IN THE CAUSE OF ARCHITECTURE

By Frank Lloyd Wright

III. THE MEANING OF MATERIALS—STONE

The country between Madison and Janesville, Wisconsin, is the old bed of an ancient glacier-drift. Vast, busy gravel-pits abound there, exposing heaps of yellow aggregate, once, and everywhere else, sleeping beneath the green fields. Great heaps, clean and golden, are always waiting there in the sun. And I never pass without emotion—without a vision of the long dust-whitened stretches of the cement-mills grinding to impalpable fineness the magic-powder that would "set" it all to shape and wish, both, endlessly subject to my will.

Nor do I come to a lumber-yard with its city-like, gradated masses of fresh shingles, boards and timbers, without taking a deep breath of its fragrance—seeing the forest that was laid low in it and the processes that cut and shaped it to the architect's scale of feet and inches—coveting it, *all*.

The rock-ledges of a stone-quarry are a story and a longing to me. There is suggestion in the strata and character in the formations. I like to sit and feel it, as it is. Often I have thought, were great monumental buildings ever given me to build, I would go to the Grand Canyon of Arizona to ponder them.

When, in early years, I looked south from the massive stone tower in the Auditorium Building where I was pencil in the hand of a master—the red glare of the Bessemer steel converters to the south of Chicago thrilled me as the pages of the Arabian Nights used to do—with a sense of terror and romance.

And the smothered incandescence of the kiln! In fabulous heat baking mineral and chemical treasure on mere clay—to issue in all the hues of the rainbow, all the shapes of Imagination and never yield to time—subject only to the violence or carelessness of man. These great ovens would cast a spell upon me as I listened to the subdued roar within them.

The potter's thumb and finger deftly pressing the soft mass whirling on his wheel, as it yielded to his touch; the bulbous glass at the end of slender pipe as the breath of the glass-blower and his deft turning, decided its shape—fascinated me. Something was being born.

With his "materials"—the architect can do whatever masters have done with pigments or with sound—in shadings as subtle, with combinations as expressive—perhaps out-lasting man himself.

Stone, *wood*, *pottery*, *glass*, *pigments* and *aggregates*, *metals*, *gems*—cast in the industrious maw of mill, kiln and machine to be worked to the architect's will by human-skill-in-labor. All this to his hand, as the pencil in it makes the marks that disposes of it as he dreams and wills. If he wills well—in use and beauty sympathetic to the creation of which he is creature. If he wills ill, in ugliness and waste as creature-insult to creation.

. . . .

These "*materials*" are human-riches.

They are Nature-gifts to the sensibilities that are, again, gifts of Nature.

By means of these gifts, the story and the song of *man* will be *wrought* as, once upon papyrus, and now, on paper it is written.

Each material has its own message and, to the creative artist, its own song.

Listening, he may learn to make two sing together in the service of man or separately as he may choose. A trio? Perhaps.

It is easier to use them solo or in duet than manifold.

CANTILEVER SLAB WITH CUT-LAVA EDGES OVER PASSAGE BETWEEN LOBBY AND GUEST WINGS
THE IMPERIAL HOTEL, TOKIO
FRANK LLOYD WRIGHT, ARCHITECT

The solo is more easily mastered than the orchestral score.

Therefore it is well to work with a limited palette and more imagination than it is to work with less imagination and more palette.

So—work wherever possible in monomaterial, except where the use of sympathetic extra-materials may add the necessary grace or graceful necessity desirable—or unavoidable.

Each material *speaks a language* of its own just as line and color speak—or perhaps because they do speak.

Each has a story.

In most Architectures of the world stone

has suffered imitation of the stick. Even in oldest cultures like Chinese civilization, great constructions of stone imitate wood posts and beams in joinery—imitate literally great wood towering of poles and posts, beams, richly carved to imitate the carvings of the wooden ones that preceded them and could not endure. Undoubtedly the stick came first in architecture—came long before the stone. The ideas of forms that became associated with ideas of the beautiful in this use of wood took the more enduring material ignorant of its nature, and foolishly enslaved it to the idea of the ornamented stick.

Stone is the oldest of architectural materials on record, as to form, except as the stone itself embodies earlier wood-forms. So from Stonehenge to Maya masonry—the rude architecture of the Druid-Bards of whom Taliesin was one, down the ages to the intensely implicated and complicated tracery of the Goths—where stone-building may be said to have expired—stone comes first.

THE STORY OF STONE

Stone, as a building material, as human hands begin upon it—stonecraft—becomes a shapely block.

The block is necessarily true to square and level, so that one block may securely rest upon another block and great weight be carried to greater height.

We refer to such masses, so made, as masonry.

The stone may show a natural face in the wall, or a face characteristic of the tool used to shape it—or be flatly smoothed. Sometimes honed or polished.

The walls take on the character of the surface left by the mason's use of his tools.

The character of the wall-surface will be determined also by the kind of stone, by the kind of mason, the kind of architect. Probably by the kind of building. But, most of all, by the nature of the stone itself if the work is good stone-work.

Stone has every texture, every color and —as in marble—also exquisite line combined with both—intensified clear down the scale until we arrive at what we call "precious" stone—and then on to jewels.

But most building stone—as Caen-stone, say—is a clear negative substance, like a sheet of soft beautiful paper, on which it is appropriate to cut images, by wasting away the surfaces to sink or raise traces of the imagination like a kind of human writing, carrying the ideology of the human-race down the ages from the primitive to the decadent.

Other stone is hard and glittering, hard to cut. By rubbing away at it with other stones the surface may be made to yield a brilliant surface, finally polished until its inner nature may be seen as though looked into, as in a glass—transparent.

Most marble is of this character. And granite. The very nature of the material itself becomes its own decoration.

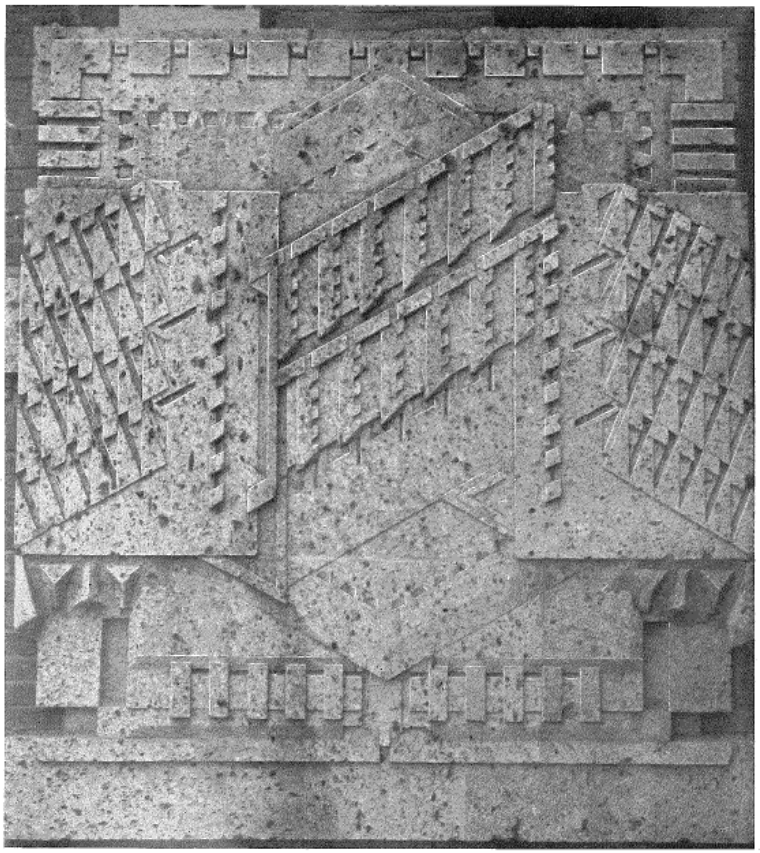
To carve or break its surface, then, is a pity—if no crime.

Stones themselves have special picturesque qualities and were much cherished for their "qualities" in China and Japan. Perhaps these Orientals love stones for their own sake more than any other people. They seem to see in them the universe—at least the earth-creation, in little—and they study them with real pleasure and true appreciation.

The Byzantine mosaics of colored stone are a cherishing of these qualities, too. These mosaics on a large scale gave beautiful stone results—fine stone-work—good masonry.

But stone is a solid material, heavy, durable and most grateful for masses. A "massive" material we say, so most appropriate and effective in simple architectural masses, the nobler the better.

The Mayas used stone most sympathetically with its nature and the character of their environment. Their decoration was mostly *stone-built*. And when they carved it the effect resembled naturally enriched



LAVA-CUTTING TEN FEET SQUARE, SHOWING TEXTURE OF MATERIAL MODIFYING THE SEVERE CARVING
THE IMPERIAL HOTEL, TOKIO
FRANK LLOYD WRIGHT, ARCHITECT

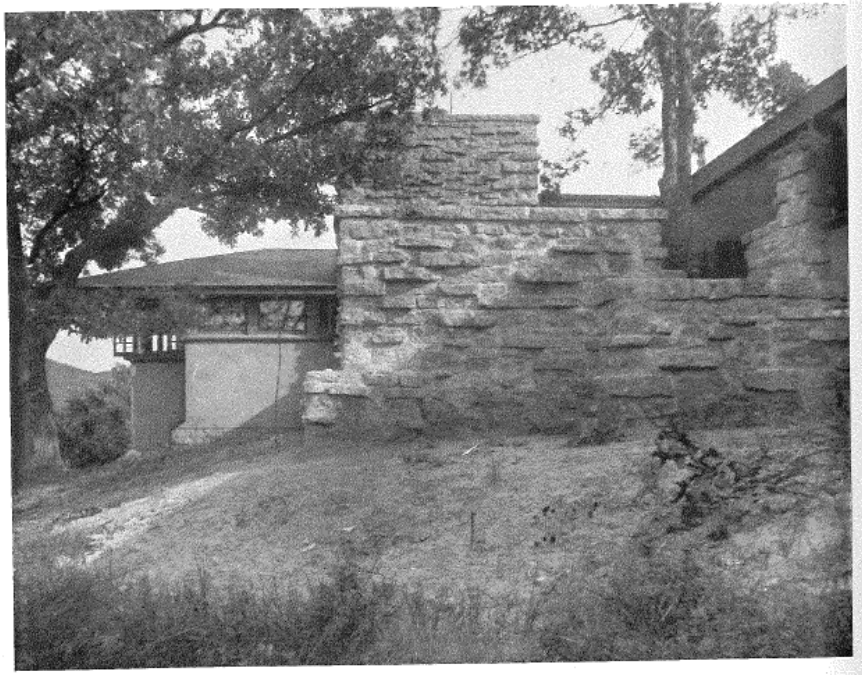
stone surfaces such as are often seen in the landscape.

The Egyptians used stone—as the Chinese used stones—with real love and understanding.

The Greeks abused stone shamefully—did not understand its nature at all except as something to be painted or gilded out of existence. Before they painted it, they fluted and rolled and molded it as though it were wood—or degraded it far lower.

Polished sophistication is not at home with stone.

The Roman architects had no feeling about stone whatever. Their engineers did have—but there were few large stones.



LOCAL STONE—IN KEEPING WITH LOCALITY
TALIESIN, SPRING GREEN, WISCONSIN
FRANK LLOYD WRIGHT, ARCHITECT

They cut these prizes into wooden cornices to please the architects, and invented the arch to get along with small stones for construction.

The Goths made most of stone. But stone became for the Gothic imagination a mere negative material which they employed supremely well in a structural sense.

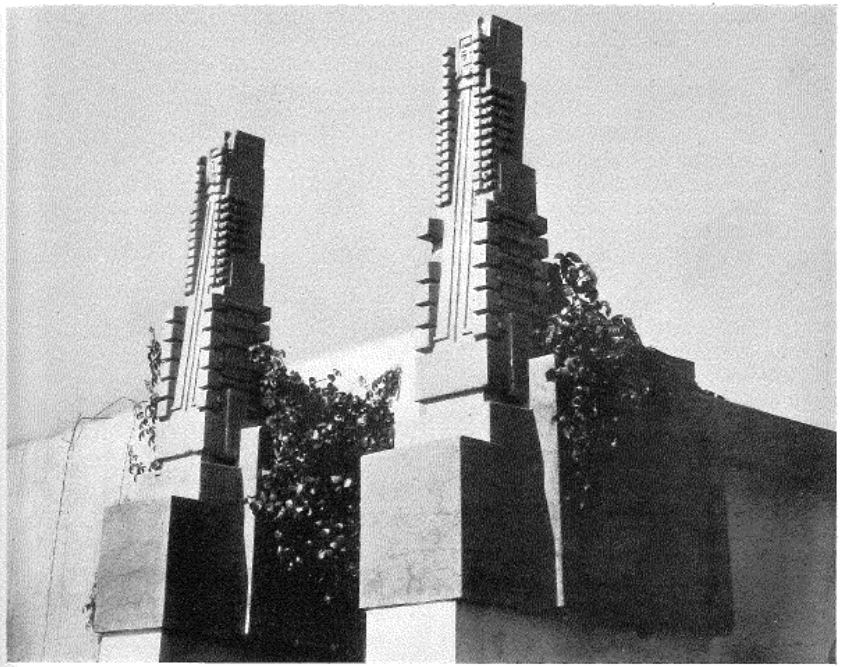
Stonecraft rose highest in the Gothic era.

But they, then, set to work and carved the beautiful construction elaborately and constructed carving in the spirit of the construction to an extent never before seen in the world. No arris was left without its moulding. It was as though stone blossomed into a thing of the human-spirit. As though a wave of creative-impulse had seized stone and, mutable as the sea, it had heaved and swelled and broken into lines of surge, peaks of foam—human-symbols, images of organic life caught and held in its cosmic urge—a splendid song!

The song of *stone*?

No—because stone was used as a negative material neither limitations respected nor stone nature interpreted. In wood the result was pretty much the same as in iron or in plaster, in the hands of the Goths.

But as a building-material it was *scientifically* used. And such stone was usually chosen as had little to say for itself and so not outraged much by such cutting to the



WHEN STONE IS CONCRETE
BARNSDALL RESIDENCE, HOLLYWOOD, CALIFORNIA
FRANK LLOYD WRIGHT, ARCHITECT

shapes of organic life—as it was subjected to, by them.

We may say the stone was not outraged—but neither was it allowed to sing its own song—to be *itself*. Always nearer that, by them, than anywhere else since archaic times.

But it was not the *stone* that inspired the Cathedrals of the Middle Ages nor invited them. It limited them.

Had it not been so—what would they have been like? Was Gothic Architecture because of stone or regardless of it?

But that is going far afield for subtle matter, and casting the shadow of doubt upon one of the most beautiful spectacles of the triumph of the human spirit over matter.

A greater triumph will be man's when he triumphs through the nature of matter over the superstition that separates him from its spirit.

And that is where he is now in his industrial world as he faces stone, as an architect. As he sees stone in the story recorded by the buildings on the earth—there is not so much to help him now.

To "imitate" would be easy but no man's way.

His present tool the Machine can clumsily imitate, but without joy or creative impulse behind it when imitation is its menial office. As a mass-material he can

now handle stone better and cheaper than ever before, if he allows it to be itself—if he lets it alone for what it is.

Or if—sympathetically—he brings out its nature in his use of it. The Chinese did this in the way they cherished and developed the natural beauties of jade—lapis-lazuli—crystal—malachite and cornelian, quartz—and great-stones as well.

Man has done this with his machine when he has sawed the blocks of marble and, opening them into thin slabs, spread them, edge to edge, upon walls as facings revealing and accenting its own pattern and color.

He has done this when he planes it and lays it up in a straight-line mass for its own sake, with the texture characteristic of his tools.

He has done this when he takes the strata of the quarry and lays it in like strata, natural edges out—in his walls. He has done this when he makes mosaic of stones and lays them in simple stone-patterns in color, for whole buildings—stone brocade.

He does this, when, inspired by the hardness and brilliance of the granite his Machine can now render so well, he makes his ultimate form as simple and clearly hard in mass and noble in outline when finished.

He may even introduce alternate and contrasting materials qualifying broad masses harmonious with stone qualities in horizontal bands or rich masses. Whenever, in his designs, he allows the natural beauty of the stone, as stone, to speak its own material-language, he has justified his machine as an artist's tool. And the nobility of his work will compensate for the loss of the imitations of organic-forms-of-life in the material itself—an imitation that used to be architecture.

Interpretation is still his.

So it will be seen again, as always, that if he now works *with* stone in this sense, using the new power which the machine has given him over it, he will gain a spiritual integrity and physical health to compensate him for the losses of the storyful beauties of that period, since passed, when a building, so far as its *architecture* was concerned, was a block of ornamentally sculptured stone.

It would take a volume to fully illustrate the story that is here written—a mere sketch in bare outline.

In each of the materials we have named there is treasure enough to make Aladdin's cave a mean symbol of an architect's riches, were each architect confined to only *one*.

Aladdin's lamp was a symbol for Imagination.

With this lamp the architect may explore the riches of the deep caves where treasure is waiting for him. And, through him, the human race waits too; for the key that unlocks the man-made door is hanging at his belt—still—though rusty with disuse and the lock itself now stiff with rust and lack of proper oiling.

Let him take his microscope and see the principle that "builds", in nature, at work in stone. Geometry the principle, busy with materials — producing marvels of beauty to inspire him. Read the grammar of the Earth in a particle of stone! Stone is the frame on which his Earth is modeled, and wherever it crops out—there the architect may sit and learn.

As he takes the trail across the great Western Deserts—he may see his buildings —rising in simplicity and majesty from their floors of gleaming sand—where organic life is still struggling for a bare existence: see them still, as the Egyptians saw and were taught by those they knew.

For in the stony bone-work of the Earth, the principles that shaped stone as it lies, or as it rises and remains to be sculptured by winds and tide—there sleep forms and styles enough for all the ages for all of Man.

Note:—See issue of Wendingen, Number 11 in 6th Series of 1914: Architect Widjeveldt Vossuistraat—Amsterdam—for a marvelous exposition of geometry at work in materials.—Called the *Architectonishe Phantasieen in de Wereld Der Kristallen.*