



NEWS 'N' NOTES

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City With A Heart Of Stone

Stone City, Iowa is scattered across the nation in a thousand buildings, a million bridges, a billion pieces of stone. It has pillared Capitols, buttressed education, walled prisons, sheltered the rich and the indigent, supported ribbed rails of steel over the land's greatest river and nameless streams. It is an endless geyser of rock cast to the four winds. Here the earth suffers endless Caesarean sections that give life to the architectural dreams of man. Here there are crumbling monuments to days of grandeur and ancient ways. Here scarred stones tell of pre-historic seas and life before man. Here are people proud to work in stone.

This edifice of history and science is not a city, but in the boom years the heart throb of some five hundred strong was able to generate an annual economic pulse of \$ 200,000,000. Today a tenth of this humanity clings to the quarried cliffs, first cut by the meandering murky waters of the Wapsipinicon River. Like Chinese water torture it has slowly worn down the land to reveal its stone treasure at several natural quarry sites. Today the one hundred foot gorge creates a tranquil rural scene couched in mist and seasoned in green. But the work day shatters the ghost town vignette as some twenty men bring stone to life at the Weber Quarry. There is a blend of sights, sounds and smells from past and present. As always the goal is the same, stone, but it is no ordinary stone to skip from a boy's hand across a puddle or tumble into a contractor's land fill, this is special stone from a special time.

A time when sub-tropical shallow seas covered this land during a

period termed the Silurian by men who care for such things. ~~There~~
 The environment nurtured corals and algae not hogs and corn. The
 era was no less productive then, than now, for the sea of salt
 precipitated a sea of stone. Here a not fully understood complexity
 of interacting factors contributed to the deposition of calcium
 carbonate needles as limey muds that were then hardened by time and
 the overburden into limestone. What is known about this genesis includes
 the fact that warm seas cause a decrease in dissolved CO₂ concentrations
 and an increase in salinity, both of which contribute to the precipitation
 of calcium carbonate. In such an environment, marine algae further
 reduce the dissolved CO₂ concentration while bacteria combine nitrogen
 and hydrogen to produce ammonia causing a weak alkaline that neutralizes
 free hydrogen increasing the pH and further favoring the deposition of
 calcium carbonate.

Dolomite not limestone is the prize at Stone City. This rock
 contains a ratio of magnesium carbonate to calcium carbonate of nearly
 one to one. In 1879 Prof. White gave the exact proportion in the following
 chemical analysis of Stone City dolomite:

Calcium carbonate	57.32
Magnesium carbonate	41.21
Material insoluble in acid	.72
Moisture	.31
Ferrous & ferric acid	.23

That is the basic chemical composition for almost the entire four
 hundred foot Silurian section that represents a ³ 50 million year span
 of earth history which is one of the greatest geologic enigmas. The reason

is that no one knows what earthly magic transformed the original limestone into the present day dolomite. This is a real academic prize that offers intellectual immortality to the genius that can figure out how it was all put together.

The product of this dolomite mystery^E is anything but uniform throughout the Silurian system of the Stone City basin. This era began by producing a sand dolomite termed the Edgewood Formation, which must have been a product that fell short of nature's expectations for it and the Kankakee that followed were quickly dropped^P after making only a combined one hundred foot rock section. The Kankakee formation is characterized by cherty dolomite. The Hopkinton formation followed with another unimpressive member of the dolomite line. The final Silurian offering got off to a bad start with a highly crystalline layer possessing oblique bedding that was a shattering experience for the quarry men who^{SE} tearful eyes indicated they had hit the Le Claire section of the Gower formation. The grief was brought on by the knowledge that the Gower's upper section of Anamosa stone had run out, For the Anamosa section is the sedimentary treasure of dolomite that supports a product line of building blocks, flagging stone, bridge stone and masonry material.

The first rock quarried from the Stone City basin was shipped out of Anamosa, Iowa, four miles away and thus the product bore this name, not that of its point of origin. At one time the terms Anamosa and Le Claire were assigned to different formations of the Silurian system. These sections are now^w considered to have the same source³ in

time as products of the three hundred foot Gower Formation, None the less the terms Le Claire and Anamosa Stone remain as a commercial entity. The Anamosa Stone is basically an impure dolomite that ranges in color from buff to gray to white. The formation is not divided into definite layers separated by partings of clay or softer dolomite but for a thickness of many feet the rock presents all the appearance of a single finely laminated bed. Such a bed however is not thought of as uniform in texture, but it is made up of parallel bands differing from each other in minor characteristics. There are certain planes along which the union of contiguous laminae is weaker than elsewhere, and it is along these weaker planes that the rock tends to split when it is quarried. Learning how to read this sedimentary map of the ages is a skill acquired by patient apprenticeship which makes a master stone cutter. These quarrymen recognize the particular planes and divide the quarry somewhat arbitrarily into beds varying from three or four to thirty-six inches in thickness. It is sometimes possible to work two or more of the beds recognized by quarrymen together when blocks thicker than either bed alone are wanted and on the other hand any of the beds may be split or "capped" when stones for flagging or thinner slabs for any other purpose are desired.

At Stone City this ^{DOLOMITE} ~~limestone~~ has a thickness of sixty feet, and is divided by a porous, worthless ledge into two nearly equal parts. The lower thirty feet is known as the "gray stone", the beds in the upper half of the formation are described as the "white stone". The most valuable quarry stone comes from the lower or gray stone. In the upper beds the

cleavage along the lamination planes is more perfect than in the beds below, for which reason the rock in this part of the quarry tends to split into thin slabs, and along exposure to the weather reduces it to chip stone. The unweathered ledges of this upper limestone, while unsuited to many architectural purposes, serves well for ordinary masonry, for, if the blocks are properly quarried and are laid in the wall on the "quarry face" with only the edges of the laminae exposed to the weather, they will last indefinitely. On the other hand the lower beds furnish excellent material for almost any kind of structure in which stone may be employed. There are ledges that will furnish massive blocks suitable for bridge piers; and there are beds compact, finegrained, and imperfectly laminated that afford dimension stone suitable for cutting into forms befitting the higher grades of architectural work.

In the lower division of the formation there are some planes along which rock is vesicular, the cavities though rather indefinite in shape, being evidently produced by solution of small brachiopods similar to those characteristic of the Le Claire stone. Occasionally there are cavities of larger size, one, two or three inches in diameter. Some of these are lined with crystals of calcite, some are studded with minute crystals of quartz, and there are others in which both minerals occur. The upper white limestone furnishes many interesting, almost agate-like concretions of chert.

Joints at intervals intersect the beds of the Anamosa limestone, but on the whole they are few and distant. They occur more frequently in some quarries than in others; and as a rule they cut through the

whole thickness of the formation in a nearly vertical direction. These joints facilitate the work of quarrying, in many cases rendering the use of a channeller unnecessary, and yet they are not so numerous as to interfere with the getting out of blocks of any desired dimensions. There are some indications that the joints are not all of the same age. Those of more recent origin are still but a fraction of an inch in width and have the walls undecayed. These most likely result from the operation of the quarry, as will be outlined later. In joints that bear signs of greater age, the fissures have been widened by water and other agents chemically active in rock destruction, the walls show decay for some distance from the vertical surface, and the spaces are occupied with a ferruginous residual clay which the miners of lead regions recognize as "crevice dirt", but which is also called geest. At one time it caused some exploration for lead in the area with no productive results.

Above the perfectly stratified beds of the Anamosa stone there occurs an irregular bedded, non-fossiliferous rock of unknown thickness which is termed the Lower Wapsipinicon formation of the Devonian System. At one time this section was termed the Eertram stage of the Silurian. It is a yellowish dolomite without lamination planes, and quarrying in this shapeless mass is of no possible utility. "Eastard stone" is what the quarrymen call it. The thickness of this formation varies greatly from one location to another. This material is topped by various pleistocene deposits which also vary in thickness and composition.

The overburden of waste rock did not conceal the building stone treasure from early settlers along river and stream cuts. The year 1835

Lieutenant Albert Miller lead a force of mounted Dragoons to explore the Black Hawk purchase in the Iowa District of Wisconsin Territory. Moving through the Des Moines River valley their horses clattered over limestone rubble causing Miller to record in his notes that the area held good prospects for limestone quarries. These observations were not lost on the United States Army, who, like the ancient Romans, were engaged in the construction of the military roads necessary to broaden and defend the young nation's frontiers. Thus natural stone outcrops were a source of material to pave the way for westward expansion. The conquering armies were soon followed by settlers who turned the stone resources to their immediate domestic needs. Today a patchwork of these enduring stone monuments dot the Iowa countryside. Iowa statehood saw the population increase rapidly and the organization of local governments increased the demand for building stone to the level of a commercial enterprise. During 1852 the use of material from the Stone City basin in the construction of Cornell College at Mt. Vernon, Iowa was a foreshadowing of the area quarrying boom. It was the forgotten employees of Mr. Haggard, the quarry owner, who ushered in this period by driving wagon loads of stone across the rolling prairie grasses and streams in an epic feat of primitive mountain moving. Today all the stone trim on the original buildings at the college still stands as testimony to the fact that this dolomite building stone becomes harder with time if properly cut and laid. It is also worthy of note that material was hauled from the Stone City area in preference to the abundant local building stone.

The wavering whistle, rumbling roar and sun dampening smoke
^{SOON BECAME}
of the iron horse^A mainstay of the quarry industry in the Stone City
basin. Not only did the railroads wheel the rock to a nation of
customers, but like a young plow horse, it consumed as much as it
carried. This was ^{the} epoch of railroad growth with the government
curtseying to the right of ways that slithered across the nation
like an octopus of steel. Fill and gravel were a sometime business
of the Stone City quarries but their stock in trade was railroad
bridge stone. The railroad men must have been secret pyramid builders
who knew their stone better than their business, as is seen in today's
numerous railroad bridges that still stand supporting only ghostly
right of ways full of memories and mistakes. Durability, ease in
stone cutting and a central location all combined to put Stone City
on the map, at least for awhile. Between 1859 and 1895 over 150,000
rail cars of stone squeaked, ground and thumped out of Stone City
and that was a sweet sound worth over \$ 3,000,000 at a low average
of \$ 20.00 per car. And money minded men came to town, only there
was none so they made one in 1865. No one thought or had time to
name it until the post office came ~~AND DEMANDED IT IN 1872~~ ^{AND DEMANDED IT IN 1872} Even THEN
there was no contest, the people just paused a second, said the first
thing that came to mind and went back to work in Stone City.

It was a combination of men, stone and the railroads that made
a go of it. Here was the typical chance for fame and fortune through
hard work and the free enterprise system. Many men tried their hand
at it, some worked, some managed, some moved up and some moved out.

David Graham had a quarry operation in 1860, 1866 saw Crouse, Shaw and Weaver enterprises, there also was Dawson & Hess, plus Erown & Erickson. As late as 1893 James Lawrence opened a new quarry. Most of these men and other, like them made a few dollars and left a scar on the earth. But a few men grew roots that did more than crack stone; they made a family tree in Stone City.

John Aloysius Green was such a man. In 1852 at the age of eight he was the typical Boston Irish imigrant brat, gifted with a cunning and charm for survival and prosperity. Tooled up to be a monument maker he saw a better life out west. By 1868 he was a resident of Stone City where he opened the Champion Quarry No. 1 after working for enough wages from one of his future competitor to lanch the venture. In 1872 the State of Iowa bought a quarry in the Stone City basin and worked it with convicts from the newly established Penitentiary at near by Anamosa. The state produced about 5,000 car loads of stone for its own use and public sale until 1878 when the legislature passed a resolution preventing the state from entering into the market against free labor. What role the aspiring Democrat J.A. Green played in this decision will remain forever muffled by discretion, none the less it is worthy of note that six years after closing, the state operation became Champion Quarry No. 2, and would you believe that it was managed by none other than J.A. Green. *He* records having shipped 77,864 car loads from his works as of 1890 which would have a net worth of about \$ 160,000. The fact that he had the lions' share of the stone business was *PARTLY*

Cont. ment issue

Obituary.

At Frankford, Mont., December 11th, 1881. Mrs. Mahitable Sleeper, aged 94 years, mother of J. P. Sleeper, Montpelier.

The funeral services were held at the residence of her daughter, Mrs. Asa Northup, where she had made her home, on the following Tuesday, and the remains interred in the family burying place near Hamilton. A large number of friends joined with the relatives in testifying to the great respect in which the deceased was held by their presence at her funeral. Mrs. Sleeper was born in Salisbury, N. H., in 1788, and had lived a long life of usefulness. She was charitable to all, and the poor or needy were never turned away empty handed. Her life was that of an exemplary christian, and none could question her fitness for the great and last change. She evinced a great interest in

the well-being of her children, doing in her last days deeds of kindness which can but make her memory sacred. She retained up to within the last three days of her life a remarkable degree of strength of body as well as mind. Her example will remain to those whom she has left upon earth, a fitting guide to their footsteps toward the land beyond.

She has left her impress stamped on all,
She seemed to be there to-day;
Not merely a body robed in a shroud,
'Twas something more real than clay.

Such a look of peace settled down on her face,
There was left no trace of pain,
She seemed like one in a quiet sleep,
Who would wake with the light again.

The home she left will be lonely now,
They will miss her in her chair,
In the light of day, in the quiet night,
-Will be missed the mother's care.

We have laid her away in the grave to-day,
On the snowy hills to rest,
Consigning her to a Father's care,
Who doeth all for the best.

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