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## The Stellar Destiny of Pharaoh and the So-Called Air-Shafts of Cheops' Pyramid

A unique non-constructional feature of Cheops' pyramid, that of the two inclined shafts starting from the burial chamber, was noticed by many of the scholars who described the monument. As early as 1646 J. Greaves mentioned the two channels and he presumed that the blackness of the northern one had been caused by lamps burning there.<sup>1</sup> B. de Maillet, French Consul in Egypt (1692–1708), identified rightly the purpose of the great gallery and the irregular shaft at its bottom but was less successful in assuming that one of the two inclined shafts was to lower down food to retainers buried alive with Cheops and the second was for clearing the detritus.<sup>2</sup> Such a careful investigator as Jomard did not recognize the nature of the shafts for he mentioned "these deep narrow cavities which issue from the walls of the central chamber."<sup>3</sup> Among the results of the thorough study of the Great Pyramid by Vyse and Perring were the discovery of the outer end of the north shaft by Perring and that of the south shaft as well as its clearing by Vyse. They thought that both shafts led to rooms in spite of their small cross-section (22.5 cm × 23 cm high for the northern shaft) but abandoned their idea when ventilation in the burial chamber was restored after the south shaft was cleared.<sup>4</sup> The interpretation of the two shafts as "air-shafts" and the origin of this term date probably from that time. It was adopted by Petrie in his comprehensive work on the pyramids at Giza.<sup>5</sup>

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<sup>1</sup> J. Greaves, *Pyramidographia*, London, G. Badge 1646, p. 73.

<sup>2</sup> Abbé le Macrier, *Description de l'Egypte, composée sur les Mémoires de M. de Maillet*, Paris 1735.

<sup>3</sup> Jomard, *Description de l'Egypte*, ed. Panckoucke, 1821–1829, t. IX, p. 491.

<sup>4</sup> J. S. Perring, *The Pyramids of Gizeh*, Part I: The Great Pyramid.

<sup>5</sup> W. Fl. Petrie, *The Pyramids and Temples of Gizeh*, 1st ed. London 1883, pp. 19, 23, 52, 83.

This interpretation does not, however, withstand an objective criticism. Besides the fact that no provision for ventilation was ever made by the Egyptians in any of their various types of tombs this one, if so interpreted, would conform but poorly with their achievement in ventilating their houses. The system they used consistently, at least from the Ninth Dynasty, as exemplified in the so-called "soul-houses" models and probably even before, consisted of slanting air channels opening in the ceiling, oriented North to catch the cool "sweet breeze" from the North.<sup>6</sup> To ventilate the burial chamber of Cheops channels running horizontally at the level of the ceiling would have been more adequate than the inclined shafts which start at about one meter from the floor, at the level of the lid of the sarcophagus. One should add to this inadequacy in the design all the constructional problems involved in the building of the two inclined shafts through all the courses, a process which could have been avoided by building them horizontally through one horizontal course. In the Queen's chamber the two shafts were described by Petrie as "exactly like the air channels in the King's Chamber in their appearance, but were covered over the mouth by a plate of stone, left not cut through in the chamber wall".<sup>7</sup> Had the shafts from the King's Chamber been also blocked with slabs of stone, a point which I cannot ascertain, their assumed purpose for ventilation would have been out of the question.

The two shafts were not immune to the irrational theories interpreting the passages of Cheops' pyramid as tubes for the observation of the stars.<sup>8</sup> Sirius could not have been observed through the south shaft nor any polar star through the northern one because both shafts have their lower and upper ends bending horizontally.<sup>9</sup> The upper bend was probably to prevent rain and sand from entering and choking up the shaft.

Though some modern Egyptologists still cling to the term "air-shaft" and to their interpretation as ventilation devices (Lauer)<sup>10</sup> others do not cringe at presuming an interpretation for some religious purpose. Curiously enough even a genius like Maspero could indulge in such an impossible suggestion that "they served for ventilation of the chamber during construction and for pouring libations through them at certain

<sup>6</sup> Alexander Badawy, *A History of Egyptian Architecture*, I, 1954, pp. 8, 54, 59, 61.

<sup>7</sup> Petrie, *Pyramids of Gizeh*, pp. 70-71.

<sup>8</sup> J. Ph. Lauer, *Le Problème des Pyramides d'Égypte*, Paris 1947, pp. 134-152, who disposes of the astronomical theories of Jomard, Herschel, Piazzzi Smith, Proctor.

<sup>9</sup> E. Thomas, *Air Channels in the Great Pyramid*, JEA, 39, 1953, p. 113 referring to H. Chatley, JEA, 34, 1948, p. 127.

<sup>10</sup> Lauer, *Problème des Pyramides*, p. 58.

feasts in the honor of Cheops.<sup>11</sup> Steindorff<sup>12</sup> and Capart were probably the earliest Egyptologists to suggest the religious purpose. Capart mentioned clearly: "They are often called air-shafts; it is more probable that they had a funerary purpose, perhaps to afford a passage to the soul of the king."<sup>13</sup> The religious purpose is allied cautiously to that for ventilation by I. E. S. Edwards<sup>14</sup> and after him by J. Vandier<sup>15</sup>. I had adopted Capart's idea<sup>16</sup> and enlarged upon it with the mention that the northern passage could have been for the voyage of the soul to the Imperishable Circumpolar Stars, the southern one to Orion.<sup>17</sup>

Before the Fourth Dynasty the tombs had always an architectural device which allowed for the passage of some metaphysical element of the deceased to the outer world, either to partake of the offerings as a *ka* or to sail in the sky to the stars as a *ba* according to its stellar destiny or with the sun Re' according to its solar destiny. Both destinies are described in detail in the Pyramid Texts which, though appearing first during the Fifth Dynasty, represent religious dogmas and traditions dating back to the Proto-Dynastic Period. At Helwan the tombs of the nobility of the First Dynasty show in the south-west corner of the ceiling of the underground burial chamber a vertical shaft blocked at the bottom by a slabstela set horizontally face downward, carved with a scene of the deceased at his funerary meal.<sup>18</sup> The shaft rose to ground level and the soul could flutter in and out through it. In the mastaba-tombs of the Old Kingdom at Giza there is often an aperture in the slab blocking the passage between the bottom of the shaft and the burial chamber. This aperture is in the shape of two or three round holes (Meri-Hetepf), a "window" (G 1235A) or even a channel bending at right angles between the lateral wall of the passage and the inner wall of the chamber (Giza S 846).<sup>19</sup> In all these tombs the vertical shaft located to the north of the burial chamber was obviously intended to

<sup>11</sup> G. Maspero, *Histoire ancienne des peuples de l'Orient Classique, Les Origines*, Paris 1895, p. 368, n. 3.

<sup>12</sup> G. Steindorff, *Egypt* (Baedeker), 1929, p. 140.

<sup>13</sup> J. Capart, *Etudes et Histoire*, I, Bruxelles 1924, p. 182.

<sup>14</sup> I. E. S. Edwards, *The Pyramids of Egypt*, Pelican Books 1961, p. 126.

<sup>15</sup> J. Vandier, *Manuel d'Archéologie égyptienne*, T. II, Les Grandes Epoques, L'Architecture funéraire, Paris 1954, p. 38.

<sup>16</sup> Alexandre Badawy, *La stèle funéraire à ouverture axiale*, Bulletin de l'Institut d'Egypte, Le Caire 1953, T. XXXV, p. 134, n. 1.

<sup>17</sup> A. Badawy, *Egyptian Architecture*, I, p. 138.

<sup>18</sup> Z. Saad, *Royal Excavations at Saqqara and Helwan (1941-1945)*, pp. 172-174.

<sup>19</sup> A. Badawy, *Stèle funéraire*, pp. 132-134, figs. 10-12.

provide a passage for the soul northward through the aperture and the filling. Pertaining to this category but even with more emphasis on this purpose is the setting of the so-called "replacement head" (or "reserve head")<sup>20</sup> facing north in front of the blocked passage at the bottom of the shaft. This custom of setting a portrait head of the deceased at that place in the tombs of the nobles under the reign of Cheops points to an emphasis in the conception of the stellar destiny. To allow the soul to have direct access to the offering in the chapel an aperture was often cut in the central recess of the false-door as a hole in front of the face of the standing figure carved on it (Ibw-niswt at Dendera)<sup>21</sup>, a slot vertical or horizontal (Hesy-Re') in the upper part of the recess. These are derivatives from the two holes in the slab fronting the statue of Neterikhet-Djeser at Saqqara or the earlier twin holes between the grave and its offering place (First Dynasty at Tarkhan). The inclined shaft rising in some mastabas eastward from behind a false-door (Seshem-nefer), from the floor of the funerary chapel beneath a window in the east wall (Debehny) or in front of an east window (Nefer) and ending near the head of the sarcophagus probably allowed a free passage from the latter to the offering place.<sup>22</sup> A third element which undoubtedly aimed at enabling the deceased to sail in the sky was the boat set in a boat-grave oriented East-West on the north side of the mastabas in the Archaic Period (Hor-aḥa, Merneit, and at Helwan). This was the predecessor of the boats set in boat-pits south of the pyramids, the mortuary temple or the causeway during the Fourth and Fifth Dynasties. Much speculation was aroused by the recent discovery of one of the intact boats south of Cheops' pyramid. The most likely interpretation is that the pharaoh could sail in it in all directions across the skies.<sup>23</sup>

All these devices had no constructional function but were obviously intended as means of communication for the soul. The entrance ramp or stairway which descended from the north to the burial apartment in the Archaic mastabas and later in the pyramids had certainly both a constructional purpose and a ritual one since they allowed for the transportation of materials during the building of the structure and for the access of the funerary priests and the mummy at the funeral.

The two shafts starting from Cheops' chamber are neither constructional nor functional in terms of ventilation. They are, however,

<sup>20</sup> H. Junker, *Giza I*, Abb. 4, S. 42.

<sup>21</sup> W. Fl. Petrie, *Dendera*, pl. XXVIII.

<sup>22</sup> A. Badawy, *Stèle funéraire*, p. 134, fig. 13.

<sup>23</sup> J. Cerny, *A Note on the Recently Discovered Boat of Cheops*, JEA, 41, 1955, pp. 75-79.

functional according to the ideology of Egyptian religion since they allowed the soul to rise toward two well defined areas in the sky. Though issuing on the faces of the pyramid at about the same level both shafts have different angles of incline with the horizontal, the north one  $31^{\circ}$  and the south one  $44\frac{1}{2}^{\circ}$ . The soundness of the assumption of the relation of these two shafts with certain stars is now proved. The astronomical calculation contributed in the accompanying article by Miss Virginia Trimble<sup>24</sup> shows that for the latitude of Cheops' pyramid  $29^{\circ}58'51''$  North the declination of the north shaft points within  $1^{\circ}$  to the pole about 2600 B.C. marked by  $\alpha$  Dragonis and the south shaft to Orion. On the other hand the importance of these two stars to the stellar destiny of Pharaoh can be appreciated from the following study of the relevant Pyramid Texts.

There are numerous criteria to establish a relative, though approximate, sequence of the Pyramid Texts.<sup>25</sup> Students of Egyptian religion are agreed that the conception of the stellar destiny preceded that of the Osirian destiny, itself earlier than the idea of solar destiny.<sup>26</sup> It is always very difficult, often impossible, to recognize the origin of a spell. In the following parts examining the relations of Pharaoh and the stars, the Circumpolar stars and the Morning Star in the northern skies, and Orion and Sothis in the southern skies precedence is given to those texts which seem to deal with a stellar destiny.

*Pharaoh and the Stars.* The destiny of the Egyptian in the After-life features, as far back as one can go in the historic times, the life of the soul in the sky as a star glittering in the firmament.<sup>27</sup> While certain Pyramid Texts restrict the prerogative of a stellar destiny to the pharaoh only (459a, 463) other ones spread it to private people (472, 891), an interpretation corroborated by the arrangement around the royal tomb in the Archaic Period<sup>28</sup> of the graves of those same retainers who would have worked the fields for Pharaoh. Pharaoh entreats Atum to take him as night-star in the sky that he may light him: "O my father! My father in the dark! My father Atum in the dark! Take me at thy side that I

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<sup>24</sup> Virginia Trimble, *Astronomical Investigation Concerning the So-Called Air-Shafts of Cheops' Pyramid*, *Mitteilungen des Instituts für Orientforschung* X, 1/3, pp. 183-187.

<sup>25</sup> S. Mercer, *Literary Criticism of the Pyramid Texts*, London 1956, pp. 41-54.

<sup>26</sup> H. Kees, *Totenglauben und Jenseitsvorstellungen der Alten Ägypter*, Leipzig 1926, p. 131.

<sup>27</sup> H. Junker, *Pyramidenzeit*, Einsiedeln 1949, p. 129.

<sup>28</sup> H. Junker, *ibid.*, pp. 127-128.

may light for thee a small light and protect thee" (605)<sup>29</sup>. These stars are sown as semiprecious stones by Nut, the cow-goddess of the sky who is addressed in a beautiful passage: "O thou who stridest very wide, as thou sowest the emerald, the malachite, the turquoise (as) stars" (567a-b)<sup>30</sup>. Pharaoh is born of Nut: "To say: the falcon hath conceived T. M. at night at thy horn, (o) pregnant cow" (568). The ascension of the pharaoh by several means is marked by a reaction of the cosmic elements: "The sky is overcast, the stars are darkened" (393a). "Heaven rejoiceth for him, the earth quaketh for him, the tempest roareth for him" (1150a-b). Even the inhabitants of the sky are perturbed: "The great ones tremble when they see the dagger which is in thy hand when thou comest out of the Dwat" (257b-c). It is Pharaoh's prerogative inherited from his ancestors the kings of the Proto-Dynastic capitals Buto, Hierakonpolis and Heliopolis who are designated as the "souls" (*bj.w*) who help him in his ascension (250-251)<sup>31</sup>: "I come to thee, O Nut, . . . my souls have brought me over here, my magic charms have armed me. — Open to thyself a place in the sky among the stars of the sky. For thou art the unique star, the carrier of Hw. Thou glancest down at Osiris when he commandeth the spirits. Thou standest far from him, thou art not among them, and wilt not be among them". The stellar destiny is here drastically differentiated from the seemingly despicable one of Osiris assigned to other spirits bound to remain on earth after death. The domain of the deceased who became a star is defined: "Hollo! Thy fields are afraid, O *i* *d*-star, of the pillars of the stars (dead)" (280a). For the deceased pharaoh "T. is the star in front of which the gods bow down, in front of which the two Enneads tremble" (537-538b). The deceased pharaoh finds his place and "he sitteth among the stars which are in the sky" (1253e). "T. sitteth himself now as that star which is on the underpart of the body of the sky" (347a, var. 1384a: of Nut). This designation of "that star" infers some importance which may allow for its interpretation as the "Morning star."<sup>32</sup> This agrees well with the solar re-cension where it is said that the deceased is "at the bottom of the sky near Re" (357b). Sometimes it is Horus who leads Pharaoh: "O NN. The pathway is given thee by Horus, thou appearest adorned as the

<sup>29</sup> So interpreted by Junker, *ibid.*, p. 122.


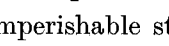
<sup>30</sup> S. Mercer, *Literary Criticism*, p. 114.

<sup>31</sup> Compare translations in K. Sethe, *Übersetzungen und Kommentar zu den altägyptischen Pyramidentexten*, Band I-V, Glückstadt. H. Junker, *op. cit.* pp. 110, 133. H. Kees, *Totenglauben*, p. 206. L. Spleers, *Les Textes des Pyramides égyptiennes*, Bruxelles 1923, p. 21.

<sup>32</sup> K. Sethe, *Übersetzungen*, II, p. 58.

unique star which dwelleth in Nut" (1048a-b). That pathway is described once as being in the northern sky: "Thou hast crossed the winding watercourse in the north of Nut, as star voyaging over the sea which is under the body of Nut" (802a-b; 1016a, 1721a-b). Elsewhere the place of appearance is in the eastern sky: "Thou art the unique star which appeareth in the eastern side of the sky" (877c). The deceased pharaoh is received by the goddess Sekhmet: "W. is received by Sekhmet, Sekhmet is the one who gave birth to him" (262b).

Pharaoh has now become a star (1470b), "that star which lighteth the sky" (362b, 1455a). He enjoys cosmic privileges even to regulate the night as the "Lord of the nights": "W. has regulated the night, W. has sent the hours on the way. The powers (stars) appear and proclaim W. as Babjj" (515a-b). In the later recension where Re' is given the important role the deceased is still "the star *šhd*" (1583), the star which crosses the sea: "N. is thy semen, O Re', the sharp one in this thy name Horus, which dwells among the spirits, the star which crosseth the sea" (1508b-c, 802b, 1720c). The progress of the pharaoh as a star is gradually integrated with that of Re': "High must become the *šhd* stars of N. N. with Re' so that N. N. may proceed in the fields of food" (698b). Food provisioning is also implied when he is the "star with sharp brow (glance) and wide strides, which brings daily the provisioning of the way to Re'. W. hath reached his throne which is on the two protecting goddesses of Upper and Lower Egypt (*nbtj*) and he appeareth in the shape of a star" (263a-b). The wide-striding star with sharp glance could be "a planet or Orion, itself similarly described" (959d-e)<sup>33</sup>. The solar apotheosis of Pharaoh is achieved when "W. wisheth to sit side by side with the One who is honored in Heliopolis. Take W. to the sky" (506b-c).

*Pharaoh and the Circumpolar Stars.* The prehistoric Egyptian must have been impressed at a very remote age by those northern stars which, unlike the others, neither rose nor set. They were indeed the ideal abode of the kings who lived eternally in the sky. In the stellar destiny as described in the Pyramid Texts the circumpolar stars, "the Imperishable stars"  *ihm-sk*, "the imperishable star-gods"  *ihmw-sk*, so called because they completed their circumvolution in the northern quarters of the sky without disappearing, played the most important role<sup>34</sup>. Sometimes they were paired with the Indefatigable stars *ihm-wrd* at night.

<sup>33</sup> K. Sethe, *ibid.* I, p. 261.

<sup>34</sup> H. Kees, *Totenglauben*, p. 133. A. Erman, *Die Religion der Ägypter*, Berlin 1934, p. 23.



As in the case of the destiny as a simple star, that among the Imperishable ones features the voyage of the pharaoh and his relations. Besides the various means of ascension at the disposal of Pharaoh, Atum is once prayed to be his carrier: "Atum, let him rise to thee, take him in thy embrace. There is no god who hath become a star and hath no carrier (*rmnwtj*)" (140c–141a). Carriers are known in other instances: pharaoh is the carrier of Orion (882b) or the unique star carrying Hw (251b). The imperishable stars themselves can carry Pharaoh: "People acclaim thee after the Imperishable stars have carried thee" (139a). Or a secondary deity *Hkrr*, probably a personification "Sober", helps Pharaoh: "*Hkrr* is the one who ferrieth them, N. with the One-who-looketh-behind-him, so that N. be ferried over that side where are the circumpolar stars and be among them" (1222b–d). Pharaoh is once compared to Horus whom he perhaps impersonates to rise as him: "Thou risest as Horus of the *D3.t* to the front of the Imperishable stars" (1301a). Nut, the goddess of the sky, is addressed that she may take the pharaoh to her: "Mayest thou place to thyself this N. N. as imperishable star" (782e). In the Osirian recension, in order that Pharaoh "rise to the stars, the Imperishable stars" (940) "he goes to his mother Nut, climbs on her as on a ladder" (941)<sup>35</sup>. In another of an early Osirian recension: "The First of the Westerners goeth out to thee, taketh thy hand and transporteth thee to the sky to thy father Geb. Geb is glad at thy approach, he embraceth thee, he kisseth thee, he caresseth thee and placeth thee at the front of the Spirits, the Imperishable stars" (655–656)<sup>36</sup>. Sometimes, however, Pharaoh rises by his own means: "I rise to the sky among the stars, the Imperishable stars" (1123a). In an Osirian recension: "N. is gone to the large island which is in the middle of the Field of offerings, on which the gods let the swallows settle down. The swallows are the Imperishable stars" (1216a–c). It is said to Osiris: "Thou placest P. (M. N.) as a prince among the spirits, the imperishable of the northern sky" (1220). Perhaps is Wpwat implied as a helper (1900, 1915, 1926)? In another Osirian text Pharaoh goes on his own: "Thou walkest to the gods of the north, the Imperishable ones" (818).

Once settled among the Imperishable stars Pharaoh participates of all their prerogatives, mainly not to perish. Seldom, however, is he identified with them. "Thou very high one among the Imperishable stars, thou settest not, eternally" (878). Pharaoh seated on his throne says: "while my side is against the side of those gods in the north of the sky, who

<sup>35</sup> H. Junker, *Pyramidenzeit*, p. 123.

<sup>36</sup> H. Junker, *ibid.*, p. 126.

cannot set and I will not set" (1080a-b). "Thou reckonest the stars, thou siezest the arm of the Imperishable" (1726). "N. liveth at your side, o Gods of the Netherworld, o Imperishable Stars" (1456). Pharaoh uses the boats of the Imperishables for transportation: "Thou travelest with the Imperishable stars, thou sailest with those who cannot become tired" (1171c). The preceeding sentence in this spell implies that both used the boat of Re'.<sup>37</sup> In another solar text a causal connection is asserted between the mariners of the Imperishables' boat and Pharaoh: "thy crew of the Imperishable stars will be prevented to row for thee if thou preventest them to let N. ride in this thy boat" (1439a-b). In an Osirian text: "The bones of N. are strong and the members of N. are the Imperishable stars" (2051c-d).

Pharaoh does not only enjoy the prerogatives and qualities of the Imperishable stars but he "governs" them (374a) and "pacifies" them (1721). They offer him such concrete acknowledgement of feudality: "The Imperishable stars stand up before thee" (876d), "The Imperishable ones kneel down to thee" (1535).

As an immediate result of the belief in the destiny connected with the circumpolar stars the entrance corridor to the burial chamber in the mastabas of the Archaic Period was made to slant up in their direction.<sup>38</sup> When the sun-god Re' gained the supremacy the Pyramid Texts were reworted, some earlier creeds remodeled and new ones introduced. The burial chamber was no more accessible from the north side of the mastaba but from the east one. It is to be noticed that the entrance to the pyramid was, however, maintained in the north side of the structure during the Old Kingdom. It is only in the Middle Kingdom after Sesostri I that the entrance opens east or west, probably in an attempt to hide it better from robbers rather than on account of some religious ideology. The imperishable stars are now manning the solar boat and the justified souls can sail not only at night with the moon, but in daytime with Re'. This change in the religious creed reflects probably some progress in the astronomical conception of the Egyptians about the invisible revolution of the stars in daytime.<sup>39</sup> To adapt both ideologies in the same context did not go without violating the topography of the sky and the compromise complicated the itinerary of Pharaoh: "The two reed bundles of the sky are placed for N. N. that he mayeth travel over to Re' to the horizon. N. N. will travel till he standeth on the eastern side of the sky, in its

<sup>37</sup> So A. Erman, *Religion*, p. 23.

<sup>38</sup> H. Junker, *Pyramidenzeit*, p. 131.

<sup>39</sup> *ibid.*

northern district among the Imperishable stars" (1000a-d)<sup>40</sup>. Pharaoh is now following Re' as an Imperishable star: "N., the son of the great sky-goddess who resides in the house of the scorpion-goddess, is an Imperishable star. Re' hath taken N. to himself in the sky that N. may live" (1469a-b). "Re' Atum! W. cometh to thee, an imperishable spirit, a lord of pretention on the sites of the four papyrus columns, thy son cometh to thee, this W. cometh to thee, that you wander on the way (of the sky) together in the dark" (152a-c). The sky wandering of the pharaoh precedes the rise of Re' in the east, he is purified, receives his share of food and "is dressed by the Imperishable stars" (1182b). His destiny, as that of the moon, is bound to that of Re': "Thou wilt be (re-)born on thy monthly feasts as the moon, while Re' leaneth on thee on the horizon and the Imperishable stars serve (follow? *šms*) thee" (732b-733a). Pharaoh voyages in the boat of Re' among his followers: "N. is transported by the untiring ones, N. commandeth the Imperishable ones" (473). "The Imperishable ones take thee by thy arm" (2183).

In the Osirian recension other elements are introduced. The sky wandering and the sun boats become the property of Osiris.<sup>41</sup> The deceased belongs to the pure ones of Osiris and as such claims to be ferried across to the circumpolar stars: "O thou whose-face-is-turned-behind-him, doorkeeper of Osiris, say to Osiris 'Let be brought to N. this sky boat in which the pure ones are ferried, that thou mayest receive the libation in that region of the Imperishable stars'" (1201a-d)<sup>42</sup>. The Imperishable stars now follow Osiris and the deceased is among his retainers: "Thou crossest the sky to the field of reeds. Reside in the fields of offerings among the Imperishable stars, the followers of Osiris" (749c-e)<sup>43</sup>. The deceased pharaoh is revenged, equipped as a god: "given the form of Osiris on the throne of the One who ruleth the Westerners and thou doest what he usually doth among the spirits, the Imperishable stars" (759b-c). "Thou standest before the Imperishable spirits as Osiris standeth before the spirits" (1232). Horus and his four sons: "they bring to thee thy name of Imperishable, thou doest not die, thou doest not perish" (2102). "Thou commandest the spirits, thou leadest the Imperishable ones" (2104).

*Pharaoh and the Morning Star.* One of the direct outcomes of the invention of the solar destiny was the appearance of the Morning star in the Pyramid Texts "as the morning god", always connected to Re'

<sup>40</sup> H. Kees, *Totenglauben*, p. 135.

<sup>41</sup> *ibid.*, p. 229.

<sup>42</sup> K. Sethe, *Übersetzungen*, V, p. 97.

<sup>43</sup> *ibid.* III, p. 743. H. Kees, *Totenglauben*, p. 229.

which it precedes at dawn.<sup>44</sup> Family relations were spun in the solar recension to allow the deceased to become the morning star in the field of rushes. Pharaoh is called the son of the morning star: "The sister of N. N. is Sothis, the mother (*mšt.w*) of N. N. is the morning star" (929 b). Curiously enough Pharaoh can even be the son of the moon (instead of the son of Re<sup>c</sup>) and the morning star: "Re<sup>c</sup> recommendeth me to my father, the moon, to my mother the morning star" (1104 a–b). "He (Re<sup>c</sup>) placeth thee as the morning star which resideth in the fields of rushes" (805 a, 1710). Elsewhere Pharaoh is a follower of Re<sup>c</sup> but not identified with the morning star: "Thou belongest to the servants of Re<sup>c</sup> who are about the morning star" (1372 a, 132).

In the Osirian recension Pharaoh is identified with the morning star, though the latter is still connected to Re<sup>c</sup>: "For thee the feet beat (trample?), for thee the arms are raised (that) thou ascendest to the sky as a star, as the morning star" (1366 b–c, 2014). "Thou goest forth as the morning star . . . Thou commandest to the spirits" (871). "Anubis, who presideth in the divine booth, hath commanded that thou descendest as a star, as the morning star, that thou wanderest through the kingdom of Horus the Southerner, that thou wanderest through the kingdom of Horus the Northerer" (1295 a–b). This same picture of a pharaoh governing the two lands is otherwise rendered: "Thou standest in front of the two palaces and judgest the gods. O N.! Thou belongest to the great ones (?) (when) Re<sup>c</sup> shineth behind the morning star" (2005). Pharaoh appears occasionally without any family relation to the morning star which acts as his leader (1123 b) or is entreated to ferry him across to the field of offerings in his boat of 770 cubits (1207)<sup>45</sup>, or washes the face of the sun or the deceased in the morning (2042). The morning star is called *Ḥor-of-dawn* (*Hr d3tj*) (1207 a) in which form the deceased goes to the sky (1301 a). The association of the deceased with Sothis as his sister and the morning star as his leader (1123 b) is astronomically correct since both stars rise and set together periodically. The morning star is probably meant in this address: "Thou art this unique star which rises in the east side of the sky"<sup>46</sup>, or "The star with sharp front, wide-strided which brings the provision to Re<sup>c</sup> daily" (263)<sup>47</sup>.

*Pharaoh and Orion.* At least one of the pyramid spells mentioning Orion belongs to the older stock since it occurs in the context of the so-called Cannibal Hymn. Orion is actually a kind of prince among the other stars: "Orion, the father of the gods, hath given a certificate to

<sup>44</sup> H. Kees, *Totenglauben*, p. 133.

<sup>45</sup> *ibid.*

<sup>46</sup> A. Erman, *Religion*, p. 212.

<sup>47</sup> *ibid.* p. 23.

N. as 'great power'" (408c).<sup>48</sup> Much later in the Coffin Texts Orion is also the most powerful among the stars and protects the deceased from the other stars (deceased).<sup>49</sup> In the solar recension the destiny of the pharaoh is linked with that of Orion: "The birth of Orion will be hindered if thou hinderest that N. cometh to the place where thou art" (1436b-c). This connection is paralleled by a similar one for Sothis, the star Sirius which is often paired with Orion as its leader. Orion, (probably  $\alpha$  Orionis), as the brightest star in the southern sky was readily adopted by the solar recension and later by the Osirian one which compared it to Osiris. The mention of the activities of Orion are far more numerous in the Osirian recension than in the earlier ones. The ascension of the deceased to Orion is described in several spells. The one mentioning a ramp of trodden earth, an archaic constructional method, is perhaps among the earliest, though it appears in a context featuring the pilgrimage of the deceased to Abydos: "A ramp is trodden down to Dat (dawn), to the place where Orion is and the bull of the sky siezeth thy arm" (1717).<sup>50</sup> The description of Pharaoh's ascension in the southern sky is derived from that of the ascension of the star: "Thou hast crossed the winding watercourse in the north of Nut(sky), as a star that voyageth over the (celestial) sea which is under the body of Nut. The Dat graspeth (lit. striketh) thy hand to the place where Orion is, after the 'Bull of the sky' (moon?) hath given thee his arm" (802a-d).<sup>51</sup> Pharaoh's re-appearance as Orion is paralleled by that of Osiris after death in a calendaric context: "Behold he hath (re)turned as Orion, behold Osiris hath (re)turned as Orion, the Lord of the vintage at the *W3g* - feast. Good one, as his mother told (him), successor, as his father told (him), conceived by the sky, born by the dawn. The sky conceiveth thee together with Orion, the dawn beareth thee together with Orion. Live the one who liveth at the order of the gods (and so) wilt thou live. Thou ascendest with Orion on the eastern side of the sky, thou descendest with Orion on the western side of the sky" (819c-821c).<sup>52</sup> This most important text describes the sky wandering of the deceased with Orion in his ascension from the East to culmination and his descent to the West, possibly

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<sup>48</sup> K. Sethe, *Übersetzungen*, II, p. 141. H. Junker, *Pyramidenzeit*, p. 121. H. Kees, *Totenglauben*, p. 141.

<sup>49</sup> P. Lacau, *Textes Religieux*, No. 85, cited by H. Kees, op. cit. p. 208.

<sup>50</sup> H. Kees, *Totenglauben*, p. 230.

<sup>51</sup> K. Sethe, *Übersetzungen*, IV, p. 12. H. Kees, *Totenglauben*, pp. 92, 132.

<sup>52</sup> K. Sethe, op. cit. IV, pp. 63, 68. A. Erman, *Religion*, p. 212. H. Kees, *Totenglauben*, p. 207, translates: "Behold, he cometh as Orion, as Osiris, who hath returned as Orion".

with a calendaric implication of the  $W_3g$ -feast of vintage on the New Year (June–July).<sup>53</sup> In another spell the deceased appeals to the goddesses accompanying the sun at night to help him when he is bound to disappear as a star with Orion and Sothis at dawn: “Embraced (?) is Orion by the  $D_3.t$  (dawn), as the One-who-lives-in-the-horizon (sun) purified himself” (151a).<sup>54</sup> A curious and not very clear inference involving a play of words is the description of the deceased approaching the sky on his toes: “Thou must approach the sky on thy toes as the Toe-star (Orion)” (723a). It has been questioned whether treading with the toes ( $\delta_3h$ ) could be paralleled to feeling with the fingers and whether Orion strode on its toes as in later representations.<sup>55</sup> Another play of words explains the etymology of the name  $\delta_3h$  (Orion) in an episode of the fight between Horus and Seth: “He is the one who approached me (Seth) too closely, and thus originated his name  $\delta_3h$  (Orion), the fleet-footed, long-strided one, pre-eminent in the Land of the South” (959c–e). This “land of the South” has been variously interpreted as Upper Egypt or the Sudan<sup>56</sup> rather than the southern region of the sky, perpendicularly to the north pole, on the ground of the representation of Orion wearing the Upper Egyptian crown.<sup>57</sup> The deceased pharaoh who was called “the unique star, the carrier of  $Hw$ ” (251b) is thus addressed: “Thou art that great star, the carrier of Orion who crosseth the sky with Orion, who crosseth  $D_3.t$  with Osiris. Thou ascendest on the eastern side of the sky, renewed at thy time, rejuvenated at thy hour. Nut hath borne thee together with Orion, the year hath adorned thee together with Osiris” (882b–883d).<sup>58</sup> The Osirian creed adopted so closely Orion as seat of Osiris that one text describes the life of Pharaoh in Orion at night and in daytime in the tomb: “In thy name, the One-who-is-in-Orion, thou (hast) thy time in the sky, thy time in the earth, Osiris, turn thy face that thou seest this  $W$ ., thy semen which came out of thee, the sharp one” (186a–c).<sup>59</sup> The supremacy of Pharaoh over Orion and Osiris god of the dead, similar to his one over the Imperishable stars, perhaps pictures him as a funerary priest: “N. N. cometh that he justifieth Orion, that he puteth Osiris at the top, that he placeth the gods on their thrones” (925a–b).<sup>60</sup>

<sup>53</sup> A. Erman, *Religion*, p. 23. H. Kees, *Totenglauben*, p. 356.

<sup>54</sup> K. Sethe, *Übersetzungen*, I, pp. 45, 48.

<sup>55</sup> *ibid.* III, pp. 341–42.

<sup>56</sup> E. W. Budge, *From Fetish to God in Ancient Egypt*, Oxford 1934, p. 241.

<sup>57</sup> K. Sethe, *Übersetzungen*, IV, p. 250 citing H. Brugsch, *Thesaurus*, I, 80.

<sup>58</sup> H. Kees, *Totenglauben*, pp. 132, 206, 207.

<sup>59</sup> K. Sethe, *Übersetzungen*, I, p. 93.

<sup>60</sup> *ibid.* IV, p. 205. A. Erman, *Religion*, p. 24.

Later the Book of the Dead mentions Orion as one of the "souls of Heliopolis", compares Osiris to him. The Coffin Text with the title "to reach Orion" adopts the awakening of Osiris from his death sleep. The analogy between Orion, the ruler of the stars, with Osiris, the Lord of the Netherworld, led to the theological compromise.<sup>61</sup>

*Pharaoh and Sothis.* Sothis, our star Sirius, appears consistently paired with Orion in the Pyramid Texts (151a–b, 723a, 822a, 1436–1437). Some of the spells mentioning Sothis show parallelism in the meaning and the stylistic composition (151a–b, 723a, 1436–1437). This pairing of Sothis and Orion in the funerary theology conforms to that in astronomy for Sirius rose 1<sup>h</sup> 4'–2<sup>h</sup> 25' after Orion at the latitude of 30° about 2700 B.C.<sup>62</sup> In the Osirian recension Sothis is the leader of Orion and his companion the deceased pharaoh: "Your third one is Sothis, the one with the pure places, she is your leader on the beautiful ways which are in the sky, in the fields of rushes" (822a–c). It might have been this choice of Sothis as the "leader of Orion" which she actually follows in the circumvolutions of the stars, that led to the representation of Orion as a man striding but turning his head back toward her<sup>63</sup>. The concept of the purification of Pharaoh by Sothis is extant in another spell: "Sothis hath washed his (N.) hands" (1428b). In several spells of the solar recension Sothis is defined as the sister of the deceased (341c, 357a, 363a, 929b, 1123, 1707) whose mother is dawn (341c) or the morning star (357a, 363a, 929b). Parallel to Orion "Sothis is embraced (?) by dawn as the One-who-liveth-in-the-horizon (sun) purified himself" (151b). In another parallelism: "The birth of Sothis will be hindered if thou hinderest that N. cometh to the place where thou art" (1437a–b). The etymology of the name *Špd.t* (Sothis) is based on a play of words with *špd* "sharp, pointed": "Thy soul (deceased) must be sharp as the Sharp-one (Sirius)" (723a). In the Osirian recension the episode of the conception in Isis' womb by the dead Osiris brings into parallel the attribute *špd* "sharp" of the semen (cf. 186c) with Osiris: "Thou (Osiris) art sharp (*špd*) (as) Horus the sharp one who cometh out of thee, as Horus who is in Sothis" (632). The episode was later represented in scenes in low relief in the temples of Seti I at Abydos and at Dendera.<sup>64</sup> In one spell, exceptional in more than one respect, Sothis is the daughter of Osiris and she is given an attributive involving a play of words with the name of the provisions she prepares for Osiris:

<sup>61</sup> H. Kees, *Totenglauben*, p. 208.

<sup>62</sup> Data kindly calculated by Miss V. Trimble.

<sup>63</sup> K. Sethe, *Übersetzungen*, IV, p. 69.

<sup>64</sup> H. Kees, *Totenglauben*, p. 194.

"Sothis, thy daughter whom thou lovest, who hath cared for thy provisioning (fresh), in this her name 'the-one-who-rejuvenateth-herself' (with the year), the one who leadeth N. N. when he cometh to thee" (965).<sup>65</sup>

The astronomical association of Orion and Sothis, the pre-eminent feminine star, already transformed into a theological one in the Pyramid Texts, was identified by the Osirian recension and especially later with that of Osiris and Isis. Sothis is "the soul of Isis", whose rising at dawn determined the beginning of the agricultural year with the start of the inundation (965).<sup>66</sup> Their grandsons, the children of Horus, were also assigned a place in the sky not far from the Great Bear (1092).<sup>67</sup>

The relation of Sothis to Orion in the southern sky is the counterpart of that of the morning star with the sun. Both had the duties of washing and provisioning. Washing the hands of the deceased by Sothis (1428b) is paralleled by washing the face of the sun or the deceased at dawn by the morning star (2042). Provisioning of Osiris by Sothis (965) is paralleled by provisioning the sun (251, 263) or the deceased (553) by the morning star.

### Conclusion

Among the innumerable stars which lit the firmament above Archaic Egypt and which harbored the souls of the "justified" those immutable ones, "the Imperishable stars", the circumpolar stars were predominant. There dwelt the souls of the kings. This common purpose of rejoining the sky after death appears since the earliest period in such Pyramid Texts that describe the removal of bricks from the great tomb (572c)<sup>68</sup>, probably from those mastabas of the Archaic Period which had no way of access once the funeral over and from which bricks had to be taken off to provide an exit for the soul.

Another Pyramid Text from the earliest stock, the so-called Cannibal Hymn<sup>69</sup>, mentions three gods Geb (398), Khonsu (401) and Orion (408) together with the One-whose-name-is-unknown (399) and a secondary deity, Shesmu for anointment.<sup>70</sup> It is remarkable that all three gods are

<sup>65</sup> K. Sethe, *Übersetzungen*, IV, p. 254.

<sup>66</sup> H. Kees, *Totenglauben*, p. 208. A. Erman, *Religion*, pp. 23–24.

<sup>67</sup> A. Erman, *Religion*, p. 24.

<sup>68</sup> S. Mercer, *Literary Criticism*, p. 43.

<sup>69</sup> *ibid.* p. 44.

<sup>70</sup> H. Kees, *Totenglauben*, p. 140, n. 4.



cosmic deities: the earth, the moon and Orion, respectively, an association which gives an accurate idea about the main elements responsible for the stellar destiny. The deceased pharaoh is "the bull of the sky" (397). "His strength is in the luminous mountain horizon" (395). This  $\mathfrak{h.t}$ , sometimes translated 'realm of light' (by Junker)<sup>71</sup> or 'land of light' (by Kees)<sup>72</sup> is not the horizon we know, but the mountainous edge of the eastern desert in Egypt chased with gold by the emerging sunrise. The importance of the luminous mountain horizon in both the stellar and solar destinies of the pharaoh is vital: it is the boundary of Nut, where the east gate of the sky is located through which the pharaoh passes (2170) to the  $D\mathfrak{z.t}$  where he bathes in its seas (1530) before traversing the sky on his daily pursuit. He is often said to be born of the  $D\mathfrak{z.t}$  (820c-e, 1527a-e). The "dwellers of the  $D\mathfrak{z.t}$ " were actually the stars (953a, 1164c).<sup>73</sup> The  $\mathfrak{h.t}$  was then the perceivable boundary of the  $D\mathfrak{z.t}$  or realm of the stars and later, realm of the sun with special emphasis on the luminous east rather than the maleficent west: "Mayest thou not go on those western ways, for those who go there do not come back. Go rather on those eastern ways among the retinue of Re" (2175).<sup>74</sup> No wonder then that the  $\mathfrak{h.t}$  assumes such an important role: "The place of W. T. is in front of all the nobles who are in the luminous mountain horizon" (407). The stars and the sun used boats for their circumvolutions, a means of circulation similar to that of the Egyptians on earth. Pharaoh and the other deceased also sailed in boats, at night in that of the moon, or were allowed to accompany the sun-god in his day-boat with the Imperishable ones and in his night-boat with the untiring stars.<sup>75</sup>

Already in the First Dynasty there appear the types of mastaba with a stairway descending from the north to the burial chamber (Udimu, Qa' at Abydos) or from the east, first as a straight flight (Udimu at Saqqara, Enezib at Abydos and Saqqara) and at the end of the dynasty as an L-shaped stairway (mastaba of Qa' at Abydos, Saqqara). This change in the design aiming at having the approach to the burial chamber from the east but still as a whole oriented northward is certainly a compromise between stellar and solar destinies, parallel to the one illustrated in the Pyramid Texts. In the Second Dynasty at Saqqara the typical mastaba with two niches in the eastern façade and a stairway from the

<sup>71</sup> H. Junker, *Pyramidenzeit*, p. 120.

<sup>72</sup> H. Kees, *Totenglauben*, pp. 140-141.

<sup>73</sup> H. Kees, *ibid.* p. 92. About the  $d\mathfrak{z.t}$  cf. K. Sethe, *Übersetzungen*, I, pp. 49-51.

<sup>74</sup> H. Kees, *Totenglauben*, p. 90.

<sup>75</sup> K. Sethe, *Übersetzungen*, I, p. 51. H. Junker, *Pyramidenzeit*, p. 131.

east is established (Ruaben or Neteren? at Saqqara). It seems that the stairway from the east was an invention of the North, possibly suggested by the clergy of Re' at Heliopolis. The step pyramids are essentially stellar monuments, probably symbolic for the ascension of Pharaoh to the sky.<sup>76</sup> Their mortuary temple abutting the middle of their north side and their entrance corridor from the same face are evidently in connotation with the circumpolar stars, the abode of Pharaoh. Under Snefru the offering chapel abuts the east side of the pyramid and in the Fourth Dynasty the whole mortuary temple is laid out to the east while the entrance corridor still descends from the middle of the north face, or later in front of it, at a slope of about 1:2, till Sesostri II (Twelfth Dynasty). The shift in the location of the mortuary temple from the north to the east denotes the supremacy of Re' as reflected in the solar recension of the Pyramid Texts. No satisfactory interpretation has been given for the subsidiary pyramid built to the south-east of the main one, perhaps for the ka (Borchardt) or for the inner organs. The boat placed in the boat excavation to the north of the mastaba during the Archaic Period and later near the pyramid was for the circulation of the deceased in the sky rather than for his journey with the sun.<sup>77</sup>

Some echo of the momentary trends in the religious symbolism of the pyramid owners of the Old Kingdom can be found in the names of their monuments.<sup>78</sup> Those of Snefru, Cheops, Dedefre' and Nebka indicate clearly a stellar connotation, while other ones describe the stellar destiny of the *b3* (Sahure', Neferirkare', Neferere',) or intrinsic qualities of the pharaoh (Chephren, Mykerinos, Isesi, Pepi I, Merenre', Pepi II) or qualities of the monuments (Userkaf, Neuserre', Unas, Teti).

The name of Cheops' pyramid *3h.t Hwfw* "The luminous mountain horizon of Cheops" or "Cheops is one belonging to the luminous mountain horizon" is related to the vital role ascribed to the *3h.t* in the Pyramid Texts which record the stellar and solar destinies. That the mortuary temple abuts the middle of the east face proves that the solar destiny supersedes the stellar one, or at least was given this concession. The stellar destiny is still of importance from the combined evidence of the north entrance corridor and the two cedar boats excavated lately south of the pyramid. It has been shown before that the two so-called air-shafts

<sup>76</sup> As for the mastaba, cf. Alexander Badawy, *The Ideology of the Super-structure of the Mastaba-Tomb in Egypt*, Journal of Near Eastern Studies, Chicago 1956, XV, pp. 180-183.

<sup>77</sup> J. Cerny, *Recently Discovered Boat*, JEA, 41, pp. 75-79.

<sup>78</sup> J. Edwards, *Pyramids*, pp. 297-298.

starting from the burial chamber and rising to the north and south faces cannot have been designed for ventilation. The astronomical investigation<sup>79</sup> complementing this article proves beyond doubt that they were inclined within  $1^\circ$  toward the circumpolar stars ( $30^\circ$ ) and the Orion constellation ( $44\frac{1}{2}^\circ$ ) at the date of construction. The custom of setting a "reserve head" facing north at the bottom of the mastaba shafts, peculiar to the reign of Cheops, to help the soul in its ascension, corroborates the interpretation of the so-called air-shafts as similar means on a monumental scale. The compromise reached with Re' and Osiris seems to have allied a happy eternal life with the circumpolar stars (northern shaft) to one in the southern sky with Orion, the "father of the gods", the seat of Osiris and Re'. Both the morning star and Sothis (Sirius) are secondary figures helping Re' and Orion respectively. The irregularities in the walls of the shafts, in the straightness of their way, the bent-up design and the presumably blocked mouths cannot invalidate their efficacy as ways for Cheops' soul. The souls of his retainers were supposed to borrow less practicable channels in the shape of false-doors, sometimes with axial slots, filled-in vertical shafts with bent-up windows at their bottom. The Archaic Egyptians hoped that their souls would ascend through the entrance corridors rising north to the north quarters of the sky.

Cheops' unique shafts transfer on a monumental scale the search for accuracy (layout and construction of the pyramid) and objectivity (reserve-heads) which pervades funerary architecture during his reign.

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<sup>79</sup> Cf. V. Trimble, *Astronomical Investigation*, MIO X, 2/3, pp. 183–187.