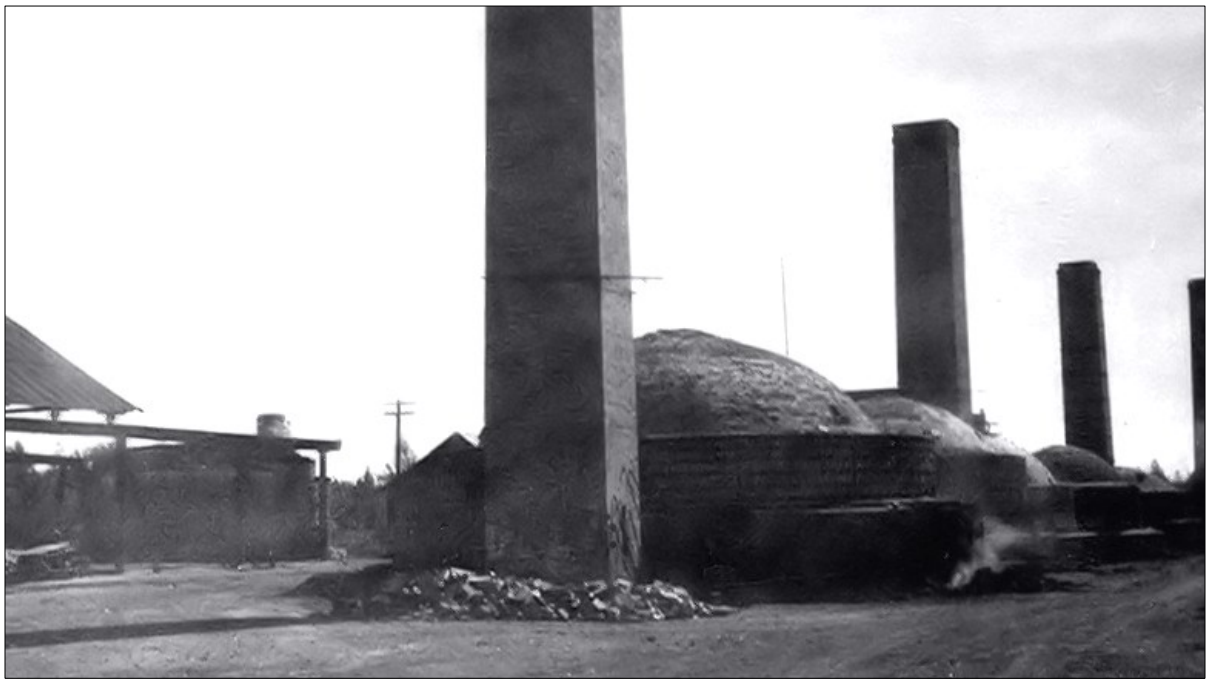
And that brought up the issue of how the watchman's clock worked. On those evenings I stayed at the brick plant, I remember seeing either Dad or David Baker loop the timeclock's strap over their head, pick up a flashlight, and take off to make the hourly rounds. The idea behind the rounds was to make sure certain sites around the plant were either operating correctly or were secure. The watchman's clock included a means of proving the rounds were being made as required by the insurance company.

As Eddie recalled, "*The clock was about six inches in diameter and two and a half inches thick. Every day a new paper card was put inside. There were keys — each alike except for the number it pressed into the paper disk inside the clock. You went all around the yard — up where the clay sifting screens were, down by the brick molding machines, over to the water tower where you checked the water level, and through everything up to the top floor of the terracotta*

Further Reading

"Clayton Burns! The Clayton Fires of 1897, 1908, and 1957." by Wally Lee Parker.
Mortarboard #111, July, 2017 — page 1501 — Collected Newsletters, Volume 31.
(https://cdphs.org/uploads/3/4/2/0/34204235/mortarboard_111__web_.pdf)

A Clarence Glasbrenner Photo:
From the Clayton ♦ Deer Park Historical Society archive.



The west end of Washington Brick, Lime & Manufacturing Company's Clayton Factory — circa 1950. A portion of the framework for the plant's open kiln with sliding roof can be seen to the left side of the photo.

building. When you reached a station, you put the key kept at that station into the clock and turned it to make an impression on the paper."

The round paper card that went inside the clock was divided by lines into twenty-four pie-shaped segments — twelve such sections for the a.m. hours and twelve for p.m. hours. These segments were further divided into 15-minute slices. This paper recording dial would rotate inside the clock in sequence with a twenty-four-hour day. Each unique station key carried one raised number — from one to nine — spaced

The advertisement below and on page 18 shows a typical watchman's clock, along with one of its key-boxes with key. The key is engraved with the number three, that matching the number embossed onto the clock's internal paper recording dial when this key is inserted and turned. The detailed illustration on the top of page 18 shows the same brand of clock when opened, exposing the above noted recording dial. Letters/Brickbats proofreader Ken Westby noted that the clock's face, when being carried about by the shoulder straps, is upside down — doubtless to facilitate reading while still being worn.

This advertisement clipped from the January 1st, 1903 edition of The Tradesman magazine.

The Newman's Improved Portable

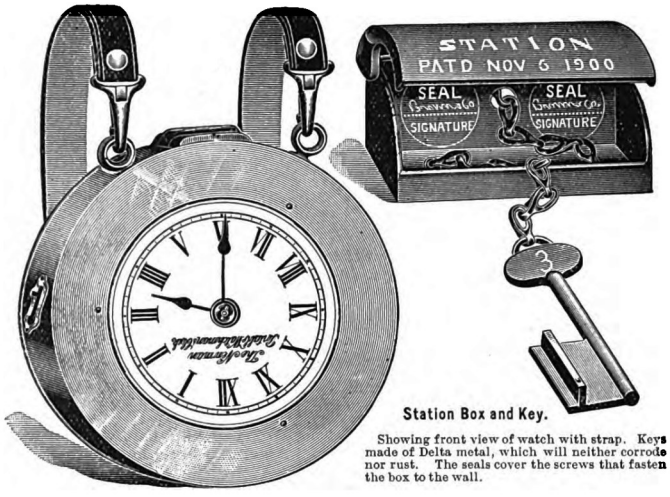
Watchman's Clock

Approved by the National Fire Protection Association for use under the rules and requirements of the National Board of Fire Underwriters covering Portable Watch Clocks

A PORTABLE WATCH AT LAST THAT CANNOT BE TAMPERED WITH

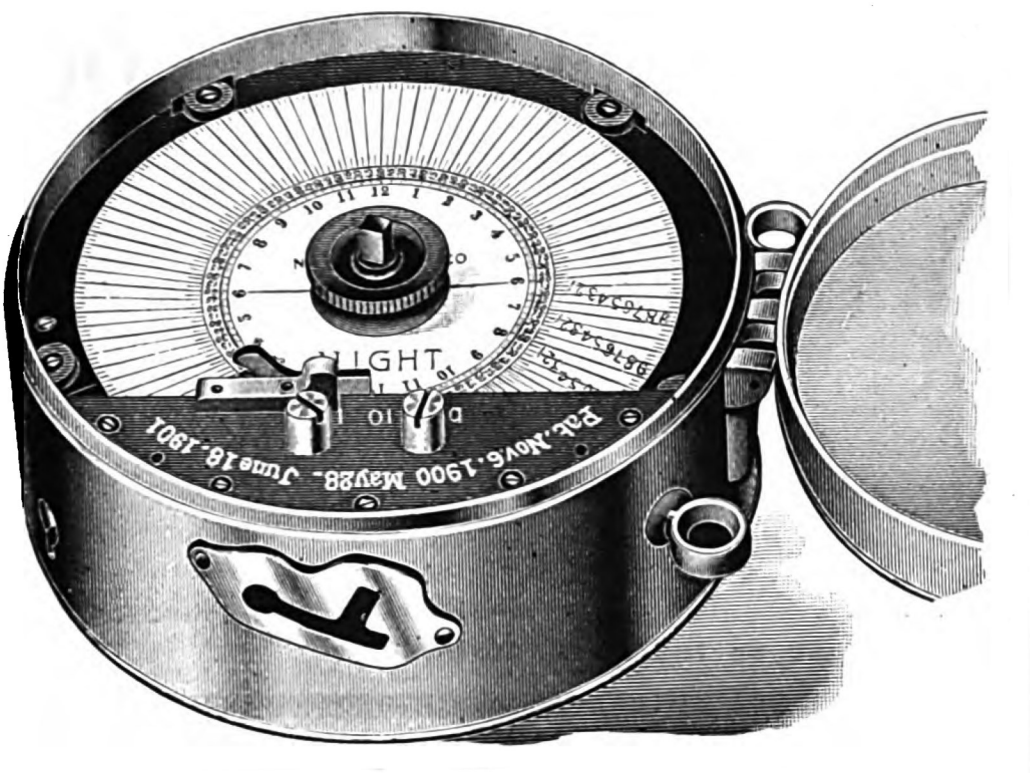
To comply with the National Board of Fire Underwriters ask for No. 5, Model 1902.
Write for Circular N and prices, naming number of stations desired.

Newman Clock Co.
501 Masonic Temple, CHICAGO, ILL.



Station Box and Key.

Showing front view of watch with strap. Keys made of Delta metal, which will neither corrode nor rust. The seals cover the screws that fasten the box to the wall.



This portion of an advertisement was clipped from the January 15th, 1903 edition of The Tradesman magazine.

Link to Facebook Video of Watchman's Clock:

The Sweetwater County Historical Museum, Green River, Wyoming.
Video presentation regarding a Detex Newman watchman's clock.
(https://www.facebook.com/profile/100036964605789/search/?q=Detex%20Newman%20Watchclock)

along the key's elongated surface so that no specific station key's number would impress the paper over the top of any other's.

Eddie noted, "*When they loaded a new paper to start each day, there was a needle that poked a hole in the paper. If you opened the clock up during your shift, the clock was set up so that on closing it would poke another hole in a different part of the paper. If there was more than one closing hole poked through the card when they unloaded the paper, they knew someone had opened it up during their shift.*

"*Back when the terra cotta plant was still in operation, one of those keys was chained inside a key-box up on the fourth floor — clear in the back corner. This one guy just hated going up there in the dark. First round he'd take the entire key-box loose from the wall and bring it down to the ground floor. Then, last round, he'd return it to the fourth floor and reattach it to the wall. They eventually caught him and that ended that.*"

To prevent the above, the clock's purchaser was provided with paper seals to be signed, and then pasted over the heads of the screws attaching the key-boxes to the wall, post, or other permanent surface at each station. If the seals were broken, this suggested the key-boxes had been moved and later replaced. The illustration of the "*Station Box and Key*" seen on page 17 shows the seals in place.

… Lake Clayton ...

One prominent remaining feature from the brickyard era is the roughly 400 by 250-foot pond now filling what was in the early days the brick factory's primary claypit. As Eddie recalled, "*The big pit was on the brickyard's grounds just north of the factory. It was around 1946 or so when they stopped taking clay from that pit.*"

Sheldon L. Glover, in his 1941 book "*Clays and Shales of Washington*," observed that "*the Clayton pits have been worked since 1893, and an immense tonnage of clay has been removed. The main pit, a level-floored area that is 600 feet or more feet long by some 400 feet wide, has been carried 26 feet below the general ground surface*."

I doubt the pit had grown significantly in the few years since the digging there had ceased, but by the mid nineteen-fifties it had become a dump site for debris from the plant — cull bricks and such. I recall seeing the lowest portion of the pit filled with a pale green pond — the opaque water forming a rippleless circle perhaps forty feet across. How far down it was to the surface of the water I can't say, though it seemed significant. Being a dump site, the pit's sides were composed of brick rubble all around. Some kids had built a raft from planks — that seen floating on the pond. I tried crawling down to the water, but the loose rubble made me wonder whether I'd be able to crawl back out.

… the clay …

Eddie said, "*We had a clay pit up on our place — our farm — that the company hauled out of. They called it the Olson Pit. And then there was the A. B. Pit. That was east of Deer Lake out on the old Colville highway — Garden Spot Road they call it now.*

"*From south of Spokane — from Mica and Freeman — they did bring in some of what they called fireclay. That's what they used to make refractory firebricks for metal smelters. They shipped it by rail in gondola cars. When the clay was hauled in from other places it was piled out to the west side of the factory — out toward the schoolhouse. They called that area the dry floor. And on the north side of the railroad tracks across from Scottie's Service Station there was a small pit — all grown up with trees now — where they dug pottery clay.*"

As for the sources of the clays found within southeastern Stevens County and Northwestern Spokane County and utilized at Clayton, the 1920 publication *The Washington State Geological Survey Bulletin No. 20: The Mineral Resources of Stevens County* — this authored by an extremely well-regarded State Geologist, Charles E. Weaver — gives the following account.

"*The clay deposits of Stevens County consist of several types. The best known and most extensively used are horizontally bedded clays interstratified with sands of Pleistocene age*."

The Pleistocene epoch dated from 2.6 million years ago until 11,700 years ago. During that time there were multiple advancements and retreats of the glacial fields. In fact, for some time geologists have considered our current non-glacial age as simply another in a long series of such retreats, with the likelihood being that the ice will eventually return. Whether that still stands — considering current concerns regarding global warming — seems undecided.

Professor Weaver continued, *"They* (the above noted clays) *represent fine argillaceous materials* (argillaceous meaning deposits containing clay or clay minerals — for example, silica, alumina, and/or iron oxide) *derived from rocks containing minerals rich in alumina which have been transported by streams to bodies of fresh water where they have been deposited. These clays are usually stratified* (arranged in clearly defined layers) *and in areal extent* (meaning across most of the surface under consideration) *vary in composition. In places they become sandy so that they can be used only for the manufacture of common building brick. The finer types, which are relatively free from sand and iron, are used in the manufacture of pottery and terra cotta. The most important deposits of clay in the county are situated in the level area in the vicinity of Clayton*."

Regarding the Clayton area, Professor Weaver said, "*The surrounding region for several miles to the west, south, and north is nearly level, and the surface exposures are largely gravels of glacial origin. Interbedded with the gravels are deposits of bedded clay, presumably deposited in bodies of fresh water which occupied portions of this area during the closing stages of the glacial epoch. The bedrock wherever exposed consists of granite which has undergone extensive weathering. It is probable that much of the horizontally-bedded clays were originally derived from the kaolinite of the altered feldspars in the granite and were carried short distances in suspension in the streams to the freshwater ponds and then deposited*."

The above noted kaolinite (aka kaolin) is the purest form of clay — though usually augmented with other minerals to bypass pure kaolinite's chemical deficits when the intense heat of the kiln is vitrifying (*altering to a glasslike state*) the brick or terracotta objects within.

Weaver added, "*As a result of boreholes*

Further Reading:

"Clay Pits of the Clayton Area," by Peter Coffin.
Mortarboard #23, March, 2010 — page 289 — Collected Newsletters, Volume 7.
(http://cdphs.org/uploads/3/4/2/0/34204235/newsletter_22_downsizesinglepageweb.pdf)

which have been made, these clays are found to have in places a thickness of over 50 feet."

Regarding the claypit immediately north of the brick plant, as well as elsewhere around the town, Professor Weaver observed, "*The clay exposed in the pits which have been opened varies from a white to light gray, to deep yellow to light yellow. All the clay used* (as of the date of writing) *is mined from the large pits which are situated close by the plant. The vertical section as exposed in the pit shows a thin surface layer of gravel and soil of no value. Below this surface layer there are seven feet of yellowish-gray sandy clay. Below this there are three feet of a light gray sandy clay, and below this, eight feet of white clay*."

… an alchemist's dream ...

Research suggests that trying to understand the nature of clay by rummaging through various technical papers without a doctorate in some related field of study is likely to be hopelessly confusing. With that caveat in mind, I pray the following musings will not be too far off the mark in giving at least some inkling as to why clay is such a magical substance.

Clay, as represented by the mineral kaolinite, is essentially a flat crystal platelet — a crystal that grows outward from its edges. Each crystal is formed in two layers, with each layer having a somewhat dissimilar mineral structure. Because of the slight dissimilarity in the surface areas between these two bonded layers, a mechanical stress is induced as the crystal grows that causes it to shatter into microscopic flakes. Said flakes are typically six sided and approximately — to give a better sense of size — ten times smaller than each of the individual water droplets forming the fog that, in the cool of springtime mornings, occasionally pools over windless farmland pastures.

The quality that makes these microscopic platelets unique is the electrical charges found on both its flat surfaces as well as around its edge. The two flat sides of each flake have a permanently negative charge, while the edge of each plate is "*conditionally charged*" — that condition being the pH (potential of hydrogen) of the surrounding medium. When talking about using kaolinite in brickmaking, that medium would be water.

To explain pH as it relates to geological processes, this quote is taken from one of the United States Geological Survey's websites, said website indicating this quote is given over to the public domain.

"*The pH scale measures how acidic an object is. Objects that are not very acidic are called basic* (alkaline). *The scale has values ranging from zero — the most acidic — to 14 — the most basic. Pure water has a pH value of 7. This value is considered neutral—neither acidic nor basic. Normal, clean rain has a pH value of between 5.0 and 5.5, which is slightly acidic*."

What's commonly called acid rain, as produced primarily by pollution, is much more acidic than the above noted "*slightly acidic*" rain. Normal rainfall becomes slightly acidic because the atmosphere through which it falls contains carbon dioxide. Carbon dioxide combining with rain water creates very short-lived carbonic acid.

Once the rain has reached the ground, other factors, such as the presence of calcium or sodium, or the amount of organic matter in the soil, will further change the pH of the water. Acidic groundwater helps in the chemical erosion of various minerals, including the precursors of kaolinite.

Anyway, in somewhat acidic water the rims of the clay platelets, now exhibiting a definite positive polarity, tend to stick edge-on to the negatively charged flat surfaces of other clay particles. In a process called flocculation, this gathering — this clumping — of clay particles can be visualized as a rather chaotic house of cards. The plates standing on edge lean at various angles in relation to the flat surfaces they've adhered to — giving the whole a very unsymmetrical appearance referred to in the literature as "*jackstraw*." This extremely porous accretion of kaolinite platelets is critical for creating clay's plastic-when-wet quality.

Due to the very porous structure of the flocculated kaolinite platelets, when exposed to air most of the unbound water will, over time, tend to move to the surface via capillary tension and evaporate — that evaporation augmented by '*gently*' heating the green bricks early in the process. As a result of removing this excess water, objects molded from clay tend to shrink a predictable degree as they dry. But the other aspect is that clay, due to the various (*and complicated*) forces responsible for binding its myriads of flocculated platelets together, tends to hold the shapes it's formed into while damp. After subsequently drying, this molded clay, excluding the occurrence of excessive environmental stresses — gravity (*weight*) being one example of such a potential stress — tends to hold that shape.

… the brick plant ...

An article appearing in the April 5th,

1914 edition of the *Spokesman-Review* states that Washington Brick & Lime's factory grounds at Clayton cover 20 acres. The far western portion of the property was an open area where the clay delivered by truck or the railroad's gondola cars was piled. The southwest corner of the rectangle was rounded off where the company's property followed the railroad's right-of-way in curving north toward Colville.

Just south of the brick plant and railroad tracks is what was once known as Highway 395. That was before the highway was rebuilt further to the south and west in the late 1960s — leaving Clayton bypassed. The old highway was rechristened Railroad Avenue. And like many a village finding itself in a similar strait, the town has been largely ignored ever since.

What's currently left of Clayton's business district fronts along the south side of Railroad Avenue. And most of the town's homes also line the streets likewise laid to the south of Railroad Avenue — those presumed to have been platted by the Washington Brick, Lime & Manufacturing Company in the mid-1890s.

Construction of Clayton's brick plant began in 1893. It's reasonable to assume the town began rising along the south side of the Spokane Falls & Northern Railway's tracks shortly thereafter. Over the years fires, obsolescence, and the inevitable march of time required that both the factory and the town's business district be rebuilt — the factory twice, the town once. But all that was years before Eddie Olson and the community's history became intertwined — that occurring just prior to 1930.

At the time of Eddie's arrival, the brick plant's layout could be visualized as three lines, each running in a west to east direction (*see diagram on pages 22 and 23*). That layout continued until all the factory's structures fell beneath the demolition crew's hammers, dozers, and explosives in the spring of 1961.

For more information on the brickyard's demise, follow the link found in the "*further reading*" box below.

Among the structures along the northern line was the big clay shed, the boiler room and adjacent brick molding factory, the drying tunnels, the open kiln — occasionally referred to as an updraft kiln — and the terracotta building. Between the open kiln and the terracotta building were some round kilns — more than likely for ceramics, but more research will be required.

The centermost of these three lines was the row of dedicated brick kilns and their adjacent smokestacks.

Then, fronting the railroad's spur and main tracks to the south, the last line of buildings consisted of the office, the brick storage and loading sheds, and following those the terracotta storage, loading, and cutting and fitting sheds.

As to the actual size of any of these structures, the amount of destruction and resultant clutter over the old site suggests that field measurements would be by and large unfruitful. A more useful possibility might be to obtain a Sanborn Fire Insurance Map. That should give us a close approximation of the dimensions and positions of most of the facility's important structures. Said map should fall out of copyright and become available through the Library of Congress's website by 2028, if not somewhat earlier.

If you'd like to look at the library's available collection of Sanborn Maps, follow the link posted at the bottom of this page.

… the brick factory's layout …

Referring to the diagram at the top of the following page, we find that the previously mentioned clay shed sat west of and abutting the molding factory and boiler room. Refer to the diagram on page 24 for details regarding such. The boiler room was in the southwest corner of the main factory complex, and opened into the central brickyard through two doors — a smaller one for personnel and a larger one so the trucks

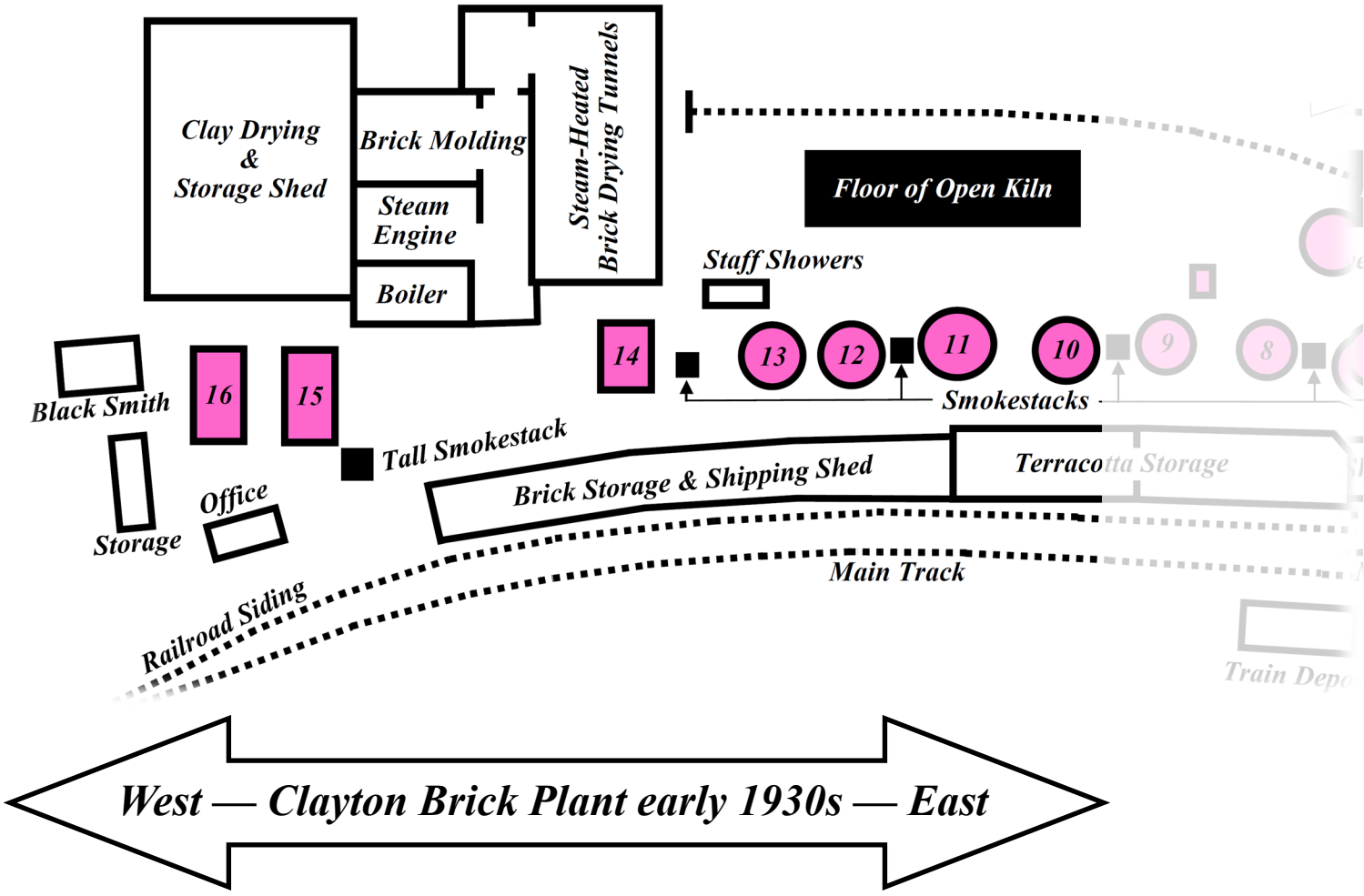
Library of Congress — Sanborn Maps Collection:

The link below should take you to the Sanborn Maps Collection's main page. In the upper lefthand corner of this page are three other links, one for the page you're currently on — "About this Collection" — *the second for — "Collection Items" — and the last for — "Articles and Essays."*

About this Collection | Sanborn Maps | Digital Collections | Library of Congress (loc.gov)

Further Reading

"One Last Smoke: Burton Stewart and Leno Prestini's Memorial to the Clayton Brickyard's Big Smokestack."
— by Charles W. Stewart —
Mortarboard #10, February, 2009 — page 120 — Collected Newsletters, Volume 3.
(https://cdphs.org/uploads/3/4/2/0/34204235/newsletter_10_downsizesinglepageweb.pdf)



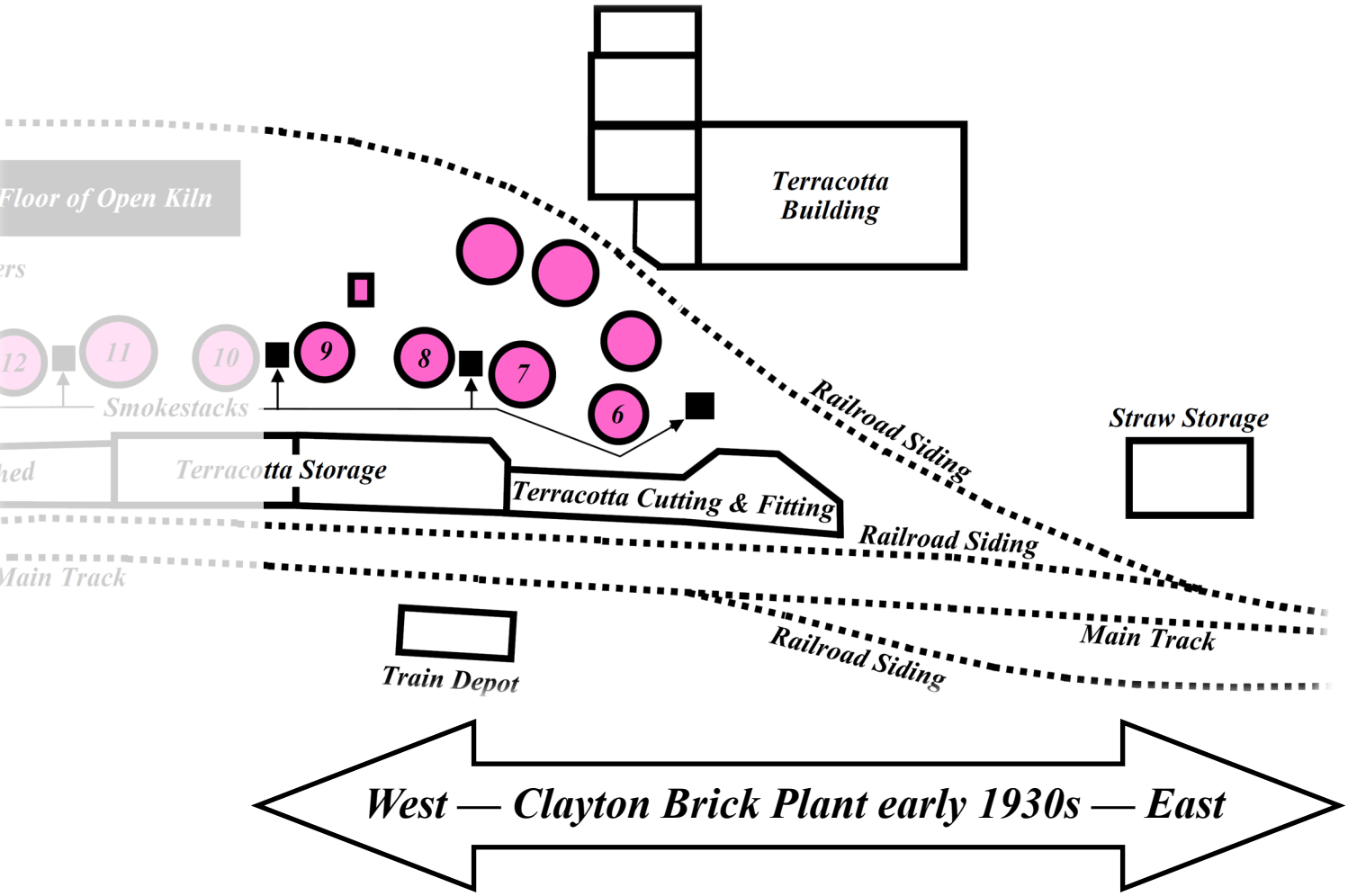
Above: On February 28th, 2004, C♦DPHS president Bill Sebright and I stopped by the Loon Lake Historical Society's classic Loon Lake schoolhouse for a conference with longtime member of that group, Karen Meyer. One of the items Karen gave us was a diagram showing the layout of the kilns, smokestacks, and factory buildings of the Clayton brickyard. The above image is my own rendering of that diagram.

carrying coal to fire the boilers could back in. The molding factory sat north and east of the boiler room. Understanding the position of these various structures aids in trying to understand the way in which the clay moved through the factory.

One thing to keep in mind regarding the layout of a classic steam-powered and belt-driven factory such as this is that its primary engine — in this case an imposing steam-engine based on George Henry Corliss's improved valve-gear design — was essentially the operation's energizing heart. That's something not common to modern factories where smaller free-standing engines — electric, gasoline, or diesel — can be widely dispersed, each placed close to that portion of the work it's intended to accomplish.

The first structure to the far west of the factory, the clay shed, was entered by driving through an opening near the southeast corner. The floor of the shed was somewhat depressed below the level of the brick yard — that possibly because the level of the rest of the brickyard had risen due to clay spillage over the years. Inside the shed, on the west side, were stalls where the various types of clay brought in from the yard were dumped.

Eddie said, "*The scoop on the tractor-loader was three foot long by three foot wide by three foot tall — one full scoop making a cubic yard. The order sent to the clay shed would specify what kind of clay — color, texture, and so forth — was needed. The guy running the tractor would go from this bin or that, picking up one scoop here and maybe a half a scoop there. He'd take those scoops and dump them into this*



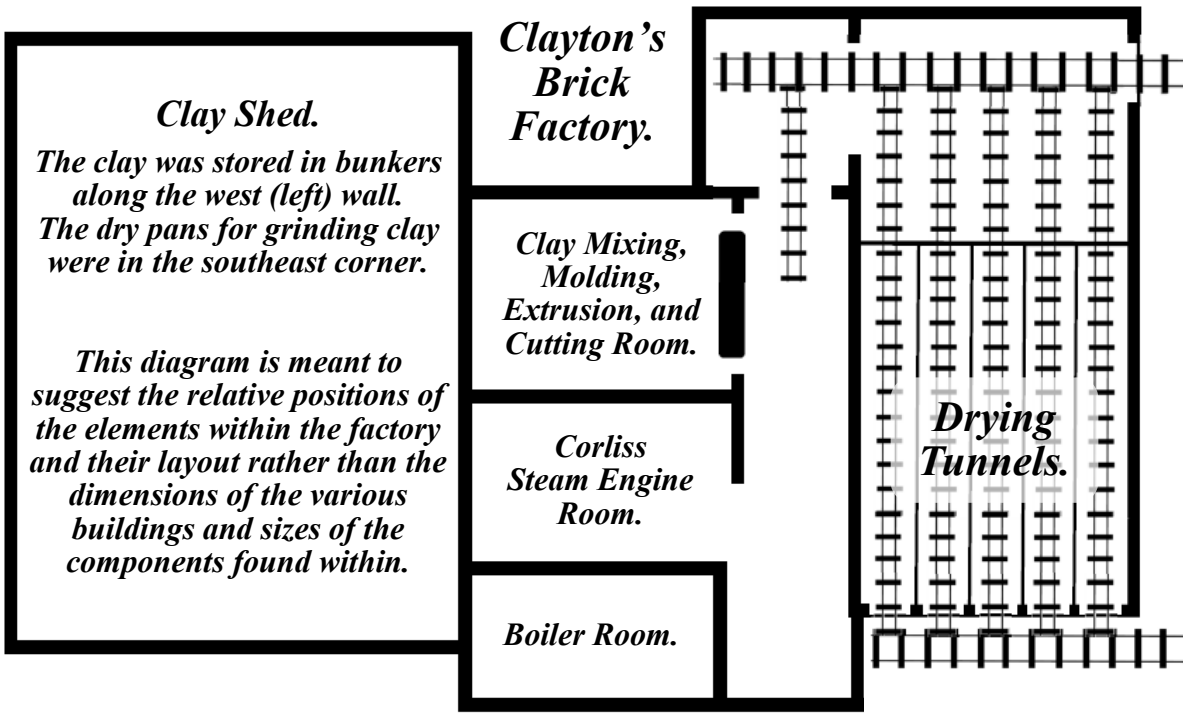
hopper."

Curious as to what exactly was being dumped into said hopper, one explanatory source is a book printed in 1941 at the direction of Washington State's "*Department of Conservation and Development*." Published under the title "*Clays and Shales of Washington,*" the author, Sheldon L. Glover — then assistant supervisor of the state's Division of Geology — stated "*Clay is a soft, earthy aggregate, consisting of a hydrous aluminum silicate, that is plastic when wet but hard and brittle when dry*."

The first of the above words in need of definition is "*aggregate*." In my *Random House Dictionary*, the third numbered definition of that word — the one specific to geology — states "*consisting of a mixture of minerals separable by mechanical means*."

The second word needing definition — this the lead utterance in the term "*hydrous aluminum silicate*" — indicates a substance "*containing water or its elements*;" said elements assumed to be hydrogen and oxygen. The above noted aluminum is a common metallic element adding just over 8% of the solidity comprising the Earth's crust — though in its natural state it is almost exclusively found as a constituent combined into other substances. A chemical analysis of samples collected by Solon Shedd, legendary Professor of Geology for Washington State College at Pullman (now WSU) — the results of which were reported in his 1910 book "*The Clays of the State of Washington*" — indicated that the best white clays sampled from the Washington Brick, Lime & Manufacturing Company's pits at Clayton ran 33.09% alumina — alumina being two atoms of aluminum combined with three atoms of oxygen.

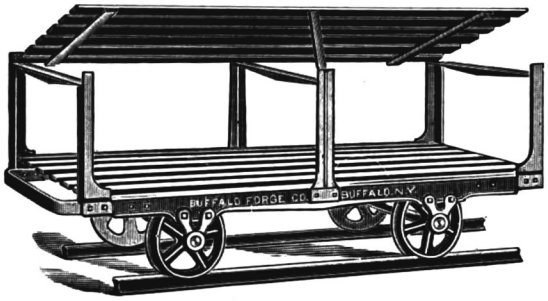
Silicate — the last word in the above phrase — describes any number of minerals containing the fundamental unit of one silicon atom with either two or four oxygen atoms. Silicon atoms make up just under 28% of the earth's crust; leaving it the second most abundant of crustal atoms — the first being oxygen. Silicon is a major element in the construction of common rocks such as quartz, feldspar, and mica, as well as those chemically disintegrated but plastic



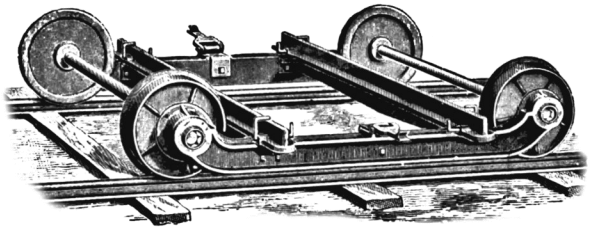
The position of the pugmill, brick extrusion machine, and brick cutting device located on the east side of the molding room are represented in the above diagram by the thick black bar. The molding room opened into a hallway down which a length of track was laid.

The tracks at the brick plant were found in two gauges — meaning the distance between the rails were either 24 or 48 inches. The narrower tracks carried the double-deck brick cars as seen below, while the transfer cars — running on the wider gauge tracks — were designed to carry a brick car on its back via the narrower gauge perpendicularly mounted rails.

As the above track layout implies, the brick cars were brought close to the molding room's cutting machine to facilitate loading. They were then pushed north (upward) and rolled onto transfer cars, an example of such seen below. Moving the brick cars on or off the transfer cars was facilitated in that the tracks for the transfer cars were laid seven inches lower than those for the brick cars. Thus, when the two tracks were brought together at right angles it was relatively easy to push the brick cars on or off the transfer cars.



Above: A typical double-deck brick car.
Below: A typical transfer car.



Once on the northern most east/west rails, and after a trip of a few feet on the transfer car, the brick cars were rolled south into the drying tunnels — each tunnel individually lined with steampipes. The cars were shut in for at least several days while the excess moisture was driven out of the wares.

Pushed back onto the transfer cars after removal from the south ends of the tunnels, the brick cars were pulled to the intended kiln by a rail-riding employee-driven gas traction-engine. At each kiln a temporary narrow-gauge track was laid into the kiln, the brick car rolled inside, and the stacking process undertaken. As the wall of unfired brick moved forward, the about to be overrun segments of the narrow-gauge track were removed. When the kiln was filled, the doorway was bricked up and plastered over with a slurry of clay. Then the firing process could begin.

-when-wet gritty bits of dirt we call clay.

All this chemistry will make more sense when exploring the alchemy that occurs each time humans use intense concentrations of heat to turn clay into an incredible array of useful, artistic, and enduring artifacts.

Eddie continued, "*From there the clay dropped down into another box. I don't know how exactly to describe this box. It was about the size of a kitchen table. And it was mounted on a mechanical eccentric so it would shake back and forth. The clay fell into it, and as the box moved these diverters would push the clay toward openings on either side. The clay falling out was as evenly divided as practical between the two openings — I guess that being the purpose of the box.*

"*The clay pushed out of each opening dropped into one of two chutes, each chute leading to one of the two dry pans.*

"*These dry pans, sitting down on the ground, were where the lumps of clay were crushed into powder. Each pan was maybe eight foot wide. Round. A solid metal bottom — except for the perforated grills about two foot wide all around the outside that the clay crushed small enough would fall through.*

"*There were two big metal wheels, each maybe a foot wide and three feet tall, in each pan — I think they were called muller wheels. These wheels sat on the metal floor of the pan. Other than rolling over, the wheels were stationary while the metal pan would circle around and around underneaith. There were deflectors toward the outside of the pan that pushed the larger bits of clay in front of the wheels, while the clay crushed fine enough would fall through the grates.*

"*Under each pan was a hopper. Conveyor belts fitted with metal cups dipped into each hopper. The cups gathered up the clay and the belt lifted them up toward the loft of the molding factory next door.*

"*Up in the attic over the molding factory were these three vibrating screens. Those were shaken by eccentrics turned by electric motors — while most everything else that moved in there was powered by belts from the central steam engine's common power shaft. The screens were set at a slight tilt so the clay drawn from the dry pans would fall on the higher edge of the screens and bounce toward the low end.*

"*Depending on the texture of the clay needed, they'd use screens with different sizes of mesh. I recall they used what was called a number 30 mesh when we wanted to make what we called glazed bricks — ones with a glass like surface. At those times the clay falling through the mesh was as fine as the flour you use for baking biscuits.*

"*They had three guys working up there — one to tend each of the screens. Each man had a wire brush. He stood there and rubbed the brush across the screens, helping the fine clay particles fall through and the big stuff find its way to the low end of the screen where it'd fall onto a belt that'd take it back to cycle through the crushing pans again. If they didn't keep brushing, those screens would coat over, and nothing would fall through. With all that noise, dust, and heat up there — that was a terrible job.*"

Lewis "*Shorty*" Daugherty was a long-time resident of Deer Park who began working at the brickyard after his discharge from the Navy in 1954. He became a postal worker in 1957 — the same year Clayton's brick plant closed.

Shorty said, "*They called the guys working the vibrating screens above the molder room scratchers. I only worked that job one day. Elmer Anderson used to do that, sifting the clay before it dropped down into the hoppers and then the pug-mill for mixing. Those machines could make you deaf. And Elmer was deaf.*"

As Eddie explained, "*The powdered clay falling through the screens dropped onto a common catch-pan, and then down a chute into a hopper. On the bottom of the hopper was a gate — a circle, maybe a foot wide, that turned, that rotated. You could adjust the openings in the gate to control — to damper — the volume of clay spilling out the bottom of the hopper.*

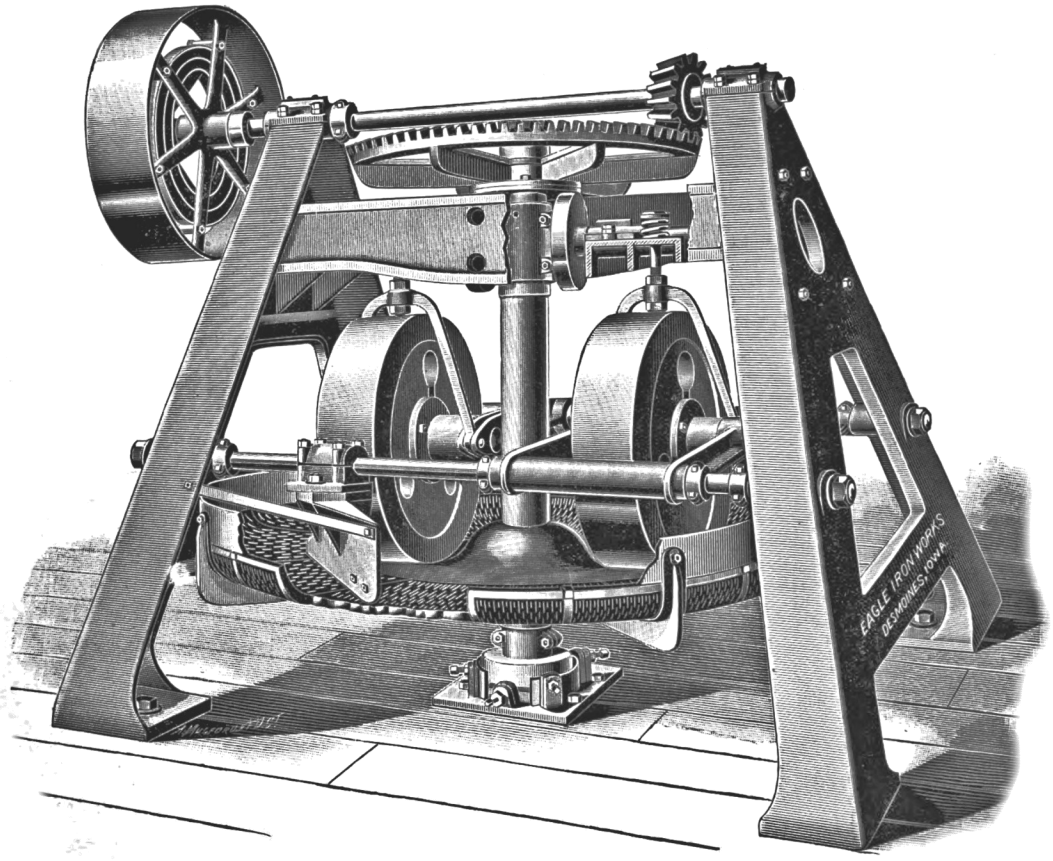
"*The clay fell into what they called a pug mill — where the clay was mixed with water. It was a trough, maybe eight feet long. A bunch of metal arms setting down in the mix went around and around — kneading the clay, just like dough.*

"*The mix would fall onto a conveyer belt to the brick machine. It'd drop into a hopper that fed it onto a screw auger. The auger would turn and turn, packing the clay and pushing it up against the forming die — that was the opening that determined the shape of the brick as the clay was forced out of the machine. Different kinds of dies, different kinds of brick.*

"*They also de-aired the clay being packed. There was a vacuum machine hooked into the molding machine that pulled the excess air out of the mix. Less air in the brick made them less likely to crack when drying.*

"*The man running the molding machine*

Text Continued on page 28.

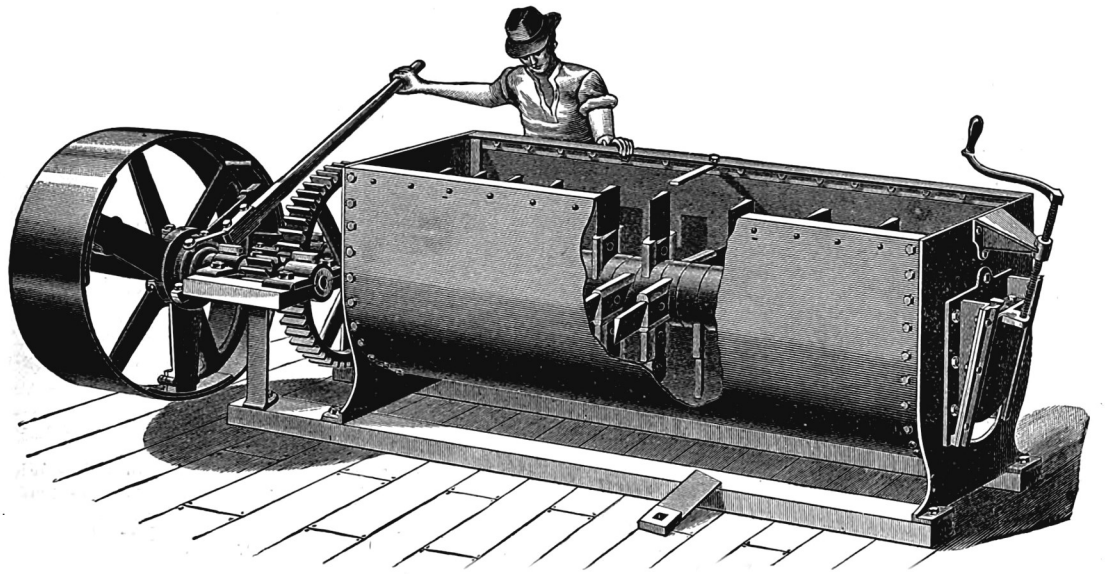


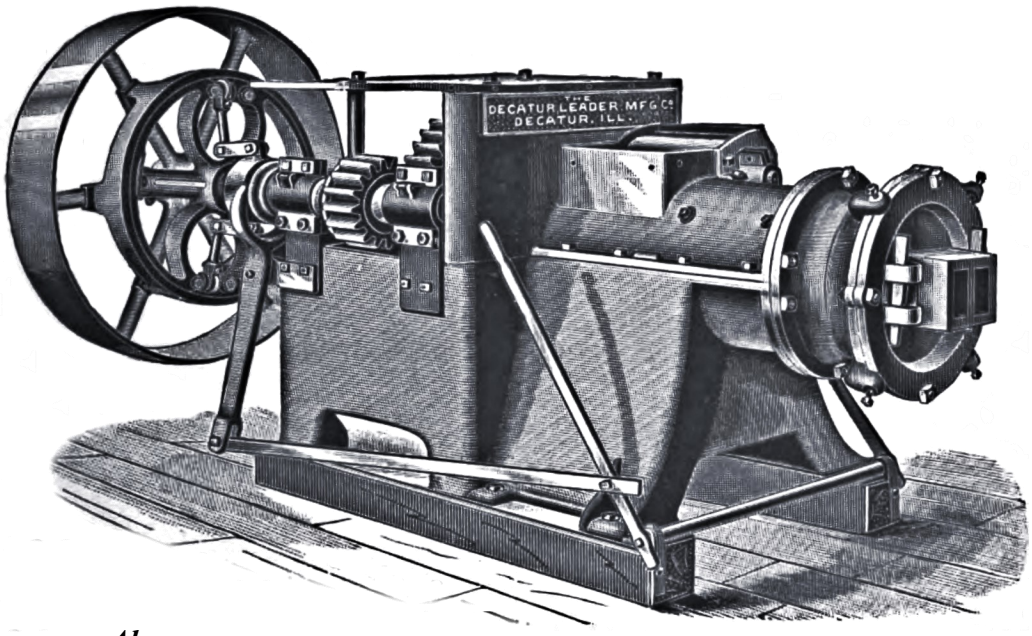
Above.

This cutaway image of a typical dry pan clay crusher was extracted from the September 26th 1895 edition of "Clay Record" magazine. The machine is belt–driven through the drum at the top left.

Below.

The function of the pug-mill seen below is to mix the clay crushed in the dry pans with an appropriate amount of water. This illustration is clipped from the November 1st, 1892 issue of "The Brickmaker" magazine.





Above.

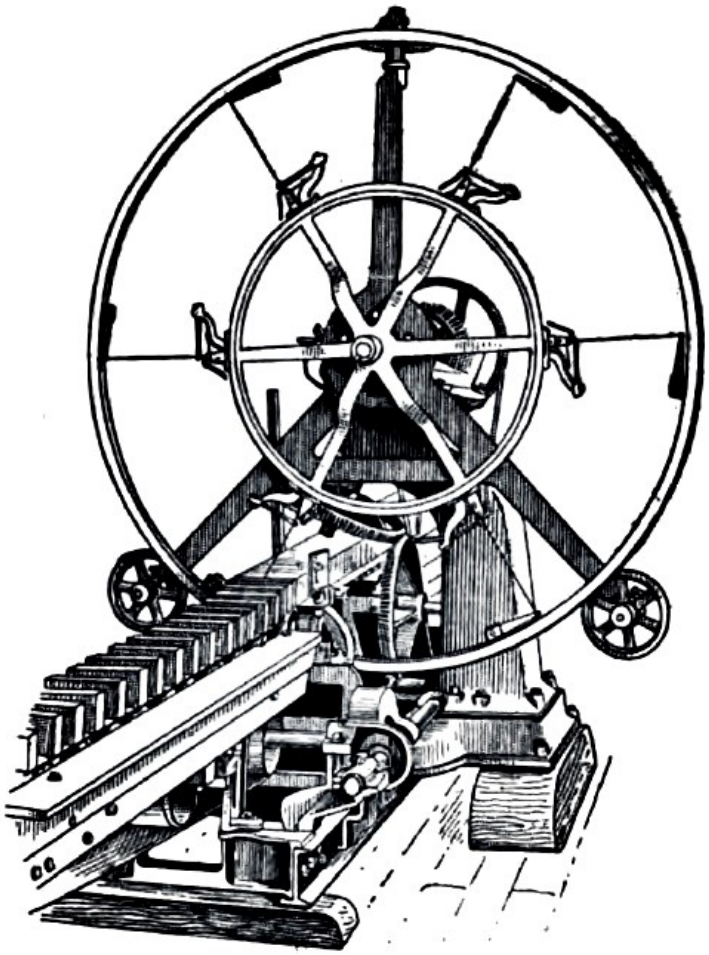
The machine illustrated above is a stiff-mud brick extruder. It used an internal auger to compact the moist clay fed into it and extrude it through a shaping die as a continuous ribbon. This drawing was taken from the July 12th, 1895 issue of "Clay Record" magazine.

Right.

This drawing is of a side-cutting brick machine. Its function, to cut the ribbon of clay emitted by the extruder into brick and do so squarely. This illustration is from Volume III of "The New International Encyclopedia," 1903 edition.

Please Note:

None of the illustrations used here are assumed to accurately represent the exact machines used at Clayton in any manner other than to suggest the general appearance of machines serving such functions.



Text Continued from page 25.

would keep an eye on the clay, making sure it was the right consistency. If the mix was too dry, he'd signal the man running the pug machine to add more water — he'd signal by taping the palm of one hand with the index finger of the other. If the mix was too wet he'd hold up one hand and rub his thumb across his fingers, from little finger up — meaning too slick.

"*The clay would come out of the molder like a sausage — in one long stretch.*

"*The clay was cut into bricks by a machine holding three lengths of wire. The cutting wires moved on a carriage timed so the cutter would follow the stream of clay as the wires sliced through — that way the ends of the bricks would be cut square. Then the carriage would back up and repeat the process.*

"*After cutting the bricks would drop onto a conveyer belt running a bit faster than the clay coming out of the molder. That way the cut bricks would separate as they slid onto the conveyer belt. The well-formed brick would be picked off the belt by three men. Any brick that didn't look right would be left to drop off the end of the belt — to be conveyed back to the pug mill for another go through.*

"*The men stacked the bricks on metal cars, those about three foot wide and four foot long. These cars were like small railroad cars. They sat on iron wheels that looked like miniatures of those found beneath train cars.*

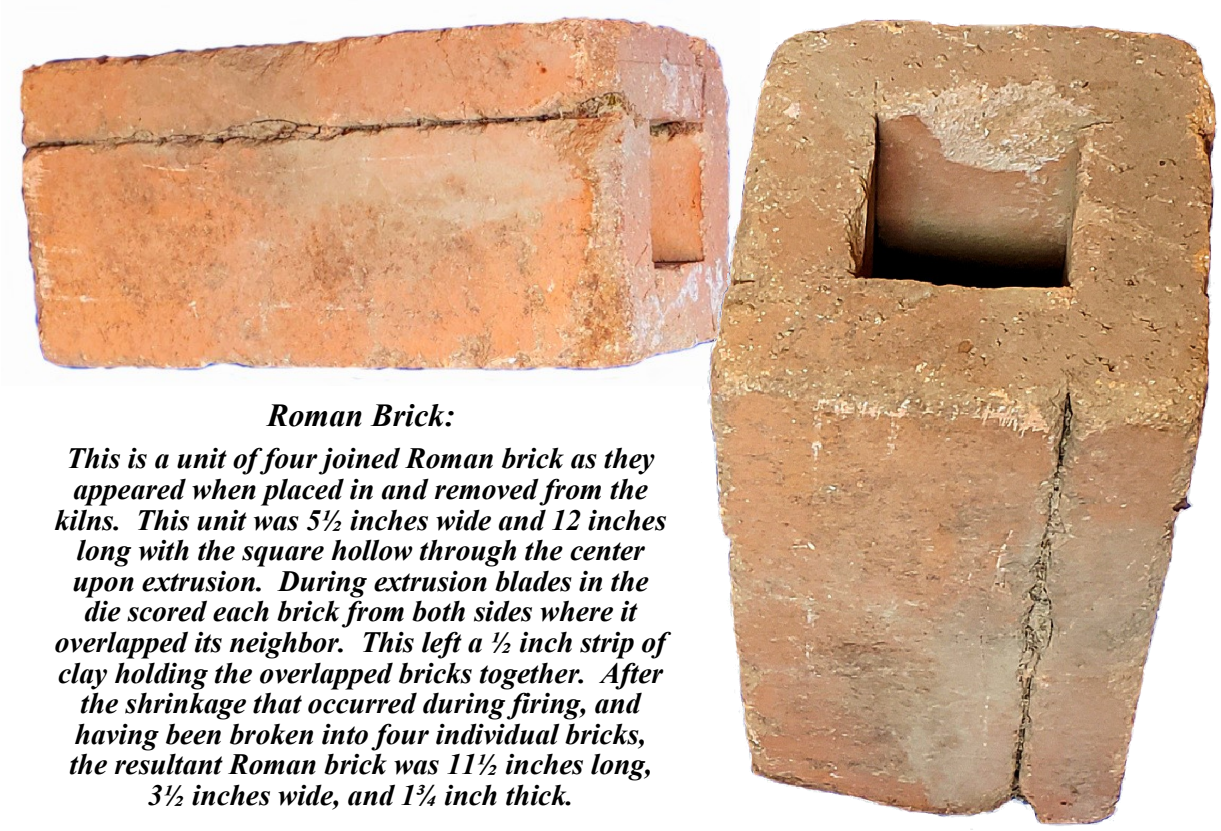
"*The brick cars had upper and lower decks. When first stacking the green brick, the upper deck was lifted. When the lower deck was full, the upper was dropped back down and stacked full."*

"*That was a real hard job. Reaching across the belt, then to the brick car, then back to the belt again and again and again.*"

Shorty Daugherty added, "*The three guys picking the freshly squeezed bricks were called hackers. Our job was to pick up the brick and stack them on the brick car without leaving gouges from our fingers or otherwise deforming the bricks. Those bricks, heavy with water, just kept coming. You had to have good, strong wrists to do that all day.*

"*With standard size brick you'd go maybe six high on the bottom, then you'd lower this metal rack and go another six high. We didn't want to stack the freshly formed brick too high, or the growing weight would squeeze the ones below out of shape.*

"*Now if we made what we called 'claystones' — with those you could only go two high on each deck of the car. Those were solid. They were scored so after they were baked you'd break them in two and the fracture line was con-*



Roman Brick:

This is a unit of four joined Roman brick as they appeared when placed in and removed from the kilns. This unit was 5½ inches wide and 12 inches long with the square hollow through the center upon extrusion. During extrusion blades in the die scored each brick from both sides where it overlapped its neighbor. This left a ½ inch strip of clay holding the overlapped bricks together. After the shrinkage that occurred during firing, and having been broken into four individual bricks, the resultant Roman brick was 11½ inches long, 3½ inches wide, and 1¾ inch thick.

sidered the face; the face being the more interesting — attractive — edge of the brick.

"*We also made scratch-faced brick. For those we had this device that would fit over the top of the die at the mouth of the extruding machine. The device had a line of holes. You'd drop a common everyday nail into each hole so the tip of the nail would gouge a line along in the top surface of the clay being extruded*."

Shorty continued, "*And we made Roman bricks. Those were four bricks molded and baked as one, then broken apart*."

At that point Jack Lewis added, "*We'd break them apart by capping one edge of the block with a length of angle-iron to spread the impact, then we'd hit the apex edge of the angle iron with a hammer. Most of the time we'd get a nice, clean break. Any broken or cracked ones went in the cull pile*."

… drying bricks before baking ...

Eddie said, "*East of the factory were the drying tunnels — long brick-lined rooms heated by steampipes. From the entrance of the tunnels, the track the brick cars rolled down was on a very slight incline. Of course we eased them down — we didn't want them slamming against the cars already there. We'd shut the brick cars in there for about four days — four days being about average to get the bricks dry enough that they could be stacked in the kilns without damage*."

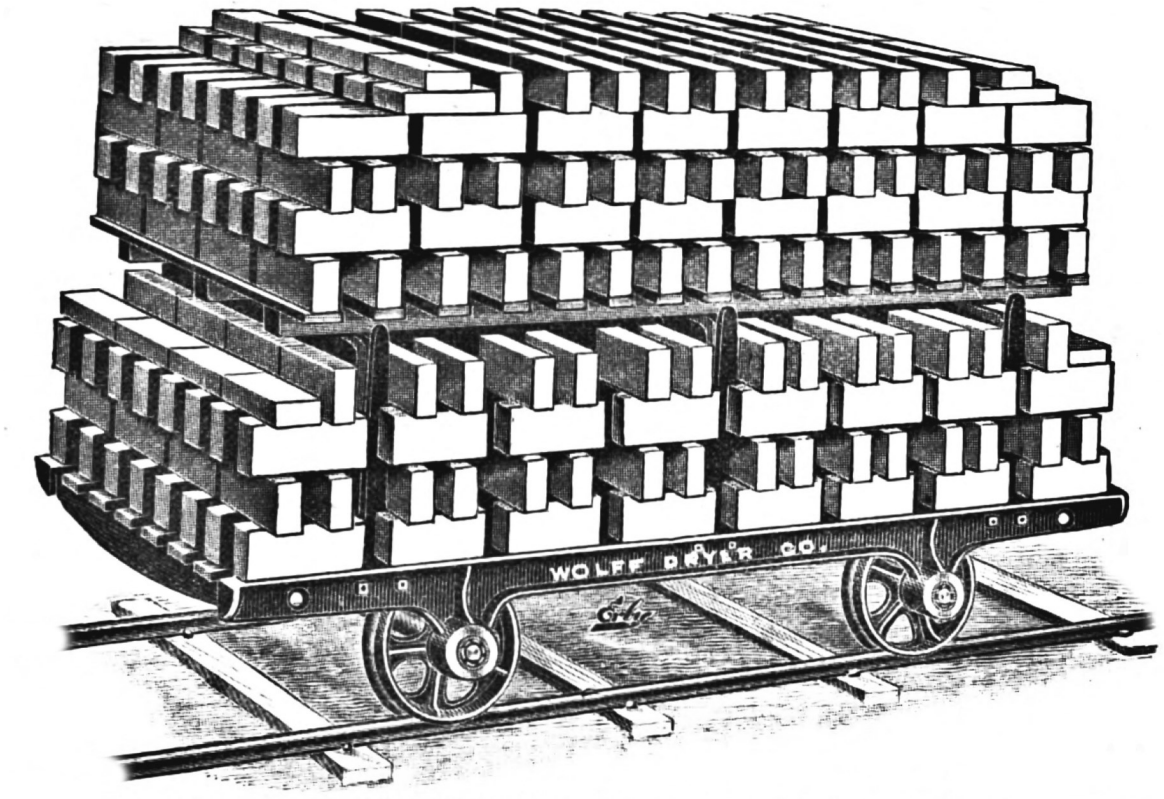
The logic behind forcibly drying bricks before firing was explained in a volume titled "*Brick Drying: A Practical Treatise on the Drying of Brick and Similar Clay Products*." The author of this book — printed in London, England in 1902 — was Arthur E. Brown.

As the gentleman explained, over time newly formed but as of yet unbaked brick will evaporate the moisture added during the molding process to the surface of the brick by capillary action. The speed and degree of such drying is dependent on the moisture load inside the brick. The very fact that warmer air can carry more water vapor means that surrounding the freshly formed brick with heated air increases the speed and degree of moisture removal.

Mr. Brown stated, "*The process of drying clays when made into bricks varies with the quality of porosity and permeability*." Regarding porosity Mr. Brown said, "*At a certain consistency, such as it has when fit for being formed into a brick, clay is in a pasty condition due to the particles being traversed throughout by minute*

A Loaded Double-Deck Brick Car:

This image was clipped from the January 1894 edition of the "Clay-Worker" magazine.



pores filled with water. The finer the clay particles, the smaller and more numerous the pores. Thus, the purer a clay and the finer its particles, the more porous it is."

Van Nostrand's Scientific Encyclopedia defines "*permeability*" as "*The capacity of a substance or membrane to allow another substance to pass through it*."

Mr. Brown continues, "*The finer the pores in clay, the more difficult it is for water to pass through them because of the great resistance which the surface tension of water exerts at the end of fine tubes*." But he also notes, "*In spite of the smallness of the pores, heat is able to act on the surfaces of the water in the tubes, causing evaporation. Capillary action then commences, and the internal water moves through the pores toward the surface*."

The temperatures maintained inside the drying tunnels would likely be between 120 and 150-degrees Fahrenheit — well below the boiling point of water. Water was added to the clay in the pug-mill to create the placidity needed for molding. The worry in heating freshly molded brick too high before most of the added water is removed is that said moisture would turn into steam inside the brick, with the pressure generated explosively spalling (*breaking bits from*) the brick's surface or fracturing its body.

The tunnel's moisture ladened air was constantly exhausted into the outside atmosphere by either fans or draft — which being a question I failed to ask my interviewees.

Prior to a trip through the dryers, unfired brick were called "*green*." Afterward, "*soft*."

As for retrieving the cars from the south end of the tunnels, Shorty Daugherty explained, "*The transfer driver would line the rails on the back of the transfer car up with the rails coming out the south end of the drying tunnel. He'd open the door on the tunnel, take a long stick with a special wheel-block on the end and wedge that under a wheel of the second car in the line — that done to keep that and all the cars behind from rolling forward. Then the wheel-stop holding the lead car could be released and the car eased forward onto the transfer car*."

After that the remaining brick cars were allowed to ease forward until the lead car's wheel rested against the replaced wheel-stop. Then the tunnel door was shut, and the little gasoline powered transfer engine pulled what was doubtless more than a ton of soft brick toward whichever kiln was being loaded.

… to be continued in a future issue ...

Volunteer Proofreaders Wanted:

And how important that is to helping this publication take flight.

—— Wally Lee Parker ——

… becoming a volunteer proofreader ...

It's a simple hypothesis. The more eyes we have searching for errors in these publications, the less errors are going to sneak through. This was true of the *Mortarboard* and will doubtless be true of this new format as well. As a longtime editor of the society's prior publication, I can attest that volunteer proofreaders are not only a blessing, but also a necessity.

So, what happens if you volunteer to be a proofreader? Well, four or more days prior to the official publication of each of these newsletters you'll receive an email with attached copies of the impending edition in both PDF and Microsoft Word formats. The PDF version will allow you to visually inspect an exact mockup of each newsletter for errors in the script, graphics, or other aspects of the layout. If you understand the process for attaching comments and corrections directly to the PDF, all the better. If not, you can send an email with your corrections and/or comments written out in missive form — just make it clear where in the layout the problems were found. The Word file — which proofers often find easier to work with — will contain all that issue's wordage. If you highlight such, you can add any corrections, comments, and/or observations directly on the page. Otherwise, making notes as to the nature and location within the document and returning said notes to the editor via email will also work fine. Whichever is easiest for you.

If you'd like to participate as a volunteer proofreader, the editor's email address can be found in the "*Society Contacts*" box normally pasted on the last page of each issue. The one stipulation with this, since your email could initially drop into my junk file, make sure to indicate the nature of your email on the subject line. That increases the likelihood I'll know to fish it out of an often-cluttered junk box.

Volunteer Proofreader for this Issue: Marie Morrill, Bill Sebright, Lina Swain, and Ken Westby.

… submitting articles for publication …

One of the things most appreciated by readers of our former newsletter, the *Mortarboard*, was the participatory nature of its editorial content. People did occasionally submit articles for publication, and quite often said materials found their way into print. An overview of this publication's approach to such materials can be found in the "*Editorial, Copyright, and Reprint Concerns*" box normally placed on the last page of every issue. Regarding specifics or concerns not covered, contact the editor.

Also, the editor invites inquiries, discussions, suggestions, and casual as well as formal bric-a-brac of all sorts — such can be emailed directly to the editor, or, if preferred, transferred to paper and sent to the Society's snail-mail address. The editor can also be messaged online through the "*Contact the Society*" box on the Society's homepage. Any such materials will not automatically appear in print. Rather the editor will ask permission before any such missives are published under the sender's name. However, if the material, comments, etc., are of general or specific interest, after rewriting to ensure anonymity we may broach the subject in our editorial comments.

… why a new newsletter …

This is my third go as editor of a society publication. Back in the spring of 2008 I designed the *Mortarboard's* original layout and acted as editor for the first seventeen issues. After leaving that post to pursue several other adventures in wordsmithing, I reassumed editorship of the society's newsletter in 2014. But, due to accumulating health problems, I once again resigned, that in the late spring of 2022.

As a warning to anyone considering assuming the role of editor, after announcing my pending resignation I attempted to clarify that this isn't an easy task. Simply said, it consumes a voracious amount of time and labor. You'll find yourself trolling for hours through obscure online journals trying to dredge up some arcane but instructive bit of biographical or technical data. You'll be lulled droopy-eyed when flipping through page after online page of long-extinct magazines looking for that perfect illustration to illuminate this or that subject. These tedious tasks can draw you in. And when you look up from the screen you'll be mortified at how much time has passed. The way editorship feeds on your life, along with a thousand other things, is why editorship probably isn't a good fit for anyone still working for a living.

I think it's a valid observation that the loss of the society's previous newsletter has adversely affected the organization's imprint within the community — creating said imprint being the exact reason this society began moving toward desktop publishing some twenty years ago. My hope is that reformatting the Society's newsletter in a simplified form will lessen the myriad of chores involved when gathering up the elements needed, then laying such out in a publishable format. In other words, I'm hoping this reformatting will make it easier for a new editor to take this job on.

Our former publication was something more than newsletter. The *Mortarboard* was in fact a magazine. Hopefully finding our way to something between a newsletter and magazine will reduce the burden placed on both the current and any subsequent editors — of particular importance since in truth I'll need to be leaving this job once again fairly soon.

———————

Society Contacts:

Mailing Address: C♦DPHS, Box 293, Clayton, WA 99110
Bill Sebright, President — sebrightba@gmail.com — (509) 276-2693
Wally Lee Parker, Editor of the Letters/Brickbats Newsletter — bogwen100@msn.com
Damon Smathers, Webmaster — damonsmathers@gmail.com
Website — https://www.cdphs.org
Facebook — Login to your Facebook account, then type
"Clayton & Deer Park Historical Society" into Facebook's search engine.
Society's Office: South side of the Deer Park City Hall Complex, 300 Block of East 'A' Street — look for the sign.

Editorial, Copyright, and Reprint Concerns:

Those contributing "original" materials to the Clayton ♦ Deer Park Historical Society normally retain copyright to said materials while granting the society a durable permission to use said materials in our electronic and print media — including permission to reprint said materials in future inhouse publications. Materials currently under copyright will require written permission from authorized individuals or corporations before inclusion. It's the responsibility of any author submitting materials to secure all necessary clearances regarding such proprietary materials included in their manuscripts. This society takes violations of copyright seriously; therefore, we consider the application of common business precepts when dealing with intellectual properties a simple means of avoiding misunderstandings. No compensation for materials submitted is offered or implied. All materials submitted are subject to editorial revision.

This page not a permanent part of the newsletter.