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THE ADZE OF UPUAUT:

The Opening Of The Mouth Ceremony And The Northern Shafts In Cheops's Pyramid

BY R. G. Bauval and A.G. Gilbert

Introduction

Since 1989, several articles have appeared in Discussions in Egyptology making reference to the so-called "air-shafts" in Cheops' pyramid¹. Up until now, the focus of attention has been on the two southern shafts emanating from the King's and Queen's Chambers². These shafts have been shown to be directed towards important star systems that are often encountered in the Pyramid Texts: in particular, at the epoch c.2450 BC, the southern shaft from the King's Chamber points to Orion (Osiris) and the equivalent shaft from the Queen's Chamber to Sirius (Isis)³. A stellar "rebirth" ritual was thus proposed which matched with those found in the Pyramid Texts and, more particularly, Line PT 632 where allusion is made to a union between Osiris-Orion and Isis-Sirius in connection with the stellar destiny of the departed king⁴. Attention was also drawn, although not in detail, to the two other shafts which emanate from these two chambers, namely the northern shafts: the northern shaft from the King's Chamber was directed at Alpha Draconis, the then 'pole star' in c. 2450 BC, and the northern shaft of the Queen's Chamber was directed at the circumpolar stars in general⁵ (diagram 1). Recent findings by Rudolf Gantenbrink, (the German robotics engineer who discovered a small 'portcullis door' at the end of the southern shaft of the Queen's Chamber in March 1993) now allows us to make a full assessment of the northern shafts. We find that they also have a symbolic meaning which is compatible with the stellar rebirth rituals found in the Pyramid Texts⁶.

Slopes of the Northern Shafts

In April 1993 Rudolf Gantenbrink provided us with two rather important findings concerning the northern shafts. The first of these was his re-measurement of the slope of the shaft in the King's Chamber which is now known to have a steeper slope than previously given by Petrie⁷. The slope is now taken as $32^{\circ} 28'$. This angle confirms that it was pointed to Alpha Draconis in c. 2450 BC; this date matching the epoch calculated for the southern shaft of the Chamber⁸. The second finding was the confirmation that the northern shaft in the Queen's Chamber was much longer than previously assumed, and can now be taken to be at least 25m from the outside face of the north wall of the chamber. Although Gantenbrink had not yet fully verified the slope by laser beam, he could at this stage ascertain that it was steeper than Petrie's value and that the angle should be taken as being nearer to 39° .

The Architectural Anomaly of the Northern Shafts

The northern shafts, like the two that point south, are set meridionally. However, unlike their southern counterparts (which point towards Osiris-Orion and Isis-Sirius) the northern shafts have a rather curious architectural "anomaly" that has long puzzled Egyptologists and, recently, Rudolf Gantenbrink who explored them in 1992-3.

During a conference given, on the 21 June 1993 at the FNTP (Federation Nationale Des Travaux Publics) in Paris, where Gantenbrink was the main speaker, the question was raised about this curious "anomaly"⁹. He reminded the Egyptologists present that when he guided his robot up the northern shafts he came across the junction where they meet up with the Grand Gallery (diagrams 2 & 3). Because of the Grand Gallery's structural elements being in the direct path of the shafts, these had to be given a wide "kink" to the west of their meridional direction in order to by-pass the structural obstacle. Rudolf Gantenbrink was ready to concede that he could accept that the ancient architects had made a possible "mistake" of placing the opening of the northern shaft in the Queen's Chamber directly in line with this obstacle. Yet what he could not understand was why this "mistake" should have been repeated for the northern shaft in the King's Chamber. Now the ancient architect might have

made one constructional blunder but then why repeat it again higher up the monument in the same circumstances?

Present at the conference were many Egyptologists including Dr. Edwards, Dr J. Leclant, Dr J. P. Lauer, Dr J. Vercoutter and Dr J. Kerisel. None of the Egyptologists present had an explanation for this odd situation and it was concluded that the ancient architects had indeed repeated the same "mistake" twice under the same circumstances. Gantenbrink and others, including the present writers, found it difficult to accept this. Such "mistakes" are not characteristic of the designers of this monument and to repeat the same "mistake" twice in the same conditions was a very unlikely event. Many who had explored these shafts reported that the deviations or "kinks" were constructed smoothly and evenly, suggesting a planned intention¹⁰. The best and only logical conclusion was that the deviations or "kinks" were not "mistakes" but deliberate design features.

The Direction of the Northern Shaft of the Queen's Chamber

Precessional calculations show that, with a slope of 39°, in c. 2450 BC, the northern shaft of the Queen's Chamber pointed towards the 'head' of Ursa Minor (the star Kochab) as this constellation culminated at the meridian (diagram 4). Interestingly, as this happened, Orion's Belt would have been rising in the east. Coincidence must be ruled out, for Orion's Belt was, of course, the target of the southern shaft in the King's Chamber¹¹. The whole 'astral' arrangement of these shafts strongly points to a sort of "star clock" or ritualistic mechanism that serviced a complex stellar ritual.

In this respect, it has often been suggested that its neighbouring constellation of Ursa Major was known to the ancient Egyptians as *Meshtyw* and was somehow related to the Ceremony of "the opening of the mouth" performed by "Horus of Letopolis"¹². Indeed G.A. Wainwright long ago pointed out that the sacred adze instruments that were used for this ceremony were shaped like this constellation (diagrams 5 & 6). In the Pyramid Texts many passages allude to the coming of "Horus" to the pyramid complex in order to perform this ceremony on the embalmed corpse of the departed king, his "father":

'O Horus, this king is Osiris, this pyramid of this king is Osiris this construction of his is Osiris, Betake yourself to it...' [P.T. 600]

Another passage has "Horus" exclaiming:

"O King, I have come in search of you, for I am Horus, I have struck your mouth for you, for I am your beloved son; I have split open your mouth for you. I announce him to his mother when she laments him, I announce him to her who was joined to him." [PT 1983-1984]

Yet in the Pyramid Texts it is not only "Horus" who performs this ritual ceremony, but also his "four sons"¹³: other passages have "Horus" stating:

'...Your children's children together have raised you up, [namely) Hapy, Imsety, Duamutef and Kebhsenuf. [whose] names you have [wholly] made. [Your face is washed,] your tears are wiped away, your mouth is split open with their iron fingers...' [PT 1983-1984]

What is very interesting to note is that, Letopolis, the place where the "Horus" and his "four sons" are beckoned to come from and to direct themselves to the "pyramid that is Osiris" is located directly due north, in fact according to French Egyptologist Georges Goyon, precisely on the meridional line of the Great Pyramid, some 15.75 Kilometres north of Giza¹⁴. From this alone, there is much to suggest that the two northern shafts had something to do with the ceremony of "the

opening of the mouth" performed by "Horus" and his "four sons" and that not one but two sacred "adzes" were used. In the sky, these were very likely represented by Ursa Major and Ursa Minor, both shaped like the "adze" instrument. The fact that one of the northern shafts, that of the Queen's Chamber, actually pointed in c. 2450 BC at the culmination of Ursa Minor is highly indicative that this hypothesis is correct. Furthermore the fact that the two northern shafts were deliberately shaped in such a way that they closely resemble both the "adze" and these two constellations, greatly increases this probability.

It may be interesting for Gantenbrink to know that by sheer amazing coincidence the names he gave the two little robots used

to explore these shafts (Upuaut 1 and Upuaut 2¹⁵) also crops up in connection with the northern shafts, for we read:

*O king, I open your mouth for you with the adze of
UPUAUT, I split open your mouth for you with the adze of
iron which split open the mouths of the gods...[P.T. 13]*

From this passage it seems fairly certain that "the adze of Upuaut" was Ursa Minor and somehow corresponded to the northern shaft in the Queen's Chamber, for Egyptologist Jane B. Sellers has recently suggested that Ursa Minor was related to a "jackal-headed" deity seen on the Denderah Zodiac: "the jackal, of course, leads the way"¹⁶. Oddly enough, Rudolf Gantenbrink reported that what hindered the exploration of the northern shaft in the Queen's Chamber was the fact that an "Iron bar", which he assumed it was left there by the 19th century British engineer, Waynman Dixon, blocked the way¹⁷.

Notes:

1. See articles by Robert G. Bauval in DE vols. No. 13 (1989); 14 (1989); 16 (1990); 26 (1993) and 27 (1993).

2. See Robert G. Bauval in DE vols. No. 16, 26 and 27.

3. Precessional calculations discussed DE vols. 26 & 27 by SKYGLOBE 3.5 adjusted for proper motion using STAR CATALOGUE 2000.0 values.

4. Passage 632 of the Pyramid Texts reads: 'Your sister Isis comes to you rejoicing for love of you. You have placed her on your phallus and your seed has issued into her she being ready as Sothis (Sirius) and Har-sopd has come forth from you as Horus who is in Sothis...' (see Robert G. Bauval In DE vol. 16 for full discussion).

5. See Alexander Badawy in Mitteilungen Der Init. Fur Orient. Akad. Der Wissen. zu Berlin, "The Stellar destiny of pharaoh and the so-called air-shafts in Cheops's pyramid", Band 10, 1964, pp189-286.

6. Rudolf Gantenbrink lives in Munich. He was the team leader of the UPUAUT project which conducted exploration in the shafts of Cheops's pyramid in 1991-1993. His discovery of a "door" inside one of the shafts, the southern one in the Queen's Chamber, has been reported in the world press on the 16 and 17 April 1993 (see The Independent; The Times; The Daily Mail; Le Figaro; France Soir and others).

7. Petrie gave an angle of 38° 28', thus almost 1.5° out. 8. Robert G. Bauval in DE vols. 26 and 27.

9. The Paris Conference was organised by Professor Jean-Kerisel, the Secretary-General of the Franco-Egyptian Society. It was Jean Kerisel who first proposed to the Egyptian Antiquities Organisation a plan, in 1990, to ventilate the shafts of Cheops's pyramid through exploration of the shafts.

10. Gilles Dormion and JP Goidin reported that:

"les virages lateraux et les angles verticaux sont extremement souples". Dormion and Goidin proved, also, that the design and hence the "kinks", were deliberately planned: *"il semble probable que ces virages on été dèssinés et voulus des la construction"* (Kheops: Nouvelle Enquete, Ed. Recherche sur les Civilisations 1986, p.85).

11. See R. G. Bauval in DE vol. 16.

17. G. A. Wainwright, JEA 18, p. 11

13. Ibid.; it is probable that the "four sons", who were considered the gods of the four cardinal points, were Ursa Major and that the "adze of Upuaut" which is used by Horus was Ursa Minor.

14. Goyon Georges, Le Secret Des Batisseurs des Grandes Pyramides, Pygmalion 1990. pp. 89-92 and 158-160.

15. Upuaut 1, mounted on wheels and pulled with cables was used for the exploration of the shafts in the King's Chamber. Upuaut 2, mounted on traction-wheels and powered by small electric motors, was used to explore the shafts in the Queen's Chamber. Upuaut 2 was donated by Rudolf Gantenbrink to the British Museum on the 22 April 1993, one month after the discovery. It is now in Munich, awaiting to continue its exploration in the Pyramid, possibly in November 1993.

16. J. B. Sellers, The Death of Gods In ancient Egypt, Penguin ed. 1992, p.323.

17. Waynman Dixon actually discovered the opening of the shafts within the Queen's Chamber in 1872. He may indeed have left a steel rod in the northern shaft. A metal block on wheels, probably used by Petrie or Dixon, was found by Gantenbrink in the northern shaft of the King's Chamber.

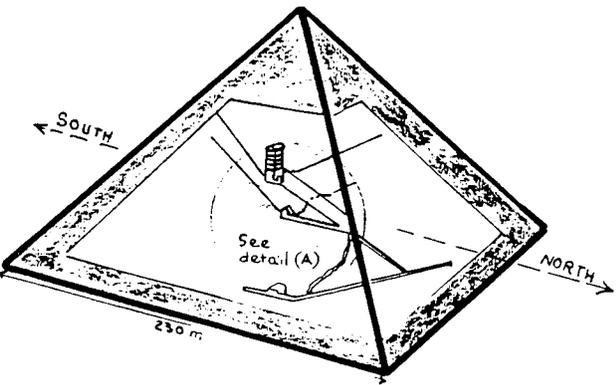
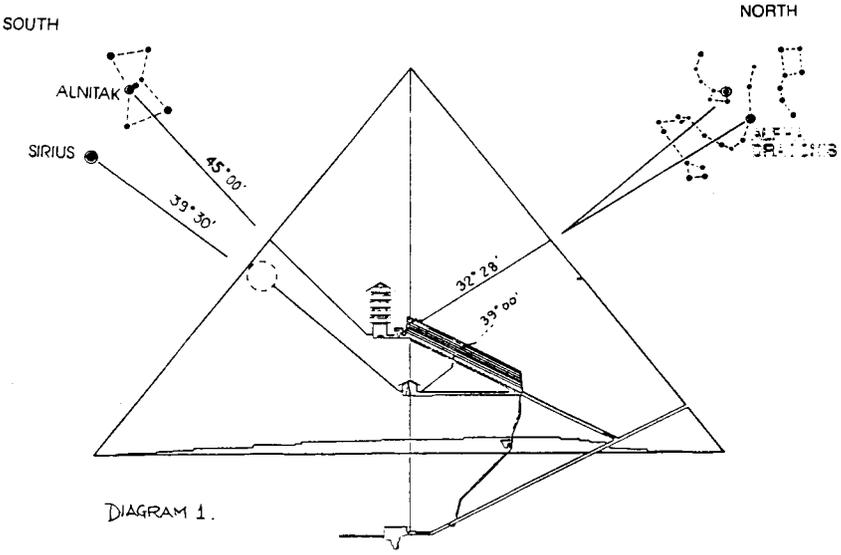
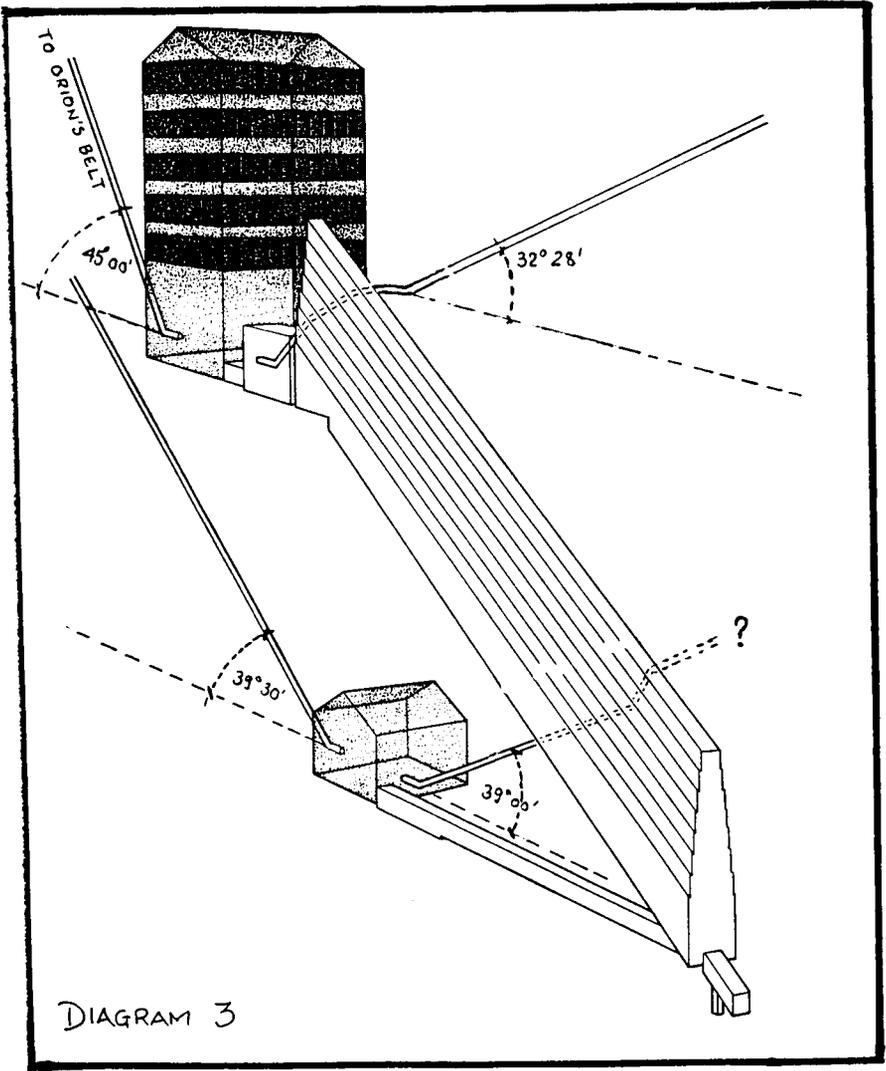
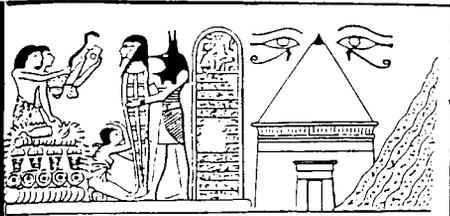
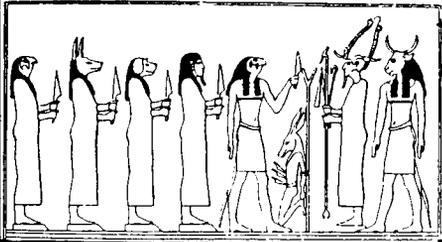


DIAGRAM 2

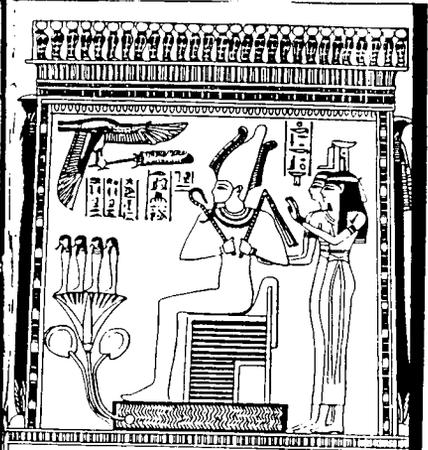




"OPENING OF THE MOUTH"
CEREMONY



HORUS AND HIS FOUR SONS
APPROACH OSIRIS



OSIRIS AND THE SONS OF
HORUS



DIAGRAMS HORUS "OPENS THE
MOUTH" OF THE MUMMY
WITH THE CEREMONIAL
ADZE.

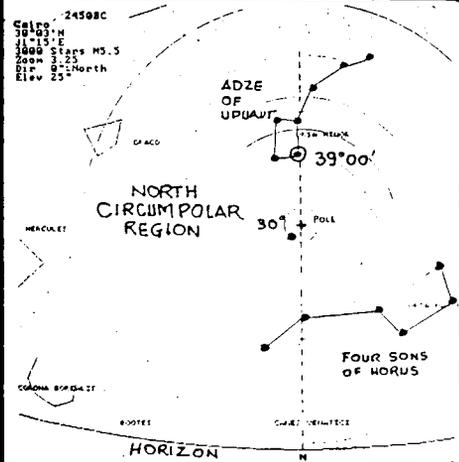


DIAGRAM 4 CULMINATION OF URSA MINOR
AT THE NORTH MERIDIAN