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With the support of architectural and topographic evidence, Jean-Pierre Houdin is convinced that the Giza Sphinx represents King Khufu.

## Part One

For the last fifteen years, Jean-Pierre Houdin has considered the Giza Plateau to be an area particularly rich and fruitful for research. The architect has notably focused on the star of the site: the Great Pyramid, to which he has devoted an evolving theory, developed in *Khufu Revealed*, then in *Khufu Reborn*; these are two installments in the ongoing story of the reconstruction of the building site of this marvel of stone, which was largely echoed by **Pyramidales**.

Broadening his focus to the whole Giza Plateau, but without moving away from his “preferred” building site, Jean-Pierre Houdin came naturally to integrate in his research another major piece of the great jigsaw puzzle that the Giza site represents: the Sphinx. Jean-Pierre’s research into the Sphinx is guided by these two recurrent questions: What is the meaning of this colossal sculpture? To which King should it be tied?

Loyal to the techniques and teachings from his own profession as a builder, Jean-Pierre Houdin doesn’t take the risk of following the “traditional operating mode” of Egyptologists and other patented archaeologists.

Every man to his own trade...Jean-Pierre intends first of all, while taking into consideration the developments from those Egyptologists, to allow the topography of the Plateau to speak, examining how it evolved according to weather conditions and progress of building projects on the site such as the opening of quarries, the building of the ramps for the transport of materials, the construction of pyramids and in particular, the appearance of a certain...Sphinx!

At the end of the study, a conclusion will prevail: that the Sphinx is inseparable from Khufu. But let’s not get ahead of ourselves...

Jean-Pierre Houdin agreed to describe his development, exclusively for **Pyramidales** (French version) and **Em Hotep** (English version), through an interview conducted through an exchange of e-mails. With regards to the technical nature of the topic, this method was imperative. This explains the sometimes “didactic” nature of the answers which was required for clarity.

### Pyramidales:

Jean-Pierre Houdin, for nearly fifteen years, you have been in a close relationship with the Giza Plateau. It has captured your curiosity as an architect and a researcher, with particular attention - a prediction? - for the star of the Plateau: the Great Pyramid, about which you have, with all the necessary technical

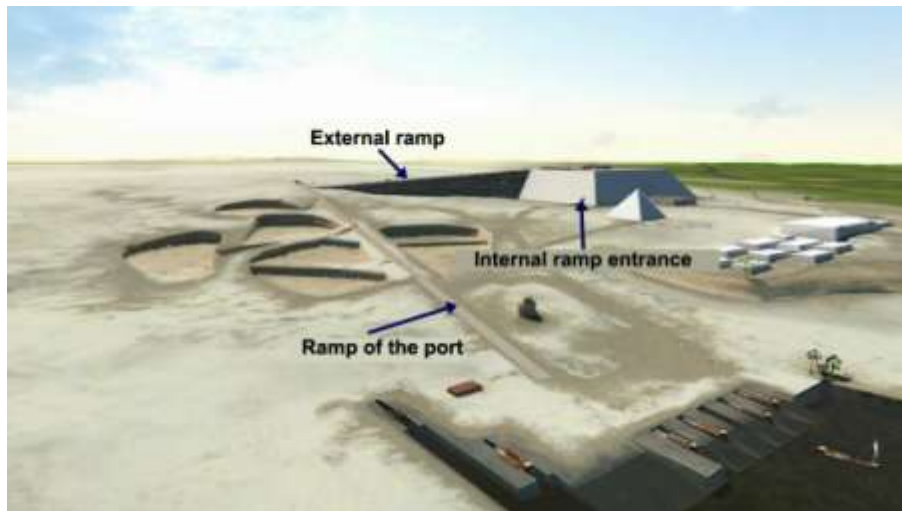
details, reconstructed the building site. In so doing, you also have integrated Khafre's pyramid and its Monumental Causeway into your research, this causeway being built overtop a former ramp constructed by the builders of the Great Pyramid for the delivery of materials, including the granite monoliths, necessary for this construction. And in all of this, what about the Sphinx? It attracts the attention of tourists, often to the point of stealing the spotlight from the pyramids themselves. How important is it in your research?

**Jean-Pierre Houdin:**

*Before anything, dear Marc, I very much want to thank you for giving me once again the opportunity to talk about my work, which is still often seen by the public as being just another theory about the construction of Khufu's pyramid—the one about the internal ramp. As you know, to the contrary, my aim is to overcome the pure theoretical aspect by trying to answer in the smallest details all questions regarding the construction of a monument of this size, and this while waiting for irrefutable scientific evidence following a survey on site. So I don't study Khufu's pyramid as an object per se, as most of theorists do, but as a monument embedded in its environment, as the designers thought about it in their own era and as any architect would do nowadays.*

*Moreover, as you know, as time went by following **Khufu Revealed** and **Khufu Reborn**, my partner Dassault Systems entered into a very close relationship with the MFA Boston and Harvard University on the **GIZA 3D** project headed by Dr. Peter Der Manuelian, Egyptologist and Professor at this prestigious university, based on the vast archives of the excavations on the Giza Plateau by American Egyptologist George Reisner, is carried out by the same team which works with me on Khufu. So, I'm very interested in this project because it obviously has some repercussions on my own research.*

*In an interview posted on your blog on February 21, 2011, to which I direct your readers before going farther (see link [From Quarry to Capstone: Transporting the Blocks and Megaliths of the Great Pyramid](#)), I made a foray into the environment of the Great Pyramid by revealing that Khafre's Causeway was built on a former ramp used for Khufu's building site. This ramp, which I call the ramp of the port, was used for the transport of the granite beams of the ceilings of the King's Chamber from the port up to the base of the main external ramp; this ramp was also used for the transport of the limestone blocks extracted from the quarries opened on both sides of it.*



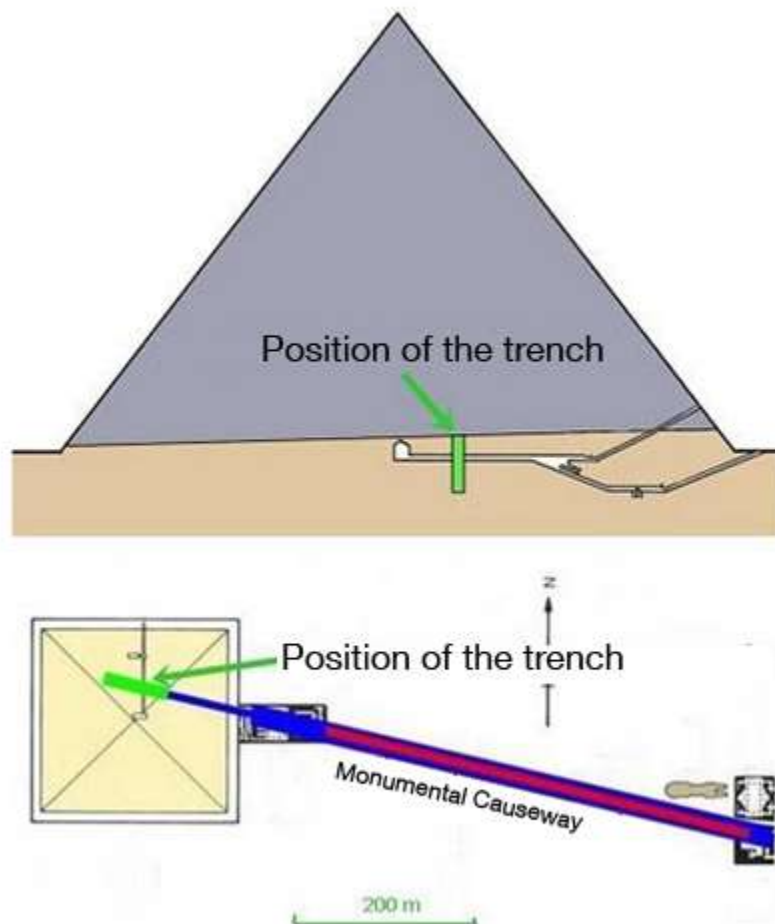
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*A perfect utilization of the topography of the Plateau*

*At that time, my point was backed by putting forward a clue discovered a posteriori and easily verifiable: there is a masonry section built in the middle of the horizontal corridor, dug deeply into the bedrock, which links the entrance and the funerary chamber in Khafre's pyramid. This built-up section is in alignment with the ramp of the port, in the exact location of a trench, also dug in the bedrock, which was used as a slide for a counterweight system identical to the one running in Grand Gallery in Khufu's pyramid.*

## Topographers' and surveyors' expertise

*During the construction of Khafre's pyramid, the section had to be built up in masonry because of presence of the void cutting the path of the horizontal corridor resulting from the trench for the counterweight.*



© Jean-Pierre Houdin from Mark Lehner

*One part of the subterranean corridor was built of masonry because of the existing trench*



© Mathias Glad

*The masonry built part, floor, walls and ceiling, is quite visible on this photo*

*As evidence of the great know-how of the topographers and geometers from this era, the ramp of the port, perfectly straight and following closely the slope of the ground, didn't require a lot of new material to maintain its constant slope. The ramp literally cut the Plateau into two parts, with the still-to-come Sphinx being located in the northern part, in a space which was naturally devoted to Khufu's domain from the beginning of the construction. As I was aware of the polemic regarding the face of the Sphinx and the identity of the King to whom it belonged—Khafre or Khufu—the Sphinx entered ipso facto into my field of investigation.*



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*Khafre or Khufu?*

### **Pyramidales :**

Many things have been said about the Sphinx, ranging from the most esoteric theories to the many scientific attempts to explain its origin, its construction, its age, and its function. Otherwise, we remark that neither Herodotus nor Strabo tell us anything about it in their writings...

First let's consider its presence, which seems quite strange. It looks out harmony on the Giza Plateau, like a piece that was added, a stranger to the pyramids...

### **Jean-Pierre Houdin :**

*It's a fact that a lot has been written, and is still being written, about the Sphinx, for the better and as for the worst.*

*You know about my rationalist side and you can easily imagine that I've always been convinced that this enigmatic half-human half-animal statue is in total harmony with the Giza pyramids; and that all the alternative theories about it have no credibility to my eyes. Trying to trace its origin to 10,000 years ago, putting forward badly supported arguments, or to trying to link it to some ancient lost civilization, that comes more from an over-active imagination than from scientific reality.*

*That the Sphinx was not mentioned by Herodotus or Strabo is not surprising because their writings are very succinct and the Sphinx did not catch their attention. When these two illustrious travelers went to the Giza Plateau, we can presume that their respective guides didn't even talk about this piece of rock, more or less buried in the sand, which didn't compare to the stone colossuses which were standing higher on the Plateau.*

## The Sphinx was carved out of a rock outcrop

*By contrast, Pliny the Elder, who lived just after Strabo, gave us a quite precise description of the Sphinx, at least regarding its dimensions, in his Natural History written at the beginning of our times.*

*It's a fact that the Sphinx seems to be an "added piece" on the Plateau. Why was it carved and why at the precise place where it stands? I think that the path of the ramp of the port must have had a great influence on its creation. The Sphinx was not sculpted in a mound as some tell us, but in a rocky outcrop that was enclosed in a space defined by the North by Khufu's pyramid, to the West by the main external ramp, to the South by the ramp of the port and to the East by the port where materials were delivered.*



© Jean-Pierre Houdin / Dassault Systèmes

*The rocky outcrop at the origin of the Sphinx's head (on right at the bottom of the red line) found itself in an enclosed space*

*That kind of outcrop (yardang) is the result of a lesser erosion of a stratum made of a harder limestone occurring in the general stratification. Curiously, and only a few people notice it, there are still some outcrops visible on the Giza Plateau, particularly on the South, on the Hill of the Crows, on the other side of the waddi.*

### **Pyramidales :**

Before we begin our study of the thorny question regarding the eventual link between the Sphinx with this or that pyramid, one can ask why the King who built it – whoever he was – decided to undertake such a construction? That kind of project must have been a great distraction for the builders of the main project—

a pyramid. Their priority was to complete, on schedule and in the most perfect manner, the final royal residence.

What was, in your opinion, the purpose or the usefulness of this stone monster?

Were these two building sites – the one of the pyramid and the one of the Sphinx – carried out simultaneously?

**Jean-Pierre Houdin :**

*Let me come back to the outcrops on the Hill of the Crows I just mentioned; there is one which, viewed from the lower end of Khafre's Causeway, looks from afar like a lion resting on its paws. Moreover, the outcrop in which the Sphinx's head was carved was situated below the level of the main quarries of the construction site, very close to the port. Did all these elements contribute to inspire an idea to one of the architects to open a small additional quarry around this outcrop while keeping a central core in order to create this mythical animal, bearing the face of the king, which would mark and guard the site? Who knows?*

*Any creation, any innovation, often finds its roots from a particular context, from a triggering element.*



© Jean-Pierre Houdin

*The Sphinx with, in the background, the Hill of the Crows with its outcrops*



© Jean-Pierre Houdin

*On the left, the outcrop on the right of the Hill of Crows horizontally flipped to match the Sphinx*



© Jean-Pierre Houdin



© Zangaki Brothers

*This very same outcrop (profile view) and the head of the Sphinx (front view)*

*Once the concept of a monument was embedded in the minds of the builders, the construction of a temple dedicated to the offerings became a logical addition to the mystical function of the Sphinx.*

*From the moment that a new quarry was opened, the only additional constraint was to keep the central core in which the body of the Sphinx would be carved and enough blocks to build the temple; any surplus blocks would be sent to the building site and used in the construction of the pyramid itself, as with any other block from the neighboring quarries.*

*Finally, only qualified workers were needed for the carving work on the Sphinx and I think that there were many very good carvers among the quarrymen, a trade very different from the masons working at the pyramid itself. Moreover, and I'll certainly talk about this later on, the planning for the work on the Sphinx came at a time when there was less of a need for limestone blocks for the pyramid, something which must have freed a lot of quarrymen. Thus, for both constructions, I don't see any technical or human incompatibility for these works to be carried out in parallel.*

### **Pyramidales :**

Many postcards, illustrating the Giza Plateau, show the Sphinx in the foreground with Khafre's pyramid in the background, leading us to believe that the two of them are inseparable. Their perspective, to tell the truth, - or perhaps I should say, their alignment – supports this idea.

Do you share this association between Khafre's Pyramid and the Sphinx? Or to the contrary, does the Sphinx have another "paternity"?

### **Jean-Pierre Houdin :**

*When I began studying the pyramids, I of course noticed very quickly that the Sphinx and Khafre's pyramid were very much stealing the spotlight from Khufu's pyramid, to the point that often the media uses a photo of Khafre's Pyramid and the Sphinx to illustrate the "Great Pyramid". This point of view is largely influenced by the way decades of visitors have approached this part of the Giza Plateau, from East; leading to an association between Khafre's Pyramid and the Sphinx in the mind of the public.*



© Jean-Pierre Houdin

*The Sphinx seems to be a part of Khafre's funerary complex, and yet...*

*I was not at all convinced by the arguments of those who give the Sphinx to Khafre; these arguments are based in part on its position vis-à-vis his pyramid and also on a 3D reconstitution of the Sphinx's face which seems, to me, modeled with a certain a-priori. I found that the face morphology, with a square jaw, to be much closer to that of Khufu, while ancient texts describe a pug nose, such as we see on the little statue of this king at the Cairo Museum, the opposite of Khafre's straight nose.*

*The work of Dr. Rainer Stadelmann appeared more convincing to me (see annex) because on top of what I just said above, his work took into account the topography of the Giza Plateau.*

*On another side, Dr. Vassil Dobrev attributes the visage of Sphinx to King Khufu while crediting his son Djedefre with the construction, as a tribute to his father. For me, this last proposition involves something which is debatable but interesting—a possible regency by Djedefre in the last years of Khufu's reign. Not being an Egyptologist, I was unable to give arguments on this point, so I tend to make my own inquiry from the perspective of bringing additional architectural evidence to the fact that the Sphinx represents King Khufu.*

## **Analysis of the Plateau topography**

*Let's go back to the Giza Plateau and have a look at the topography: if the ramp of the port and the Northern quarries didn't exist at the time of the construction of Khafre's pyramid, the Monumental Causeway linking the Valley Temple to the Upper Temple could have been perfectly aligned on the West/East axis just as easily requiring no more work than the configuration in which it lies. After all, the architects of Menkaure's pyramid chose a straight West/East alignment; the only deviation among the causeways would then have been for Khufu's Monumental Causeway which, because of the topography of the Plateau in this area, follows a path veering towards North/East in order to benefit from a natural depression in the cliff edging the Plateau on the East.*





© Jean-Pierre Houdin / Google

*Khafre's Monumental Causeway could have been in alignment with the West/East axis like the Menkaure's Causeway*

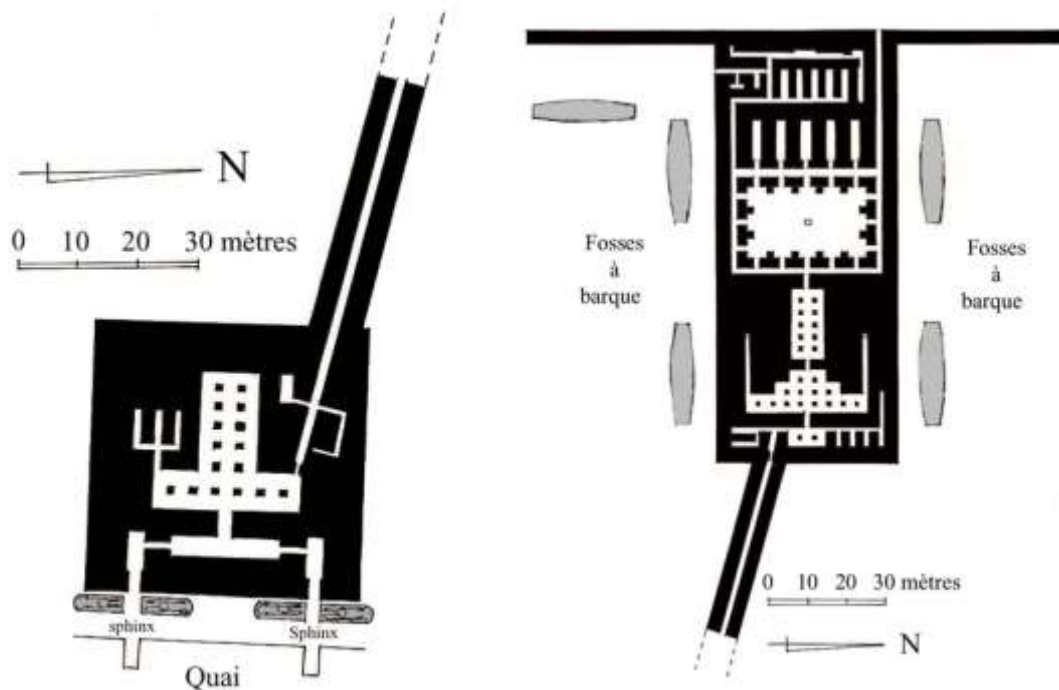


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*The topography of the ground would have been clearly suitable to set up the Monumental Causeway for Khafre on the West/East axis; thus the Valley temple would have been built on the North side of the Sphinx Temple, this one being de facto on the South of the Monumental Causeway.*

*Another important element has to be taken into account: the architecture of the funerary Temples which were built on the Giza Plateau and the orientation of how the Monumental Causeways enter these temples.*

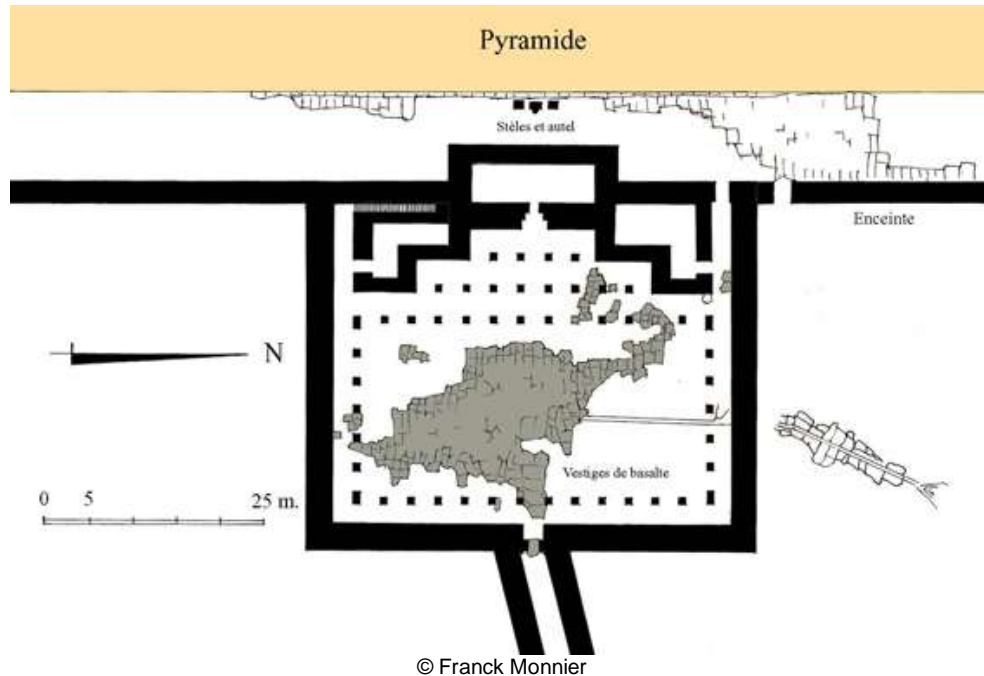
Looking at Khafre's Temples, one can notice that the Causeway doesn't penetrate the Temples in a logical manner, but that it had to be adapted to an existing situation: the presence of the ramp of the port of Khufu's construction site. The Causeway doesn't penetrate in the axis of the Temples, but on one side of the corresponding faces. In fact, very little change would have been required for the Causeway to penetrate in the axis of the Temples, but to do this, the Causeway's axis would need to be slightly rotated; this would have presented a problem because the Causeway would have veered off the pre-existing foundation of Khufu's ramp of the port at both ends. Moreover, regarding the architecture of the Temples, one can see that this one is massive, bulky, with there being more solid space rather than chambers, or voids. One can qualify this as architecture of "solids".



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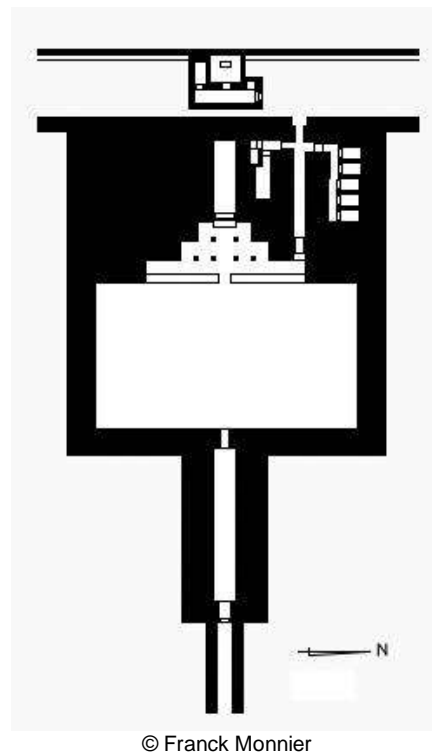
*Penetration of Khafre's Causeway into the Valley Temple (left) and Upper Temple (right)*

To the contrary, even though Khufu's Monumental Causeway is at a slant, his Causeway penetrates into the Upper Temple on the West/East axis of the pyramid. The internal architecture is very open and spaced out: it's architecture of "voids", and predates the architecture of Khafre's Temples.



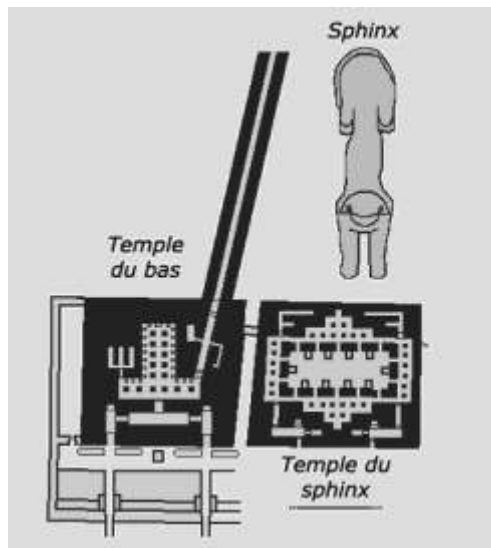
*Penetration of Khufu's Causeway into the Upper Temple*

Now, let's have a look at the entrance of the Menkaure's Upper Temple: the Causeway is straight and perpendicular to the Upper Temple and penetrates in the axis of both the Temple and Pyramid (West/East). The Architecture is also massive, heavy: it's architecture of "solids", similar to Khafre's Temples, showing then posteriority to those.



*The architecture of Menkaure's Upper Temple is closer to the architecture of Khafre's Temples*

At last, when comparing the architecture of the three following Temples : Sphinx's Temple, Khafre's Valley Temple and Khufu's Upper Temple, one can notice that the first one was built prior the Khafre's one because it's the same spaced out architecture as the one of the Khufu's Upper Temple.



D'après Jean-Philippe Lauer

On the left, a massive architecture, on the right, an architecture spaced out



D'après Jean-Philippe Lauer

The same spaced out style of architecture for the Sphinx's Temple (left) and Khufu's Temple (right)

**More in Part Two...**

