

# stonexus

## MAGAZINE

Summer 2003

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## contents

### departments

EDITORIAL .....	4
THE MAIL .....	5
<a href="#">BOOK REVIEW</a> .....	6
<i>In the Company of Stone</i> by Dan Snow	
<a href="#">BEFORE AND AFTER</a> .....	12
<i>Another Chance for the Last Chance Ranch</i> Alan Ash	
LITHOLOGOS .....	58
<i>Poetry</i>	
ANNOUNCEMENTS .....	70
<a href="#">PHOTO ALBUM</a> .....	36

### features

<a href="#">SIMPLY ARTICULATE</a> .....	8
Pierre de Montaulieu	
<a href="#">A STONEMASON'S JOURNAL</a> .....	14
Michael Davidson	
<a href="#">PIETRA ITALIANATA</a> .....	16
Stephen Dunlap	
<a href="#">THE DARTMOOR EXPRESS</a> .....	21
Richard Tufnell	
THE STONECUTTER AND THE MOUNTAIN .....	22
<a href="#">AN ARCHITECTURAL TRUE CONFESSION</a> ..	24
Madison Spencer	
<a href="#">THE OLD, THE NEW AND THE FUTURE</a> ....	67
<i>A Letter from Ireland</i> Patrick McAfee	



### reprints

ANDY GOLDSWORTHY'S STONE RIVER . . .	28
by Barbara Palmer From the Stanford Report	
<a href="#">STONE MAD</a> .....	30
From the book by Seamus Murphy	
<a href="#">THE CATHEDRAL BUILDERS</a> .....	38
From the book by Jean Gimpel	
<a href="#">STONEMASONRY OF FUKIAN PROVINCE, CHINA</a> .....	61
From the book, <i>Fukian Stone Houses</i> by Huang Han-ming. Photographs by Lee Yu-chuen	

Front cover: Cistercian Abbey Church near Dallas, Texas, designed by Architect Gary Cunningham FAIA.  
Photo: © Craig Blackman, AIA.

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[Stone Foundation Home Page](#)

#### stone (ston) n.

- a. Concreted earthy or mineral matter; rock.  
b. Such concreted matter of a particular type.  
Often used in combination.
- A small piece of rock.
- Rock or piece of rock shaped or finished for a particular purpose, especially a piece of rock that is used in construction.

#### nex-us (nek' sas) n., pl. nexus or nex-us-es.

- A means of connection; a link or tie.
- A connected series or group.
- The core or center.

#### mag-a-zine (mag-úh-zeen), n.

- A periodical containing a collection of articles, stories, pictures, or other features



# Another Chance for the Last Chance Ranch

*Alan Ash*



**T**he historical Last Chance Ranch is located in the Sheldon National Wildlife Refuge in a remote area of northwest Nevada. The refuge covers almost 900 square miles of land. The original 1885 ranch house was built next to a spring on the range. In 1910 a coursed, squared rubble stone addition was made to the original house. Recently it was included in a restoration project funded by the U.S. Fish and Wildlife Service. This project was required to meet the Secretary of Interior's Standards for the Treatment of Historic Properties. Due to my experience in successfully meeting these requirements on previous historical masonry restorations, I was hired to rebuild the failing stone walls of the house.

The U.S. Fish and Wildlife Service hired me to spend 11 days working on the house during September 2000. The plan was to get as much work done as I could in that time. Some additional work would be performed the following year as funding became available. The photographs that I had been sent recommended that the first phase of the restoration would involve rebuilding the severely damaged exterior wall. Any remaining time would be spent repointing.

So I loaded up my flatbed Ford and took the 9-hour drive from my home in the coastal range of Oregon to the Northwest Nevada high desert. The house is located in a remote area only accessible from late spring to early fall. The high desert environment is harsh. It is also quite spectacular. The herds of wild horses and antelope were fantastic to see. The crystal clear Nevada night sky is wonderful beyond words.

Upon arriving at the building I was finally able to personally inspect it. It was immediately apparent that it probably would not have required extensive rebuilding had more stones been used as through stones or bond stones in the original construction. The walls were built with very few stones to tie the outer skin of the wall to the inner. The few that were installed kept the building together enough to allow a major restoration job to take place almost a century later. A strategically located through stone holding up the second story window lintel kept the stonework above the window from collapsing.

The original builders had very workable Rhyolite stone to work with. It could be found on the surface in long but

[Stone Foundation Home Page](#)

# In the Company of Stone

## THE ART OF THE STONE WALL

walls and words by dan snow



**W**ith the same care he uses to select and assemble stones Dan Snow has selected words to express his thoughts about the craft of dry stone walling and placed them together to create a well-woven thesis on the subject.

His writing is as clear as morning, a sparse prose which is often poetic without being pretentiously so. His ruminations upon the essence of an archetypal activity will seem familiar to some of

you; they express ever so succinctly similar thoughts and feelings that sometimes float through the mind of the stonemason at work.

At the beginning of certain sections there are words in large type which can be taken as fundamental to the craft: SOLIDARITY, PRECISION, READINESS, INGENUITY, DILIGENCE, and RECKONING.

The book is enlivened by the appear-

ances here and there of various colorful personages such as John Regan, an older mason "with a torso the size shape and density of an 80 pound sack of cement", Mac McAuslan, a retired rigger, to whom is attributed the admonition, "stay out from under the load" (this appeared in a section describing the act of lifting, transporting and placing a large stone in dynamic detail as if it was a dance step or a golf swing), and a Tibetan stonemason, Sonam Lama, who was compelled by traditional belief to bring his day's work to a

[Stone Foundation Home Page](#)



A boy and his rock. The human aspect of this dynamic configuration is known as Toru Oba, a Virginia stonemason of note. If anyone can sumo that stone out of the creek, up the bank and into his truck, Toru can.

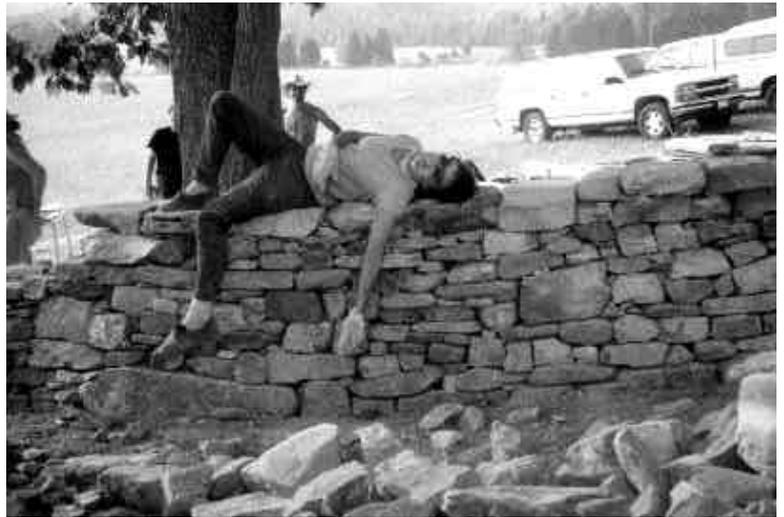
#### STONEWORK SYMPOSIUM 2000

Saint Patrick bringing the gospel of traditional Lime Putty Mortar to the heathen Yankee tribe.



#### STONEWORK SYMPOSIUM 2001

Behind an Irish style wedged wall, built in a half hour or so, are Patrick McAfee (IRL), Matt Driscoll (CA), John Burnell (OH) Elizabeth Nisos (VA), Tomas Lipps (NM), Patrick Healy (CO) and Frank Hyman (SC). Standing are Charles McRaven (VA), an unidentified gentleman and Kevin Fife (VT).



An exhausted Eve O'Rourke of Petaluma, CA reclining on the section of wall she and Vermonter Dan Snow built in the course of the dry stone walling competition with which the 2001 Symposium culminated. They tied for second place.





**STONERWORK SYMPOSIUM 2003**  
 Approximately half of the Symposium attendees assembled on the steps of the Masonic Temple in downtown Santa Fe.



A remarkable pile of stones. Multifarious in type, in origin, in color and size, they have traveled from Japan, Saharan Africa and Southern China, California, Massachusetts and Idaho, Ireland and Mexico. They were brought by Symposium attendees and generously sent by other Stone Foundation members to be used to build a conglomerate base for The Cornerstone during the course of the recent gathering. A building permit not forthcoming, the site indeterminate, the project was postponed until a time and place yet to be determined. Perhaps Santa Fe, perhaps at TSF's future home in some abandoned quarry. Perhaps.



The Cornerstone of The Stone Foundation momentarily poised in its metamorphic trajectory from the legendary Yule quarry in Colorado toward its ultimate resting place. It is a perfect cube of white marble, 3 x 3 x 3. It was provided by Stone Foundation members, Bruce Davis (Stone & Co., CO), Doug Bachli (Colorado Flagstone Inc.) shown above, and Vince Lee, (architect, CO), not pictured.



A labor of love, this American eagle was carved from a seven ton granite boulder by New York State stonemason Michael Jamieson. His response to the September 11th tragedy, it was given to the community of Rockland county and installed at the Orangeburg NY town hall.



# SIMPLY ARTICULATE

*Pierre de Montaulieu*

*Photos by James F. Wilson*

**T**he church of Our Lady of Dallas, an abbey of the Cistercian Order in Irving, Texas, is a unique example of the contemporary use of load-bearing stonemasonry. In and of itself this structurally innovative building is a remarkable achievement. Its utter simplicity is utmost modernity. But it can also be seen in the context of a tradition a thousand years old.

Cistercian architecture, the structural expression of Cistercian spirituality is characteristically spare, unadorned and elemental. The order has its origins in the 9th and 10th centuries when a number of Benedictine monks established communities devoted to a more austere way of life and practice devoid of distraction. The elements of this architecture, stone, space and light, were articulated by generations of builders to create the well proportioned enclosures within which Cistercian life, a conscious balance of the liturgical and the practical, is engendered.

The order has proved as enduring as the stone of which the monasteries were built. Today there are hundreds of Cistercian

monasteries throughout Europe and the "New World." Each of these monasteries is distinct in form, but all share this traditional Cistercian simplicity. Sensuous beauty is absent by design. There are no representational paintings or sculpture and, though light has a significant importance in the design of the structures, there are no glorious colored glass windows to it enhance it. Here too purity is of the essence.

Texas architect Gary Cunningham was given what he saw as the opportunity of a lifetime when he was asked to design a church at the Cistercian Abbey where he had attended boarding school as a child.

Stone was the material of choice but his vision was unresolved until, with the abbot of Our Lady of Dallas, he went to Europe and visited Cistercian monasteries in Italy, Austria and Hungary. This put him on the right path. "I needed to understand the purpose of the project better, the importance of the Cistercian community and culture . . . its longevity. Then, when the stone presented itself, I knew how to use it."

[Stone Foundation Home Page](#)

# Stone Mason's Journal

by Michael Davidson

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Autumn 2002

*Two French thoroughbreds run pell mell through the rocky Mayenne of Brittany. Their raven haired mistress riders crop their eager backsides with smirking satisfaction as they stirrup and spur over hedgerow and ditch.*

*This is deep France. The air is fresh and briny with the smell of apples. There are apples on the breakfast tables, apples in the markets; and apples in the cheeks of fresh faced lovers who openly covert their ripe passions in youthfull display under the russet colored leaf and golden boughs of this rough buccolic paradise.*

*My outdoor breakfast table baths in the morning sun as I spy the riders in their compete for the last of the hill. The massive foremuscles of the beasts pump and furrow the fertile soil into the steep of the climb. Their hard hindquarters dig and lather wets the riders seat and saddle allowing it glisten in the sun. Clearly they are pleased with their skill as they disappear through the alleys and golden groves of orchards.*

*My breakfast is simple: black coffee and apple crepes with a brush of powdered sugar nestled next to a small "pitchet" (pitcher) of cool cider. I greedily welcome the crepes sweet nourishment amid the color and poetry of this primitive setting. From where I sit, song birds celebrate the crisp morning air from atop the stonewalls of a 15 century farmhouse; cut hay lays rolled in the fields and the sky is a crystal blue from the nearby sea. The peace of my meditation is broken when the riders suddenly crest the hill and break for a turn nearby my table. With arched eye and mischievous grin they pound past, showering the air with moist bits of warm turf. Humbly I am caught sweeping turf from my pants leg while mesmerized in the sight of their smartly arched backsides promenading in brisk canter to the paddock circle ..*

*"Bon Jour, Bon Jour" They call in unison. I answered back, "Bon Jour", smiling and pretending no dirt landed on me . They ride towards me and dismount; their steaming champions stand ready at bridle and paw the turf with well deserved pats. They introduce themselves as Sophie and Yvonique, historical building conservators for Brittany and the Mayenne region. They are jovial, yet seem in command of the new situation, and of me, I'm afraid to admit, I like them immediately.*

*Sophie has big round eyes; they are soft almost doe like. She looks at you with a bit of surprise and discovery. Like you are her unexpected gift. Her French welcomes you in. It is songlike. With little girl pouting of the lip. Her mouth blushes and pinks crimson as she kisses vowels and verbs. When she makes a point she softly scolds you, to listen only to her.*

*She is a professional architect and an expert on medieval*

*structures. Yvonique is more mischievous and high spirited in her humor. Her looks are pretty with flashes of natural raw passion. She speaks her French in cooing cadence allowing a creative little tongue to dart and dance sensuously along wetted lips quick to smile. Like Sophie she is a architect with a degree in historic preservation. Both play well off one another and both look smart in their black riding attire.*

*Yvonique peers through you with unsettling attention; its hard to read between the lines, as both are having a lot of fun. Cradling her crop, she straddles her long leg with black riding boot on the fence, then shakes her red hair down in wild ringlets from underneath her riding helmet. She then takes a towel from Sophie and begins to dry her inner thigh and boot free of the lather of horse sweat and the sweet smell of grass that has collected there. All of a sudden she tilts her head back and with a little smile apologises for being "so wet."*

*My French is bad, but not that bad. The double entendre of this culture defies reality; before I can comprehend her silliness they are already laughing at me and the earthy joke. I laugh too, responding that "Je ne pas parle bien Francais (I don't speak very good French) to which she abruptly cuts me off by saying, "but you don't have to." We all laugh now. I'm beginning to enjoy my role as the straight man; they too are at ease as any pretensions that were there before are dissipated into the fragrant morning air of this ancient place.*

*Our meeting has been pre-arranged by some stonemason friends who will join us later. They change clothes and we begin our tour.*

*The sites we are at are old, 15 century at least, with parts perhaps medieval. The walls of the farmhouses/ fortress drip with history. Oak beams wishbone throughout the exterior stonework. Chimneys climb high over ancient heavy slate roofs that are tied with decorative iron bars to peak and gable. Bullet holes and pocket blasts tell of war and revolution. Ivy turrets harbor master bedrooms and Napoleonic sleigh beds that we pat for comfort and fun .*

*Sophie and Yvonique coo like song birds over honeysuckle as they walk through the history and of the methods and materials of the construction. From the bedroom they have me look down past the bare of their arm into the courtyards below. The yards are worn cobble set in puddled clays mixed with lime. Draft horses clump by arched stone doorways. Inside the ivy covered walls there are interior rooms similar to the one we are standing in that boast of long 18" square oak beams, gnarled and buried in walls of stone that are stucco with natural plasters of mustard yellow and off white. I am intoxicated by the scent of their hair and person as I am led into ancient kitchens that have*

# PIETRA ITALIANATA

by Steve Dunlap

**D**r. Steve Dunlap, M.D., Stone Foundation member and bon vivant, set out last summer on The Old Stone Road, in particular some notable sections of it that traverse northern Italy. His ostensible objective was to accompany a friend on a visit to relatives there. His underlying motive was to investigate a remarkable architectural feature that had come to his notice while examining a photograph in a book\* about the the Duomo di Trento, a magnificent thirteenth century church. The photograph that excited his interest is shown here. Notice the knotted columns; actually it is not a knot, but a double bight, comprised of two interlocking loops.

I can understand Steve's fascination and why the device proliferated. It unites what is above with what is below, and vice versa. Like a lithical poem it plays with one's perception, mocking gravity. Rather than supporting the weight of the structure above it, the column seems to be holding it down. And rather than bringing weight to bear on the foundation, it seems to be lifting it up.



Stephen visited me last summer with the book and a few hundred photographs. After a lengthy discussion, in respect of my interest in publishing some of the photographs, he left them with me to select some for the magazine and agreed to write about his pilgrimage. As he has not found the time to do so I have summarized his adventure in the preceding paragraphs and with selected photographs of the "knotted" columns, as well as a collage selected from images of other types of stonework that he deemed worthy of recording.

Thank you, Steve.  
T.L.

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\**Il Duomo Di Trento*, Architettura e scultura, Enrico Castelnuovo, Acriano Peroni (and others), 1992. Published by Editrice Temi, 38100 Trento, Italia. The excellent photographs and drawings the book contains recommend it even to non-readers of Italian.

# ROCK AND RAIL

## The Dartmoor Granite Railways

*by Richard Tufnell*

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**O**n Dartmoor are a number of stone curiosities. Dartmoor is an area of south-western

Britain formed from a major ancient granite intrusion, and is designated an area of outstanding natural beauty and a National Park. The granite has been exploited in countless ways since the area was re-populated after the last ice age approximately 8,000 years ago. Interesting structures are numerous, including clapper bridges, barns incorporating rows of pigeon holes and ash houses—small corbelled buildings similar to the shepherds huts found throughout Europe - used to store hot ashes away from thatched dwellings. The stone is of a high quality, and hence has been quarried for use as a building material in other parts of the British Isles.

Among the oddities alluded to above are the granite railway lines that were constructed at a number of quarries in the early part of the 19th century. They fulfill at least some of the criteria for dry stone, and hence warrant our attention. According to Stephen Woods, author of *Dartmoor Stone* who spent a lifetime photographing his subject, an unknown engineer designed the railway, or more accurately, tramway, sometime after 1800. Granite was used as it was by far the cheapest and most accessible material, and the skills to work it were readily available. In addition, we know a new form of splitting stone had been devised at this time, namely the use of plug and feathers, which was somewhat faster and more accurate than the old pick and wedges method. The Haytor Granite Tramway shown above is a splendid example of one of these. It first rises 150 feet, then gently descends nearly 1300 feet to a canal terminus. Although mainly single line, there are sidings and connecting tracks to individual quarry faces. Embarrassingly, we omitted to measure the width, so we are not certain if it is the standard 4 feet 11-1/2 inches, but if not, it is close.

# An Architectural True Confession

*Madison Spencer*

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*How a young architect who had fallen under the influence of modern technological concepts, materials, and techniques, was rescued from his delusion by the woman he loved, who enabled him to see the light and return to traditional values.*



House VI, designed by Peter Eisenman

As an architect it has taken me a long time to master the limited palette of materials I have grown fond of—stone, brick, lime mortar, plaster, timber, wrought metals—and to understand fully the advantage they have over building systems often referred to as “new” and “modern.”

Why, might one ask, would schools of architecture not be interested in those simple, ancient materials of which the greatest cities of the world were built? First and foremost their lack of interest is due to the fact that any knowledge of these materials is sorely lacking within university faculties. The craft of building is no longer part of most curricula (rejected outright upon the demise of the old Beaux Arts traditions) and is relegated to preservation and architectural history programs. Within the esteemed schools of architecture in this country those studies have evolved into “building technology” courses where the ability to calculate structural capacities of steel, concrete and manufactured wood construction is the focus simply because that is what one must study to pass the requisite license exams for the national architectural review board. Beyond that, building materials are well off the radar of most aspiring young architects’ minds. While in law school an aspiring attorney learns the fundamentals: how to write a brief, the



full aspects of the major divisions of the law. In medicine, an aspiring doctor learns to deliver a baby, diagnose infirmities, secure vital signs and understand the entire human anatomy. In architecture, aspiring architects for the most part embark upon design studies with little or no concern for the nature of building elements at all—and we wonder why things have gone so seriously wrong. I too began my career with starry eyed optimism and a naïve disregard for the craft of building per se.

What saved me was the opportunity to restore and rebuild what was considered to be one of the great icons of modern architecture. No, not something from the early Twentieth Century, but House VI by Peter Eisenman, built in the 1970's and generally recognized as one of the important *late modern-works* of contemporary architecture. This house, which spawned much of the intensely complex and aggressive architectural fashion that confronts us today, was falling apart—just fifteen years after it was built. As one of Eisenman's designers I was charged with directing its resuscitation before it became a press nightmare. When I first visited it I found to my astonishment that the decay was overwhelming. Most of the roof had failed—it was flat, of course. The caulk around the siding joints, there seemed to be miles of it, was no longer weather-tight and the walls were rotting as a result of damp insulation within them. The humidity inside the house approached that of a greenhouse. The air conditioning had failed and because the house had settled unevenly the few

operable windows no longer worked while the large sheet glass windows and skylights sent the temperature through the proverbial roof. I began the repairs in earnest, but with the nagging suspicion that there was something fundamentally wrong with designed construction that had such brief durability.

When the work had reached a point of substantial completion, I dragged a gal I was dating out to see it all, and with boastful pride pointed out what we had done. I then went on to explain how critically important this house was to the advancement of modern architectural theory, that from this design most of the great advances in architecture today could be traced. She looked about and said she thought it all rather ugly, that she was shocked that a house in the country would have virtually no working windows in it, that it related not at all to its surroundings. She couldn't believe I had spent the better part of nine months trying to put it back together again. At first I offered several esoteric, fumbling responses but I came to see the truth in what she said (and soon thereafter, married her and left New York).

We moved to Charlottesville where there is an important architectural heritage manifest in an astonishing array of structures, in particular those of Thomas Jefferson, who designed and directed the construction of the University of Virginia. With its buildings linked by columned arcades ringing a stately lawn, this is one of the greatest classically inspired campuses in the world. Brick and stone abounds in this living architectural laboratory from which much may be garnered. There remains a sense of the craft that it takes to achieve such greatness. I took the time to visit many of the structures I had known in passing since my childhood, but this time around I studied them in all their exquisite detail. What makes our beautiful capitol building in Richmond, those magnificent stone barns at Breemo Plantation and the idyllic "Lawn" seem so timeless and appropriate today. How have they so admirably, gracefully and easily fulfilled, not only the functions envisioned when they were first built, but all of our modern needs as well?

Over time I have become convinced it is due to the level of craft—the mastery of the artisans responsible for the building itself—coupled with architectural intent that secures these works a permanent place within our communities. When we think of what makes our little community nestled here at the foot of the Blue Ridge Mountains so charming and livable, those fine structures and others like them are immediately called to mind. Imagine our nostalgia being based instead upon shopping malls with broad market variety, quickly built subdivisions on what was once pristine farmland and multiplex theaters with convenient parking. This strikes us as ludicrous, so then why do we willingly accept the destruction of all that is near and dear to us and accommodate these modern eyesores? The excuses frequently given are that "it costs too much to build so well", or that "the craftsmen simply don't exist that can do the work", and "that is an impractical way to build for modern uses", and worst of all, "this is what public wants!" I, and many of you that read this, know that those are hollow excuses and that the expertise and craftsmen capable of executing such work do in fact exist and stand ready to serve their communities. And no, *The public does not necessarily want this.*

# The Old, the New and the Future

## A LETTER FROM IRELAND

*Patrick McAfee*

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### The Old

Until less than 100 years ago (depending on where you live) stone walls were built thick, having two faces and a heart of stone, all laid with lime mortar. The typical wall thickness of a domestic structure was about 2 feet. This was because of the difficulty, given average sized stone, in building a wall much thinner than this. Of course older defensive structures, built to resist the onslaught of the cannon ball or prevent collapse from underground offensive mining, often had exceptionally thick walls. Many non-defensive structures such as industrial warehouses, lighthouses, public buildings, churches etc. had very thick walls as well. They were designed to be structural, to carry floors, roofs, people, machinery etc. When an opening had to be spanned, an arch was favoured because a horizontal lintel of stone is limited in the distance it can span and in the weight it can carry. If a stone lintel was used, it often had a relieving arch built over it to carry most of the weight.

Lime was used as a binding agent with sand to create a lime mortar which was used to bed and joint stones. On some structures, particularly vernacular ones, mud, variously called earth, subsoil etc. was used as a mortar. An essential element in maintaining the structural integrity of a mortared wall was to keep the stones apart. Some lime mortars such as the non-hydraulic variety that set or harden by the introduction of carbon dioxide gas from the atmosphere were very slow to set. It has been estimated that carbonation in ideal conditions can be

as little as 1mm (1/25 inch) per month in from the face of the wall. The result was, thick stone walls well carbonated near their faces but with softer centers. Tremendous flexibility resulted, so that such walls could flex and move quite a lot without failing. The surface carbonation prevented leaching of the lime from the wall, from rain. Lime had one other major advantage: breathability, if there is such a word. Walls built in lime were permeable; when they got wet from rain they were able to rapidly dry out, the joints acting as drains. Solid stone buildings could then stay dry inside, most of the time, anyway.

Not all lime mortars set solely by carbonation, there were other limes, namely hydraulic limes. In parts of 19th century Europe these were classified as feeble, moderate and eminent depending on their ability to set in damp or wet conditions. Non-hydraulic limes will never set in such conditions. Hydraulic limes were essential for work underground, aqueducts, sea piers, cisterns etcetera, but were also favoured for external renders (stucco) and general bedding of stone and brick. Hydraulicity was achieved by the burning of limestones with an alumina/silica content. A limestone having an earthen content, or one with the inclusion of silica nodules could achieve this. Once burned, alumina and silica become reactive and when they are mixed with water a chemical set occurs with little or no reliance on carbonation. Kiln temperatures were also purposely varied to manipulate hydraulicity and even the ash from the kiln was used at times. The addition of

brick dust (which contains reactive silicates and aluminates) to non-hydraulic lime also created a hydraulic set. The Romans knew all of this but also had made the discovery that pozzolana, a volcanic ash from Mount Vesuvius in Italy, could also create a hydraulic set, often referred to as a pozzolanic set. This was a major technical discovery, which allowed the Romans to create concrete and build in water. Traditional stonemasonry in the western world has its roots in Roman technology, not just its mortars and concretes but also its tools and techniques.

So why do we need to know all of this today? Well, without having an insight into the complexity of traditional mortars we cannot hope to understand how old masonry structures work and how we should repair them. If we attempt to do so with only the knowledge of modern construction technology we will be doing the old structure a major disservice. Previously stonemasons knew all about their mortars; they did not write it down but passed it on from father to son.

Stonemasons were aware of the vulnerability of large lime mortared joints particularly with non-hydraulic mortars. Sometimes with rubble stone large joints are inevitable. It is not always possible, or warranted economically, to cut and shape stones; some stones types will resist even minor alterations. Larger joints, particularly in non-hydraulic lime are vulnerable to being washed out before carbonation has effectively taken place. Pinning or galletting, the controlled filling of such joints

# Stone mad

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SEAMUS MURPHY

THE  
BLACKSTAFF  
PRESS  

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BELFAST

Seamus Murphy (1907–1975) was born in County Cork, Ireland. He commenced work as an apprentice stonecutter in 1922 while at the same time, inspired by his school teacher Daniel Corkery he studied clay modelling at the Crawford School of Art.

In writing *Stone Mad* (1950) we are indebted to him for recording the passing of the traditional craft of stonecutting. The book is full of warmth, humour and tenderness and although a bible for workers in stone it has continued to be read with great appeal by humanity as a whole. Although a stonecutter, letterer, carver and sculptor it his decorative carvings that are unique and individual. While others followed the usual Celtic patterns he developed his own style. In lettering too he broke away from the established rather mechanical forms that had developed. His headstones are unique with strong layouts and delightful carvings. It is time his carvings were reappraised.

Although he became well known through his book in his lifetime he remarked that “reknown doesn’t buy bread and butter, but headstones do. I don’t believe the half of what I read, but I’m going into Jackies, now for a pint and that’s no myth.”

—Pat McAfee

**T**HERE were about thirty men working in the yard, counting stone-carvers, stone-cutters, stone-polishers and labourers. Stone-cutting, like most other trades, is a closed trade, and nobody can become a stone-cutter unless his father is one.

Stone-carving, on the other hand, is open, and anyone can become an apprentice to it, provided, of course, there is enough work to keep a few carvers going while the apprenticeship is being served. Otherwise a boy has little or no chance of learning the trade.

Stone-cutters occasionally do a little stone-carving, as carvers are not always available when an urgent job is required but carvers are never allowed to do any stone-cutting.

The craft of stone-carving is rapidly disappearing. During the last forty years, there were, as far as I know, five carvers turned out in Cork, including myself. Not that there was ever any native tradition of stone-carving in Cork, or in Ireland for that matter. Most of those who worked here were descendants of English stone-carvers who came to Ireland following Catholic Emancipation, when church-building received a new impetus.

Many of them set up their shops in Brunswick Street (now Pearse Street), Dublin, and most of the men I worked with had served their time there. John Broe, Mark Barnes, Edgar Barnes, Louis Free, Harry Thompson, the Tomlins, the Smiths, James Walton, William Mervin, are names that bespeak their origin.

The craft of stone-cutting, in Cork at least, is in no better shape. Its total strength as I write does not exceed fifteen members, including apprentices. Most of the others are working in England, some of them as labourers—a nice fate for skilled men, to end their days as navvies in a foreign country!

Still, I suppose this is nothing unusual. Since mediæval times journeymen have been travelling from place to place carrying on their backs a bag of tools and a few belongings, stopping where they find work or pleasure, and passing on, becoming acquainted with men and things. In many ways this was important in training the young men, as they saw what the craft was doing in other parts of the country and it put them in touch with new methods; they themselves, perhaps, bringing to the workshops new ways and ideas which might improve the tradition.

We do know that they were always welcomed by other journeymen, who found work for them and, in the case of certain crafts, the master kept them in his own house 'by bread and tankard'. Some of the privileges established by the Guilds hold good to this day and one of them, that of the right to have beer at 11 o'clock in the morning, though abolished owing to abuse in most trades now, is still held by the 'Dust' (as we call members of the stone craft), their case being that it is thirsty work.

So one of my jobs in the yard was that of Number One beer-carrier to a thirsty crew, a position I occupied for about four years until I was relieved by another apprentice. It was a task which required no small amount of skill as often I had to try and make a 'dive' when the foreman's back was turned

task which required no small amount of skill as often I had to try and make a 'dive' when the foreman's back was turned at any time during the day. The black gallons, the tin cans used for this job, were 'planted' in amongst the stones 'on the run home'. Each man had a special hideout for his gallon, trade honoured no ethics and a pint was gulped back wherever it was found. When this happened it caused me great consternation. The owner questioned me as to the exact time I put the gallon in position, who was about at the time and whether I had let anyone see me put it there! However, I always managed to wangle out of it, while the curse of the Seven Snotty Orphans was put on the scoundrel that stole it.

\* \* \* \*

Another tramp stonie was known as the Goban. I had been hearing stories about him for years before he showed up. Actually he was a legend in the trade. He seldom worked in the cities but generally in out of the way places and he never stayed very long in any job. As he said to me:

"There are three important things to consider if you want to stay in a place: the men, the work, and the stone. If the men are good I'm inclined to stay, and if the work is interesting I forget the men, but if the stone is bad, nothing could keep me! Because, dammit, nothing torments a man more than nursing a treacherous bitch of a stone only to find after all your trouble that it was only blackguarding you. Just as you are about to say 'I'm a thunderin' bit of flesh to handle that cantankerous lump,' and feel you've begun to master it, out you'll blow a corner. It happened to me with a block of the free-way Aherla. I had the stone worked and was just square-chiselling the margin when off came about four inches of the end.

"Now, anyone could see it was a level. It was a rusty colour where the water had got into it. I went up to the gaffer and said: 'I've blown out a corner,' showing him the level. "'Twas in it," says L. "I know bloody well it was," said he, "but 'tish't in it now, and that's what you're paid for—to keep it in it." I packed up on the spot. That's the sort of thing that get's a man down."

I remember a figure carver from Dublin who was always taking skelps off his knuckles. 'Tis surprising to me how he had a hand at all! You should see the tools he worked with! A few six-inch nails would do as much. And in his excitement to cut away something he had spotted he would often hit the tool on the cutting edge and then look at it with amazement, wondering how it got to be in that position. He had me pestered with sharpening tools for him. He was a hopeless hand at the forge, and along with that he had no interest in tools. He had no kit—just borrowed off every man in the shed, and by the time he was done with them, the tools were no more good. You might as well leave them to him. The heads would be battered and spread like mushrooms. His hands were like butchers' blocks from all the misses and from letting his fingers slip up and down and get caught in the head of the tool where it was spread. A spread

# The Cathedral Builders

by Jean Gimpel

*Translated by Teresa Waugh*



God as the Architect of the Universe: miniature from an Old Testament,  
French mid-thirteenth century (Vienna).

Grove Press, Inc., New York

# Working the Stone

In the hierarchy of cathedral builders the labourer is clearly at the bottom of the ladder, but, so long as the Middle Ages were in the ascendant, he had every opportunity to better himself. By his work and his intelligence he could become a specialized craftsman; he could save a little money and set himself up on his own as a contractor, or he could study to become an architect. Medieval society allowed the humblest of men to fill the highest offices. The future belonged to the ambitious. There is a certain analogy to be drawn between the evolution of the medieval worker's world and the evolution of the American worker's world. The medieval labourer could, so to speak, become a self-made man and acquire a respected position in the town.

Labourers were mainly recruited from among the rootless, often serfs fleeing from their feudal lords who came to find shelter in towns far away from their birthplaces. If they were not found by their masters before a year and a day were up, they became freemen and citizens of the town. Labourers also came from peasant families with large numbers of children, some of whom left home in search of freedom and adventure in the towns. They could find immediate employment in any of the numerous workshops in the town. Workers on the sites were free men.

The work given to the labourers varied. Records at Autun show they helped the carpenters to transport the oak wood, they dug to open up quarries and took flies to the roof of the church of Saint-Lazare. Accounts from the Augustinian convent in Paris show that, among other tasks, they dug the foundations. There are frequent entries like: 'For removal of earth in order to build foundations. To Gautier for removing earth for the foundations of the sacristy. To Gautier for clearing the foundations.'

On the sites they carried a variety of materials in baskets on their backs, as can be seen from the following extracts: 'To two pannier bearers, three days each, 3 sous, 6 deniers. To seven pannier bearers, five days each, 20 sous, 5 deniers.' The daily wage for these labourers was about 7 deniers; semi-skilled workers like plasterers earned 10 or 11 deniers and specialized workmen like masons and stonemasons were paid about 20 or 22 deniers. Living conditions for labourers must, therefore, have been quite hard, as the wages were not very high and, above all, work was intermittent.

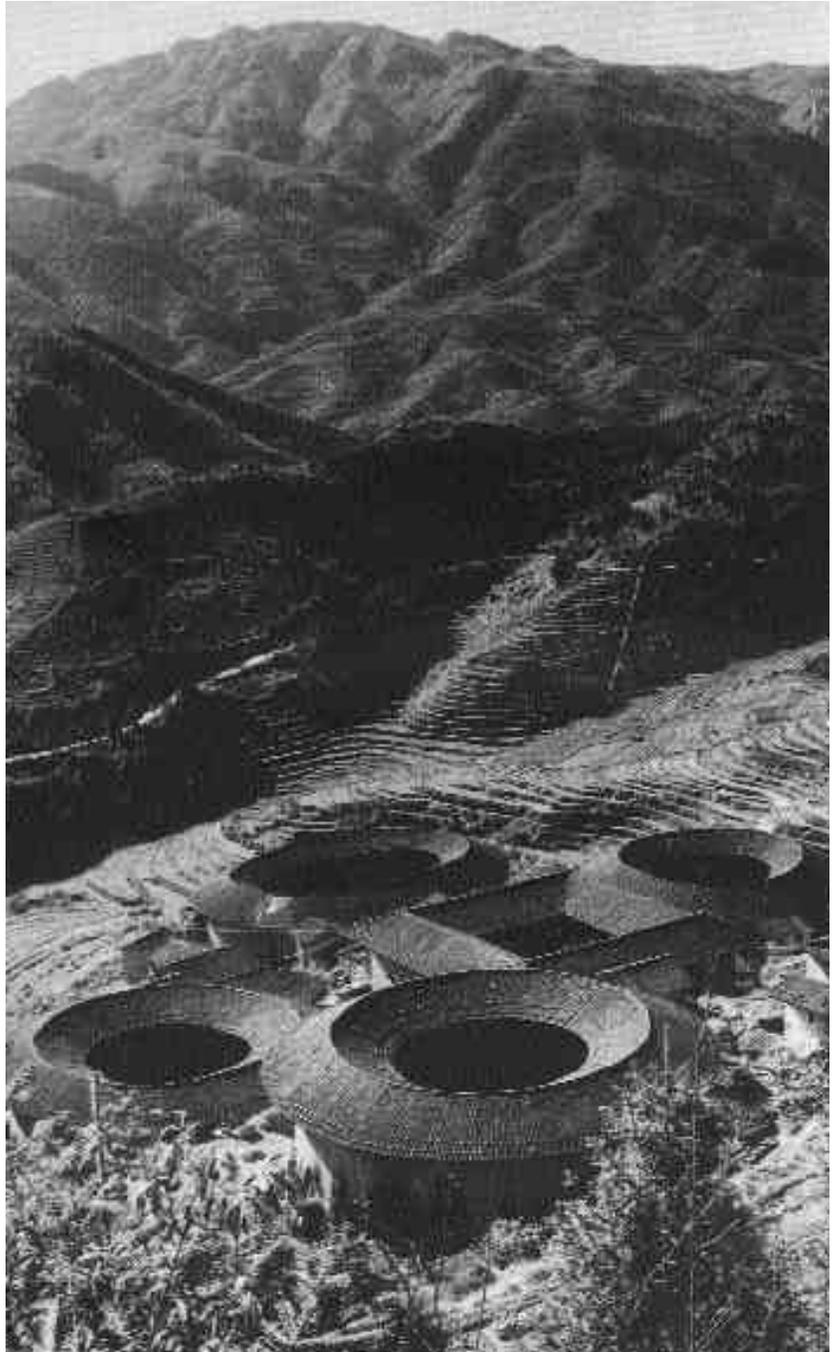
It is hard to reconcile the presence of these labourers on the site with the legend of voluntary work. This can only have been episodic and can have accounted for only a tiny part of the construction force. The unpaid workman was in effect taking the bread from the mouths of men in search of work. The only jobs which could be done by an unskilled labourer were carrying and digging, and labourers must have looked askance at anyone who offered his services free of charge.

The *chanson de geste* about the four Aymon sons tells the story of a legendary nobleman, Renaud de Montauban, who, in expiation of his sins, went to work on a site. He accepted only the humblest wage. After a week the workmen began to worry and joined forces against this man who was ruining prices; they decided to kill him and hit him on the head from behind with a hammer and threw his body in the Rhine. The crime did not go unpunished as, luckily, the fish gathered themselves together and lifted up the body which travelled down the current lit by three candles. This story symbolizes the workers' hostility towards the unpaid labour of the zealously faithful.

# Stonework of Fukian Province, China

**F**ukian Province on the southeast coast of mainland China just across the Formosa Strait from Taiwan is home to some distinctive forms of vernacular architecture. It is an area defined by its geography. Mountain ranges, the highest in Southeast China, set it off from the rest of the country; but its coast with deep water ports open it to foreign influences. The mountain ranges behind the coast running roughly east-west are cut through by rivers running from the interior south to the sea, carving the terrain into separate areas and making communication between them difficult. This led to the development of a variety of distinctive cultural—and architectural—traditions. Among the most remarkable of these are the huge, complex unitary structures, many of them round as pictured here, which provided safe habitations for entire villages within their stone and earthen walls.

The province is rich in stone, principally granite and basalt with some marble and limestone. Historically it has been known for its skilled stone craftsmen, both carvers and builders, who have a tradition which has survived into the present. Stonework today is a major industry with hundreds of thousands of tons of carved stone products being exported to Japan, Singapore, Europe and the United States. It was through my association with an American importer of carved stone that I traveled to and through Fukian Province. On my last trip there I discovered the books from which the following photographs are taken. —TL





# 老房子

福建民居(下册)

江苏美術出版社



Old Fukian Houses by Huang Han-ming. Photographs by Lee Yu-chuen.  
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