Poetry in brick: the infamous architecture of Laurie Baker

Submitted by

Group 12

0601016    0601036
Contents

List of figures ................................................................................................................................................. 3
List of charts ..................................................................................................................................................... 3

Chapter 1  Introduction ................................................................................................................................. 4

Chapter 2  Literature review ......................................................................................................................... 6
  Section 2.1  Laurie Baker: Life, Works, Writing ........................................................................................ 6
  Section 2.2  The Hindu and Utne .............................................................................................................. 6
  Section 2.3  Building construction manuals by Baker ............................................................................... 6
  Section 2.4  Brick master and The Poor men’s architect ........................................................................... 6

Chapter 3  Methodology ............................................................................................................................... 7

Chapter 4  Poetry in bricks ............................................................................................................................. 8
  Section 4.1  Brickwork and aesthetics ....................................................................................................... 8
    a. Exposed brickwork (without plaster at exterior or interior) ............................................................... 10
    b. Brick Jali ............................................................................................................................................... 11
    c. Patterned roof with filler brick ........................................................................................................... 12
    d. Patterned parapet ............................................................................................................................... 13
  Section 4.2  Brickwork and cost reduction ............................................................................................... 13
    a. Rat trap brick bonding ...................................................................................................................... 15
    b. Brick Jali as an alternative to windows ............................................................................................ 16
    c. Filler slab roof ................................................................................................................................. 17
    d. Other cost reduction techniques ..................................................................................................... 18
  Section 4.3  Brickwork and environmental sustainability ........................................................................ 19

Chapter 6  The “Baker” architecture ............................................................................................................. 20

Chapter 7  Conclusion .................................................................................................................................... 21

Bibliography
List of figures

Figure 1  Chengalchoola slum colony ................................................................. 10
Figure 2  Interior of The Hamlet ........................................................................ 11
Figure 3  Women's hostel (CDS) ...................................................................... 11
Figure 4  House for P. K. Sivanandan ............................................................... 12
Figure 5  Centre for development studies ......................................................... 12
Figure 6  House for Lt. Col. John Jacob ............................................................ 12
Figure 7  Patterned parapet .............................................................................. 13
Figure 8  Rat-trap bond and Rat-trap brick laying ............................................ 15
Figure 9  Rat trap bonding ................................................................................ 15
Figure 10  Jali works from Baker's cost reduction manual .................................. 16
Figure 11  Brick jali for lighting and ventilation ................................................ 16
Figure 12  Filler slab roof .................................................................................. 17
Figure 13  Brick lintel and corbelled brick arch ................................................. 18
Figure 14  Frameless window ............................................................................ 18

List of charts

Chart 1  The basic workflow ............................................................................. 7
Chart 2  The detail workflow ............................................................................. 7
Chapter 1 Introduction

This paper is a study on the brickwork of Laurie Baker focusing on his extensive use of common brick in building construction to achieve aesthetics, environmental harmony and most importantly cost efficiency. The award-winning British-born Indian architect Laurie Baker was renowned for his initiatives in cost-effective energy-efficient architecture and for his unique space utilization and simple but beautiful aesthetic sensibility.

The aim of this paper is to find out the scope of incorporating the common brick as a building material by analyzing the architecture of Laurie Baker.

The title “Poetry in bricks” has been chosen to convey some definitive meanings. Bricks are used for thousands of years in the history of building constructions. Generally this handy material is stacked one upon another with some adhesive materials to create walls and surroundings. It is such a common phenomenon for the people of this sub-continent to watch a brick building or to be within one every day. So what is so artistic about it that we are comparing the brickworks with poetry?

If we search for a definition of poetry we may find that, “Poetry is a form of literary art which uses the aesthetic qualities of language to evoke meanings in addition to, or in place of, the prosaic ostensible meaning.

Poetry uses forms and conventions to suggest differential interpretation to words, or to evoke emotive responses. Devices such as assonance, alliteration, onomatopoeia and rhythm are sometimes used to achieve musical or incantatory effects. The use of ambiguity, symbolism, irony and other stylistic elements of poetic diction often leaves a poem open to multiple interpretations. Similarly, metaphor, simile and metonymy create a resonance between otherwise disparate images—a layering of meanings, forming connections previously not perceived. Kindred forms of resonance may exist, between individual verses, in their patterns of rhyme or rhythm.”

In the short documentary “Brick master”, Baker said, “The common brick is one of men’s greatest inventions. Hundreds or even thousands of years ago, this was a lump of mud in the ground, you could pick it in your hand, shape it, let it dry and you have this shape. Then you burn it to make it solid and strong.

If you want you can pick a dark end like this and you can make deliberate pattern on the wall in the same way that people from music or shows can pick out six dancing girls and dress them up so that they all look the same.

You can do almost anything you like in the building line with this common brick.”

Baker came East from England as a volunteer architect attached to a mission during the war and lived an amazing life in China and north India looking after leprosy patients and building hospitals, schools, libraries, ashrams and homes. He met Elizabeth Jacob, the Malayalee doctor who later became his wife, while nursing patients in Mumbai at her brother’s hospital. Baker arrived in Kerala 35 years ago and immediately struck a chord with ordinary people, soon after he began demonstrating that homes could be built for even Rs.3,000.

But he was not merely a builder of low-cost homes. He had the amazing ability to organize space. He used to create space like a magician for his clients to drink in, to meditate in, to think in. He had a lot of concern for beauty. He taught us how beautiful a brick could be and to look closely at its colour and texture; that no two bricks are the same and that together they create a wonderful mosaic; about the ruggedness of stone; and so on. He was the first one to call our attention to natural building materials and to the importance of using a variety of indigenous styles of architecture, a passion he imbibed from Gandhiji. He was against ostentation or façadism in architecture. He disliked falsehood and deceit.

Bricks he loves. He often lays them with his own hands. For him this is not a matter of Gandhian self-humbling, but of sensual pleasure: 'Designing a house and getting someone else to build it is like preparing a menu with great care and then leaving it to someone to do the cooking and then the eating,' he says. 'It's no fun.'

Baker gave a new dimension to local architecture. He says: "No innovative artist can hope to proceed in work without having gained an understanding of the local wisdom of a place." Kumar Gandharva performed the folk songs of Malwa. Folk songs were always there. Everyone accepts the fact that folk songs came out of folk music. Kumar Gandharva showed us their beauty and simplicity.

Building arches, jaalis, frameless doors and windows does not constitute a new discovery... Baker has merely compiled the techniques. He had one singular purpose - to create a beautiful building using the minimum possible quantity of materials. In fact, creating a beautiful building by overlooking nature proves even costlier. Natural rhythm is intrinsically beautiful. A merger with nature occurs when Baker's forms start resonating with this natural rhythm.

Our intention is to trace out the possibilities of using common brick in building line to create beauty, cost efficiency and environmental harmony by analyzing the works of Laurie Baker.

---

2 (Fosterau, Brickmaster: Laurie Baker architectural genius, 2008)
Section 2.1  Laurie Baker: Life, Works, Writing
This book is the most important and complete publication on Laurie Baker yet. The author Gautam Bhatia tries to frame most of the works of Baker in this book although it was a tough job. Because Baker did not like to do his jobs on drawing tables rather he preferred on site decisions. May be this is why his buildings are so humane and can easily be perceived. In our consideration this is very important while an architect works for the most ordinary people of the country.

Most of the “Baker” buildings are constructed from some descriptive sketches and hand drawings. So documentation of Baker’s work is very hard to find.

Still Gautam Bhatia collected some of Baker’s beautiful buildings from which we are documenting his excellent brick works.

Section 2.2  The Hindu and Utne
We already titled our paper “The infamous architecture of Laurie Baker” because only at the last stage of his 50 years of architectural practice we found some helpful articles that describe the works and philosophy of Laurie Baker.

The titles of these articles published at different time in different newspapers and magazines are self-descriptive. These are “The creative journey of Laurie Baker” describing his life-long practice from the philosophical point of view; “Call a brick wall a brick wall” an interview taken by Sundar Ramanathaiyer; “Poetry in brick and mud” and “Master mason”.

These articles reveal a great deal of Baker’s thoughts on architecture, people and practice.

Section 2.3  Building construction manuals by Baker
In his life time Baker wrote a lot of manual describing his findings about architecture to help constructing low cost buildings. These manuals are intended not only for the professionals but these were written in such manner that an ordinary people can use these book to construct a building himself.

These manuals are great sources of Baker’s architectural excellence where we found how to construct low cost energy efficient buildings with beautiful aesthetic qualities.

Section 2.4  Brick master and The Poor men’s architect
These two short documentaries were made by individual effort. From these we can have a journey inside Baker’s building with Baker himself talking about the experience of constructing these buildings.
Chapter 3  Methodology

Laurie Baker during his 50 years of architectural practice in India gave us a variety of buildings in different contexts with each one having its own identity. All of these projects showed the intellectual, excellence and integrity of the architect in every corner of these. From the great complex building of the CDS (Centre for development studies) to the towel rack of Alexander house, we see the same craftsmanship and passion written in the detailing. So organizing his works according to the functional use of brick in different aspects of his buildings is not an easy task.

The basic layout of the workflow is given below:

![Chart 1](image)

Chart 1  The basic workflow

The detail workflow shows how the use of brick is categorized according to its functional purposes:

![Chart 2](image)

Chart 2  The detail workflow
Chapter 4  Poetry in bricks

Section 4.1  Brickwork and aesthetics

Baker described the material “Brick” in his manual “Brickwork”.

“The common burnt brick is one of man’s great inventions. Five thousand years ago bricks were made in many different shapes and sizes but, one by one, the less satisfactory ones were discarded. Now, all over the world, with only a few exceptions, nearly all bricks are roughly the same shape and size - that is about 9 x 4.5 x 3 inches. This is neither accidental nor coincidence but the result of five thousand years of what we now call R & D - research and development.

This common brick contains just that amount of mud, which you can pick up and hold in your two hands without dropping any of it. If you pick up less mud, your brick will be too smell. A wall will be too thin and you will have to use more mortar. (Perhaps this is why the “Metric Brick” - 20 x10 x 5 cm has not been acceptable). If you make a larger brick and use more than one scoop of mud, you will have to bend down twice to pick up enough mud. When this big brick is burned it is likely to warp, bend and crack. It will be too heavy and too big to pick up with one hand. You will have to put down your tools and use both hands to manhandle the brick. But our standard brick avoids all these problems. It is just the right size to hold in the palm of one hand. It can be thrown by one man and caught in one hand by another man. You can keep your trowel in one hand while you place the brick with the other. It has been burned right through and it has not twisted or cracked with the heat.

This common burnt brick is usually pleasing to look at with warm colours ranging from cream, through orange sandy colours to brown and even blue brown. When built into a wall, pleasing and interesting simple patterns appear. Like people who all have one nose, one mouth, two ears and two eyes but no two look exactly the same, so each brick, although so simple in shape, has its own individuality. Of course, there are always some people who prefer absolute uniformity so, at double the cost, they have invented the wire cut machine made brick so that even brick looks as dull as its neighbour (God help us if this had happened with His creations!). Fortunately most of us cannot afford these soulless wire-cut bricks!

This small book is about the best ways of using this common burnt brick, the simplest and least complicated of all our inventions. We are at liberty to use materials in whatever way we wish, but this book is for those who want to build with brick effectively, acceptably, strongly and with as little expenditure as possible. Experience shows that them are good, (and in this present context cost effective) ways of using bricks and there are also bad ways of using them so that the special benefits of this simple and ingenious item are lost or wasted.
Working and building with bricks is not only an interesting occupation but it is also very satisfying. Even a plain simple wall is full of pattern and colour. Within minutes you can see the fruits of your labours and you can stand back and admire what you have done with your own hands. There are a number of well-known famous world personages (Sir Winston Churchill was one of them!) who built brick walls as a hobby and as an occupation for relaxation and pleasure when other worldly pressures were too great. Unfortunately the final word about this common burnt brick, is to point out to you that it is made of mud, which is more or less cost-less - but to make it “strong and durable” and “colourful” we burn or bake it in the fire. This ‘firing” process is not only costly, but in many parts of the country wood is used for this burning of the bricks. Not only is timber getting more and more costly (so brick manufacturers are tempted to use lees wood end so produce an inferior brick) but we are plundering our forests and bringing upon ourselves many ills and calamities. This means mat we should not use brick as freely as we have been used to and we must turn to other materials for our walls. Alas! we have all too often turned to concrete and cement blocks, which use even more energy (fuel) in their manufacturing process. We should in fact be seeking out and using energy free materials such as stone and mud. Mud is dealt with separately in another COSTFORD book, but most of the contents of this book apply not only to the use of burnt bricks, but of mud bricks or sun dried mud bricks. Over a period of fifty years, and more, I have had a lot of enjoyment with bricks.”

Baker did not want to leave his imprint on his architecture. Had that been the case he would have created monumental complexes. Farmers and fishermen make houses that blend with the surroundings. Their designs are absolutely need-based. Houses in different States such as Rajasthan, Kerala and Maharashtra vary in character: architects do not need to interfere.

To express their ideas and thoughts, architects have with them formless space. The skilled architect merely shapes the brick and stone that occupy the space. One can witness the architect’s creativity through the shapes and textures he uses. A genuine architect has the ability to give meaning to the space that connects two rooms or even walls. Stone and brick seem to pulsate with life whenever such inventions occur in architecture. One can experience peaceful space, fascinating light, and inexpressible peace from meaningful, calm architecture. Just by being within a historical work of architecture one feels grand. Baker’s architecture creates a transcendental feeling.

Building arches, jaalis, frameless doors and windows does not constitute a new discovery... Baker has merely compiled the techniques. He had one singular purpose - to create a beautiful building using the minimum possible quantity of materials.

A Baker jali is a brick version of traditional south Indian patterned wooden grillwork: Gaps between bricks lead air and daylight through a wall while diffusing the glare of direct sunlight.

---

6 Brick Work” by Laurie Baker, p 1-3
a. Exposed brickwork (without plaster at exterior or interior)

Baker thought that it is very foolish practice to build a brick wall and then plaster it with cement and then paint it all over to make it look “beautiful”! He never hides his brick walls under dull plaster. Rather he made beautiful pattern on his exposed walls with recycled materials like coloured glass, pieces of tiles etc.

In his words, “I just think it is plain stupidity to build a brick wall, plaster it all over and then paint lines on it to make it look like a brick wall. I think it is equally untruthful to cover it all over with tiles shaped to look like bricks. Or another variation of untruthfulness is to plaster it and then paint it to look like marble!”

In his other words, ”Bricks to me are like faces. All of them are made of burnt mud, but they vary slightly in shape and colour. I think these small variations give tremendous character to a wall made of thousands of bricks, so I never dream of covering such a unique and characterful creation with plaster, which is mainly dull and characterless. I like the contrast of textures of brick, of stone, of concrete, of wood.”

Figure 1 Chengalchoola slum colony

---

9 http://lauriebaker.net/personal/quotes/quotes.html
b. Brick Jali

Baker is widely known for his extensive uses of brick jali in his buildings. He used this old Kerala technique to create beautiful patterns on the walls, to play with light and shadow and its effect on ceilings and floors, to minimize the use of windows thus reduced building cost and so on.

A Baker jali is a brick version of traditional south Indian patterned wooden grillwork: Gaps between bricks lead air and daylight through a wall while diffusing the glare of direct sunlight. Some of the center's coolness also comes from tiny courtyards built around pools whose evaporation helps fight the heat. ¹⁰

His jail works are the finest examples of using bricks one upon another like a poet use one word after another to create beautiful and meaningful arts and represent balance and harmony.

---

c. Patterned roof with filler brick

Baker used brick or other solid materials like tiles to create different patterns on the ceiling to break the monotony of the white plastered ceiling and other purposes.
d. Patterned parapet

Making different designs in the parapet is another feature of Baker’s architecture.

Figure 7  Patterned parapet

Section 4.2  Brickwork and cost reduction

"Cost-effective houses are not just for the poor, they are for everyone. The equation that a cost-effective house is a house for the poor, implying a bad looking house, can definitely be proved wrong. Isn't it the responsibility of the upper and middle classes to stop indulging in extravagance and make better looking houses instead? This entire classification is wrong." 11

Baker proved that creating a beautiful building by overlooking nature is costlier.

In architecture as in so much else, it seems, Indians are aspiring to an impractical Western ideal. Baker's work is both innovative and unusual in that it combines Western and traditional Indian ways. His goal has never been to leave behind the grand museums and concert halls by which architects are usually remembered. Rather, his passion has always been to design and build low-cost housing for the millions of Indians who, quite literally, do not have a real roof over their heads. And on a changing subcontinent whose educated classes have emigrated to Europe or North America by the millions, Baker was that great rarity: a learned Westerner who had emigrated to the Third World.

---

Mortar for bricks normally would require cement—another Baker enemy, because until recently most cement in Kerala had to be imported. Baker instead likes to use substitutes such as lime. When he was building the Centre for Development Studies, for instance, he made lime on the spot. He sent people to gather cartloads of seashells on beaches a few miles away, then had them baked in a mud kiln (its fan powered by someone pedaling a stationary bicycle) and ground up. Few of the scholars from India and abroad realize that their office walls are held up partly by clamshells.

Nor do they know that they're walking on bamboo. Concrete floors and steps are ordinarily reinforced with steel rods, but Baker has found that a grid of split local bamboo, carefully lashed together in the right pattern, does the job just as well—and at less than 5 percent of the cost.

Baker would like to work more with that great renewable material—wood—but the deforestation of India has made this impossible. He would love to see Kerala's devastated forests replanted with a traditional building wood, the jack tree—'a very beautiful wood, a nice rich amber colour.' It would be so easy, he muses, to plant groves of jack trees: 'They could do it with picnics for the foresters' children! Give them each a jackfruit and have them go wandering spitting out pips.'

Indian policy makers 'haven't the faith in their own materials,' Baker says. His favorite building material uses no fuel to produce, is usually only a few steps away, and is free: mud. To those who laugh, he points out that if you count all structures from village houses to Bombay office towers, 58 percent of all buildings in India are built of mud, and a good number of them are more than a hundred years old. Mud is also completely reusable. You can tear down your old house, add water, and make a new one. Try that with glass and steel.\(^{12}\)

a. Rat trap brick bonding
Generally in this sub-continent, we are familiar about English bonding or Flemish bonding. But Laurie Baker incorporated a new type of bonding in his buildings which is called the “Rat trap” bonding.

In his manual of cost reduction he says, “The RAT TRAP BOND is still mainly unknown in India, though used in England for the past several hundred years. It is as strong as the other bonds but uses 25% LESS bricks and mortar. Thermal insulation is very much better.”  

13 (Baker, A manual of cost cuts for strong acceptable housing, 1999)
b. Brick Jali as an alternative to windows

Windows are those elements of a building with which the purpose of ventilation, lighting and view-framing are served. But these elements increase the costs of construction. So what Baker did was that he replaced these elements with beautiful jali works which reduced the cost and served other purposes as well.

![Figure 10](image1.jpg)

**Figure 10** Jali works from Baker's cost reduction manual

![Figure 11](image2.jpg)

**Figure 11** Brick jali for lighting and ventilation
c. Filler slab roof
According to Baker’s word, “our floors between stories are usually reinforced concrete slabs which also eat up large stocks of cement and steel. It is undoubtedly true that such floors are much more satisfactory than the old wooden floors, but we seem to ignore all the many types of slab which have been devised to use less cement and less steel. These include various types of filler slabs and incidentally I usually make good use of burnt clay products such as hourdis, tiles, bricks etc., for the filler elements, which take the place of heavy dead weight concrete. Compared with the normal orthodox reinforced concrete slabs, some of these tried and tested systems reduce the cost of the slab by 10,40 and even 50 per cent and of course save large quantities of the precious cement and steel for more essential purposes.” 14

---

14 (Baker, Why don’t we use lime?, 1999)
d. Other cost reduction techniques
His other cost reduction techniques included frameless doors and windows (here the brick wall works as the frame for doors or windows), brick lintels, brick arches etc. The notable thing is that Baker added his natural sense of aesthetics while he incorporated these cost reduction techniques rather than the existing so called “modern” construction methods.

Figure 13  Brick lintel and corbelled brick arch

Figure 14  Frameless window
Section 4.3  Brickwork and environmental sustainability

Natural rhythm is intrinsically beautiful. A merger with nature occurs when Baker's forms start resonating with this natural rhythm.  

His love for natural settings was expressed in his words," I think I'm subconsciously often strongly influenced by nature, and much of nature's 'structural work' is not straight or square. A tall reed of grass in a windy, wild terrain is a long cylinder or a hollow tube; tree trunks and stems of plants that carry fruit and leaves are usually cylindrical and not square. Curves are there to take stresses and strains and to stand up to all sorts of external forces. On top if it all, they look good and beautiful and are infinitely more elegant than straight lines of steel and concrete."  

Nowadays the word “sustainability” is a very common term in the field of architecture. But what we perceive about this terminology and what we practice in the field is not clear. Baker had his own perceptions about this.  

It was in the Himalayan foothills that Baker first saw how traditional Indian architecture reflects thousands of years of trial-and-error research in energy efficiency. 'The rock they quarried for building the foundation and basement walls was split or blasted out from the same bedrock on which they would build,' he has written, noting that timber 'was always found within a few hundred yards, or at most a mile or two, of the house being constructed.'  

Baker is profoundly hostile to glass and steel; making them requires large amounts of expensive imported fossil fuel, and in Kerala the steel has to come from other parts of India. He regards plaster as a costly prestige item that covers up handsome walls of bricks made from local clay.  

Once he had a conversation with Mahatma Gandhi who told him that, “ideal houses in the ideal village will be built materials which are all found within a five-mile radius of the house." This is what Laurie Baker called “appropriate technology” and he took it as an answer to create environmental harmony in his 50 years of architectural practice.

---

16 http://lauriebaker.net/personal/quotes/quotes.html  
17 http://lauriebaker.net/personal/quotes/quotes.html  
18 http://lauriebaker.net/personal/quotes/quotes.html
Circumstances force people to make compromises. Dilutions do happen in our lives. But Baker was uncompromising in his convictions. That is truly the trait of a great man. He would not compromise on his beliefs. I have never seen an architect like him. The man was very clear about what he wanted. The cutting down of a tree hurt him so much that he had to leave immediately, never to come back.

His clientele included a range of people, from the humble fisherman to the Chief Secretary of the State. But he never differentiated between people. He used to say, "I never build for classes of people, HIG [high income group], MIG, LIG, tribals [tribal people], fishermen and so on. But I will build only for a Matthew, a Bhaskaran, a Muneer, or a Sankaran." Baker never built for unknown people. He built for people with names and faces. He believed that every person had a name, a face and a personality.

But he was not merely a builder of low-cost homes. He had the amazing ability to organise space. He used to create space like a magician for his clients to drink in, to meditate in, to think in. He had a lot of concern for beauty. He taught us how beautiful a brick could be and to look closely at its colour and texture; that no two bricks are the same and that together they create a wonderful mosaic; about the ruggedness of stone; and so on. He was the first one to call our attention to natural building materials and to the importance of using a variety of indigenous styles of architecture, a passion he imbibed from Gandhiji. He was against ostentation or façadism in architecture. He disliked falsehood and deceit.

Baker influenced a generation of architectural engineers, who are now trying to further his vision in their own different ways. He taught us the need to relate to our clients; about truthfulness in architecture; the importance of cost-effective, energy-efficient building materials; about cutting corners; and of making truthful choices. He taught us to say no to cement, to the cutting down of trees and to expensive materials. He told us not to squander money, materials or energy; never to design buildings by sitting in isolation at a desk in an office; and to trust and learn from the "inherited ability" of local people to build effectively and well for themselves with limited resources.  

---

Chapter 7  Conclusion

In summary it can be said that “simplicity, order and regularity- these are the factors that guide Baker’s search for design integrity. If an architect’s contribution to society be looked upon as the public’s perception of him as a socially responsible professional, and his work as a socially responsible act, then most of Baker’s contemporaries have deliberately forsaken this responsibility in favour of wealthier clients and larger commissions. Surrounded by professionals of questionable ethics and standards, Baker’s contribution have become more significant. The moral responsibility so set examples of fine craftsmanship and utility, and to achieve more within greater constraints, is the true craftsman’s attitude towards his work, however big or small. The same, painstaking view to details that has gone into creating the vast complex of buildings for the Centre for Development Studies can be seen in design of a towel rack for the Alexander house.”

The daily struggle of a common man was expressed by Vibhutibhooshan Bandhopadhya as ‘Pather Panchali’, the song of the way. In a similar manner, Baker’s architecture will have to be referred to as the architecture of the people. It shall always evolve. Till the time the common man exists, this art shall be there.

20 Gautam Bhatia, Laurie Baker: Life, Works and Writings, A creative contribution, page-66
Bibliography


