

Amzallag, Nissim

The origin and evolution of the saraph symbol

Antiguo Oriente: Cuadernos del Centro de Estudios de Historia del Antiguo Oriente Vol. 13, 2015

Este documento está disponible en la Biblioteca Digital de la Universidad Católica Argentina, repositorio institucional desarrollado por la Biblioteca Central "San Benito Abad". Su objetivo es difundir y preservar la producción intelectual de la Institución.

La Biblioteca posee la autorización del autor para su divulgación en línea.

Cómo citar el documento:

Amzallag, Nissim. "The origin and evolution of the saraph symbol" [en línea], *Antiguo Oriente : Cuadernos del Centro de Estudios de Historia del Antiguo Oriente* 13 (2015). Disponible en: <http://bibliotecadigital.uca.edu.ar/repositorio/revistas/origin-evolution-saraph-symbol.pdf> [Fecha de consulta:.....]

THE ORIGIN AND EVOLUTION OF THE SARAPH SYMBOL

NISSIM AMZALLAG

nissamz@post.bgu.ac.il

Ben-Gurion University in the Negev

Beer Sheba, Israel

Abstract: The Origin and Evolution of the Saraph Symbol

The abundance of uraeus iconography in Late Bronze Age and Iron Age Canaan has led most scholars to interpret the saraph, a winged and/or burning serpent evoked in the Bible, as an Egyptian religious symbol borrowed by the Canaanites and thereafter integrated in the Yahwistic sphere. The strong affinity of the saraph symbol with a local serpent species, *Echis coloratus*, however, challenges this view. It reveals that the saraph was an indigenous Canaanite symbol later influenced in its representation by the Egyptian glyptic. Comparison of the biology of *Echis coloratus* and the literary source relating to the saraph suggests that the latter was once approached as an animal that guarded the copper mining areas of the Arabah and Sinai against access by unauthorized persons. By extension, it became the privileged symbol of copper metallurgy and its proximate spheres of influence. It is concluded that the essential relation between YHWH and the seraph is probably rooted in the metallurgical background of the god of Israel. Furthermore, the closer affinities of the properties of the uraeus with *Echis coloratus* rather than with the cobra species that symbolize it suggest that this Egyptian symbol had been borrowed from Canaan as early as the pre-Dynastic period before influencing it in the reverse direction in the Late Bronze Age.

Keywords: Saraph – *Echis coloratus* – Primeval Yahwism – Uraeus

Resumen: El origen y la evolución del símbolo del serafín

La abundancia de iconografías de uraeus en la Edad del Bronce Tardío y en la Edad del Hierro en Canaán, llevó a la mayoría de los investigadores a interpretar el serafín, una serpiente con alas y/o ardiente evocada en la Biblia, como un símbolo egipcio tomado prestado por los cananeos y luego integrado en la tradición yahvista. Sin embargo, la fuerte afinidad del símbolo del serafín con las especies de serpientes locales, *Echis coloratus*, desafía esta visión. Se demuestra que el serafín era un símbolo nativo cananeo, cuyas representaciones fueron influenciadas posteriormente por la escultura egipcia. La comparación de la biología del *Echis coloratus* con las fuen-

Article received: August 20th 2015; approved: November 16th 2015.

tes literarias relacionadas con el serafín, sugiere que este último aparecía como un animal que cuidaba las zonas mineras de cobre en la Arabá y en el Sinaí contra el acceso de personas no autorizadas. Por lo tanto, se convirtió en el símbolo privilegiado del hierro metalúrgico y de sus esferas cercanas de influencia. Se concluye que el vínculo esencial entre Yahvé y el serafín radicaría probablemente en las fuertes raíces metalúrgicas del dios de Israel. A la vez, la estrecha afinidad entre las propiedades de uraeus y el *Echis coloratus*, más que con las especies de cobra que simboliza, sugiere que el símbolo egipcio fue tomado prestado de Canaán ya en el periodo Pre-Dinástico, antes de influenciar a este, a la inversa, en la Edad del Bronce Tardío.

Palabras clave: Serafín – *Echis coloratus* – Yahvismo primordial – uraeus

INTRODUCTION

The saraph is a winged creature closely associated with YHWH. In Isa 6:2–3, seraphim surround the celestial throne aloft and praise the deity by singing antiphonally. In Isa 14:29, the seraph, evoked again as a flying being (שָׂרָף מְעוֹפֵף), is a metaphor for the new king/leader of Israel, who is expected to come in the name of YHWH.¹ In 2 Kgs 18:4, we learn that a copper serpent, identified with the seraph evoked in Num 21:8–9, was worshipped by the Israelites at the Jerusalem temple. These observations led scholars to conclude that the Israelites viewed the flying serpent as a sacred animal and even as a symbol of YHWH and/or of his powers.²

Today, such an opinion has been discredited. Most contemporary scholars reject any essential relationship between YHWH and serpent beings.³ Instead, they construe the saraph as one of many Canaanite / foreign religious elements that insinuated themselves into the folk religion of Israel through a syncretism defined as “pagan Yahwism.”⁴ The foreign origin of the Israelite

¹ Mettinger 1999: 743; Charlesworth 2010: 248.

² For references to early twentieth-century scholars who suggested this, see Farbridge 1970 [1923]: 75.

³ For instance, Fabry (1998a: 359) concludes, “*Nowhere in ancient Israel do we find any possibility of developing a positive attitude towards serpents, as was the case in Egypt, Greece and Italy. There was certainly never any serpent cult, as in Mesopotamia and Egypt. This—more than inclusion of serpents in Ugaritic mythology—accounts for the fact that serpents were considered cultically unclean.*”

⁴ de Saignac 1972: 322. Koh (1994: 97–98) suggests that the serpent cult at Dan and Beer Sheba also belongs to this folk layer of the Israelite religion. For Hendel (1999: 616), the copper snake worshipped in Jerusalem expressed Yahweh’s healing power, which is itself a folk/practical dimension of the worship. Concerning the notion of “pagan Yahwism,” see Stern (2001).

saraph is apparently justified by its removal (as a copper serpent) from the Temple, together with the pillars (מצבות) and the Asherah, during Hezekiah's religious reform (2 Kgs 18:4).⁵ Furthermore, the serpent iconography in LBA and Iron Age Canaan displays strong Egyptian influence⁶ especially characterized by an abundance of uraeus representations.⁷ This uraeus symbol and the seraph have much in common:⁸ both are burning and flying creatures that are acknowledged for their protective functions⁹, and both are similarly associated with divine powers and kingship authority.¹⁰

The tenet of the saraph's idolatrous origin is, however, challenged by a specific statement, in the verse that refers to its removal from the Temple (2 Kgs 18:4), that the copper serpent / Nehushtan was manufactured by Moses at YHWH's explicit command (Num 21:6). Such a reference to the copper serpent in Numbers 21 has been justified as a trace of naturalization of this so-called pagan cult into the Yahwistic sphere.¹¹ If so, however, why did the author of 2 Kgs 18:4 both denounce the copper serpent and feel the need to mention such a "forgery" as an authentic feature? Furthermore, if the seraph / copper serpent was as easily identifiable with the Egyptian religion in Ancient

⁵ From such a perspective, the Nehushtan became interpreted as a Jebusite deity, a Syro-Phoenician motif, a military non-Israelite emblem captured by David that became a trophy, an Egyptian symbol of royal sovereignty, an apotropaic Babylonian talisman, a Phoenician serpent staff of Eshmun, or a relic of local Canaanite fertility rites. See Fabry (1998b: 378–379) for an overview. Münnich (2005: 49) concludes, "[...] *The bronze serpent was primarily a symbol of a deity in competition with the cult of YHWH as it moved towards monotheism.*"

⁶ Joines 1974: 63; Koh 1994: 110; Charlesworth 2010: 72–73.

⁷ Concerning the Egyptian influence on representations of serpents in Canaan at the Iron Age, see Keel and Uehlinger 1998: 251, 257, 270–274. Keel (1977: 74–76; 92–95; 110–111) justifies this view by exhibiting a series of Israelite seals from the monarchic period that portray four-winged serpents clearly evoking an Egyptian uraeus. See also Morenz and Schorch 1997: 369–370; Görg 1978: 28–29; Koh 1994: 84–120.

⁸ Joines 1974: 45–49; Mettinger 1999: 743. The homology between the seraph (burning serpent) evoked in Isa 14:29 and the uraeus is suggested by de Savignac 1972: 321; Day 1979: 150; Mettinger 1999: 742–744, Hendel 1999: 744–747 and Joines 1974: 43. Mettinger (1999: 743) assumes that the Hyksos introduced the Egyptian uraeus in Canaan and naturalized it into a seraph. Even the name *saraph* is interpreted by Morenz and Schorch (1997: 376–367, 372–379) and by Wildberger (1991: 264) as a borrowing from two Egyptian terms: *srp*, denoting the act of burning, and *sf*; evoking the Egyptian griffin.

⁹ This comparison is developed by de Savignac 1972: 320; Rütterswörden 2004: 224, 227; Mettinger 1999: 743 and Morenz and Schorch 1997.

¹⁰ See Keel and Uehlinger (1998: 251, 257, 270, 273) concerning the extensive use of the four-winged uraeus as a protective symbol in Judah and Israel as well as the entire Levant.

¹¹ Koh 1994: 11; Sweeney 2007: 403.

Israel as it is for today's scholars, why is this symbol so well integrated into the Yahwistic sphere in Isaiah (Isa 6:2–3; 14:29)? These questions prompt a quest for alternative explanations.

The simplest way to combine a profound Egyptian cultural influence on the serpent symbolism in Canaan¹² with an essential relation between the saraph and YHWH is to assume that the saraph was originally a Yahwistic symbol that was subsequently influenced in its representation by the uraeus.

Biological considerations may help us to verify this assumption. If the saraph is truly a Yahwistic symbol later influenced in its iconography by the Egyptian uraeus, one would expect the living species that inspired its representation to be indigenous to Canaan and abundantly encountered in the area where the cult of YHWH originated. Alternately, if the saraph was originally an Egyptian symbol, it should display characteristics fully compatible with one of the cobra species that is identified with the Egyptian uraeus.¹³ Therefore, identifying the saraph-related serpent species may be of crucial importance in determining the origin of this symbol, its evolution, and the nature of its interaction with the Egyptian uraeus.

PRELIMINARY CONSIDERATIONS

The Biblical Sources

The Bible invokes the term “seraph” in various configurations: as a stand-alone noun, שרף (sing. Num 21:8, plur. Isa 6:2, 6) or as one modified by the adjective *flying*, as שרף מעופף (sing. Isa 14:29; 30:6). The term שרף is also a substantive that evokes a “burning serpent” (נחש שרף) (sing. Deut 8:15; plur. Num 21:6). The use of these diverse sources to identify a living related species is possible only if they all refer to the same reality. This point is

¹² From the extensive use of this Egyptian motif and its combination with others (falcons, scarabs, winged solar disk, and so on) in south Canaan at the Iron Age, Keel and Uehlinger (1998: 270) concluded that “... the group of southern Palestinian bone seals suggests a strong fascination with Egyptian symbols of royalty and loyalty. The monarchy was represented by the falcon with spread wings, by the lion that strides over an enemy in its path, by the “cartouche” with the king’s name, and perhaps also by the tree flanked by uraei.”

¹³ The uraeus is generally identified as the Egyptian cobra (*Naja haje*), but its red coloration suggests to some scholars that it should be identified as the red spitting cobra (*Naja pallida*) or the Nubian cobra (*Naja nubiae*) (Golding 2013: 56). The serpent presumed to represent the uraeus in the Levant is identified by Keel and Uehlinger (1998: 273) as *Naja nigricollis*.

examined first.

- Parallels between mythical and living seraphim: In Num 21:6, the animals that bite the Israelites (living seraphim) are identified as burning serpents in v. 6. In the next verse, however, they are designated as *the* serpent. The singular definite article typically refers to an archetypal creature, the fantastic saraph, likened to the burning serpent.
- Parallel between substantive and nominal uses of saraph: a homology is stressed in Numbers 21 between saraph as a noun in v. 8 (שרף) and as a substantive in v. 6 (נחשים שרפים). This suggests that the two are equivalent and that the appellation saraph refers to its burning nature.
- Parallel with the copper serpent / Nehushtan: The replacement of saraph in Num 21:8 with the copper serpent (נהש חנתושח) in the next verse reveals the homology of the two. This homology should be extended to the *Nehushtan*, another appellation used in 2 Kgs 18:4 for the copper serpent that was worshiped at the Jerusalem Temple.¹⁴
- Parallel with the flying saraph: The seraphim in Isa 6:2 are creatures that use a pair of their wings for flying. The verbal expression עופף that specifies that their motion in this verse finds a correspondence in the appellation of this creature as a flying seraph (שרף מעופף) in Isa 14:29 and 30:6.¹⁵

These observations reveal that the various designations of the saraph all refer to the same reality.¹⁶

The saraph as a living serpent

Serpents that fly and breathe fire are fantastic creatures. Therefore, it is necessary to evaluate the extent to which they have a precise living counterpart.

- Coexistence with living species: The saraph is sometimes mentioned in the company of living creatures. In Deut 8:15, for example, it is associated with scorpions. In Isa 14:29, the flying seraph is linked to a living serpent

¹⁴ Also Blenkinsopp (2000: 225) suggests a parallel between the seraphim in Isaiah 6 and the Nehushtan in the temple: “*It is tempting to associate this aspect of the vision scenario with the cult object in the Jerusalem temple known as Nehushtan [...]. This would at any rate explain the altar and the hot coals [in the Isaiah 6 vision], hardly consistent with the primary image of a throne room or audience hall.*”

¹⁵ This parallel is suggested by Keel (1977: 74–110) on the basis of winged serpent motifs on seals from Israel in the monarchic period.

¹⁶ Earlier scholars proposed a similar approach toward deducing the serpentine nature of the seraphim in Isaiah 6 (Day 1979: 150; Ornan 2012: 18; Rütterswörden 2004: 224) and alluded to the homology between the seraphim and the Nehushtan (de Savignac 1972: 322; Day 1979: 151).

species called *šepa*ʿ. In Isa 30:6, it is mentioned in association with another living serpent, called an *epʿeh*, that is known for its dangerous venom (Isa 59:5). Such a collection of references indicates that the seraph in these verses denotes a living species.

- **Serpent attack:** Num 21:6–9 describes the attack by burning serpents in highly naturalistic terms. Nothing in the Israelites’ attitude indicates that they have suddenly encountered a frightening mythic creature. They only complain about the lethal consequences of the snakebite, thereby confirming their view of the “burning serpents” as live serpents.
- **Habitat:** We learn in Deut 8:15 that the seraph is found in a dreadful arid wilderness. In Isa 30:6, it is described as the denizen of stony mountainous areas characterized by narrow canyons (בארץ צרה וצוקה). Such a geographical restriction is typical of the habitat of a living species of serpents.

These observations indicate that the biblical term “seraph” denotes both a fantastic creature and a real species living in the stony mountains of the arid desert that covers the southernmost part of Canaan. Their conflation reveals that the properties of the fantastic seraph should correspond to those of a living species.

Non-Biblical Literary Sources

Flying serpents are also mentioned in an Assyrian chronicle relating the Esarhaddon expedition in Egypt (671 BCE).¹⁷ This source, though fragmentary, speaks of dangerous flying serpents that threatened the Assyrian troops en route to Egypt:

*Four miles of land I travelled over alum, mušû stones [and other stones] four miles of land, a journey of two days, I stepped repeatedly on two-headed snakes [...whose touch] is deadly, but continued; four ‘miles’ of land, a journey of [two days] – yellow snakes spreading wings (but continued); four miles of land, a journey of two days: in sum 16 miles of land, a journey of eight days, I marched very much [...].*¹⁸

The text evokes an arid and inhospitable region not far from Egypt, probably in northwestern Arabia, Arabah, Negev, or Sinai. Herodotus (III, 107, 109) also refers to the existence of winged serpents in the geographical area that he defines as Arabia:

¹⁷ This text is a series of fragments (K 3082, K 3086, Sm 2027) reported by Borger 1956: 111–113.

¹⁸ Translated by Radner 2007: 354–355.

*The trees which bear the frankincense are guarded by winged serpents, small in size and of varied colors, whereof vast numbers hang about every tree. They are of the same kind as the serpents which invade Egypt and there is nothing but the smoke of styrax which will drive them from the trees. [...] These winged serpents are nowhere to be seen except in Arabia where they all congregate together. This makes them appear so numerous.*¹⁹

Neither Esarhaddon nor Herodotus calls these creatures “seraph.” Their testimony, however, although independent of the Israelite tradition, displays many affinities with it:

- Both the seraph and the creatures referenced by Esarhaddon and Herodotus are flying serpents.
- The flying serpents mentioned by Esarhaddon and Herodotus live in arid regions. The seraph is also encountered in arid areas (Deut 8:15, Isa 30:6).²⁰
- Esarhaddon’s chronicle evokes the flying serpents as genuine living serpents. Herodotus also defines them as genuine organisms that reproduce sexually (III, 109) and even describes a site where their bones accumulate (II, 75). If so, exactly as in the biblical sources, the flying serpent is a fantastic creature closely related to a real serpent that inhabits a desert area.
- Herodotus (III, 109) identifies the flying serpent as a viper: “*The Arabian winged serpents do indeed seem to be numerous; but that is because (although there are vipers in every land) these are all in Arabia and are found nowhere else.*” Also in the Bible, the saraph seems to be closely related to the *šepa*’ and *ep*’*eh* snakes (Isa 14:19 and Isa 30:6, respectively), which are generally identified as viper species.²¹
- Herodotus refers to flying serpents that protect the incense trees of southern Arabia (III, 107). The Israelite copper serpent (conflated with the saraph) is also closely related to incense and incense burning.²²

¹⁹ Translated by Godley 1920.

²⁰ In Numbers 21, the Israelites’ complaint about the extremely arid desert (devoid of food and water, v 5) immediately before their encounter with the living saraph (v 6) confirms the predilection of this serpent species for arid desert.

²¹ See HALOT 1: 79 and 3:1049 for *ep*’*eh* and *šepa*’ respectively. However, Rütterswörden (2004: 225) assumes that the seraph should not be totally identified with these serpents; it rather designates another species.

²² This is revealed in 2 Kgs 18:4, where Hezekiah “[...] broke the copper serpent which Moses had made; for till this time the children of Israel burnt incense to it—it was called Nehushtan.”

These parallels suggest that Esarhaddon, Herodotus, and the biblical sources refer to the same fantastic creature and its closely related living species. Therefore, one may use them to determine which species of serpent should be identified with the saraph.

IDENTIFYING THE SARAPH SPECIES

Some scholars have suggested that the flying serpents reported by Esarhaddon and, especially the bones described by Herodotus, refer to fossils species that are observable in mountainous areas.²³ This interpretation, however, is hardly compatible with the explicit mention, in these sources, of these creatures' dangerous venom. Other scholars attempt to identify the flying serpent among living species of flying reptiles.²⁴ This proposition also fails because no such species is encountered in the Near East. Consequently, the sources that evoke this creature need to be reexamined.

Geographic Habitat

The account of the mass attack by burning serpents in Num 21:6–9 indicates that this species is abundantly encountered in the region between Mount Hor and the Red Sea (Num 21:4), corresponding to the Arabah Valley and its surrounding mountains.²⁵ The most common venomous serpent in this area is a species of viper, *Echis coloratus*. As shown in **Fig. 1**, two subspecies of *Echis coloratus* coexist in Canaan. One, *Echis coloratus terraesanctae*, inhabits the Negev and the mountainous areas around the Jordan Valley and the Dead Sea. The other, *Echis coloratus coloratus*, is a reddish morph encountered *only* in the Arabah Valley and its surrounding mountains, as well as in southern Sinai (**Fig. 2**).²⁶ If *Echis coloratus* is the living counterpart of the saraph / flying serpent, both should share the same habitat.

²³ See Radner (2007) and ref. therein.

²⁴ For review of the living species identified with the flying serpent, see Braun 2004: 272–273; Rollinger 2004: 929–930.

²⁵ The mention in Num 21:5 of an arid country devoid of water indicates that the account relates to the Israelites' walking not in the Arabah Valley itself (a savanna with sources of water) but in the surrounding stony mountains, another favored habitat of the living saraph. The proposal of this itinerary, probably running west of the Arabah Valley, is justified by evidence that the Arabah belonged to the territory of Edom, which the Israelites were enjoined against entering (Num 20:18–21).

²⁶ Babocsay 2003: 29–30. In Northern Arabia and southward at least as far as Jeddah, *Echis coloratus* is dark steel-blue with orange blotches. The reddish morph is specifically encountered in the Arabah and Sinai areas.

According to Herodotus, Arabia is the exclusive habitat of the flying serpent (III, 109). Its association with trees that were traditionally cultivated for incense in mountains of Yemen indicates that this serpent is found even in the southernmost part of the peninsula. Herodotus also mentions its presence in the mountainous parts of the eastern desert of Egypt: “*In the spring the winged snakes come flying from Arabia towards Egypt but are met in the gorge (near Buto) by the birds called Ibis who foil their entrance and destroy them all*” (II, 75). This text reveals that the flying serpent is rarely (= in spring only) observed in the eastern desert of Egypt and its habitat is bounded to the northwest by the northern part of the Nile Valley. By extension, the flying serpent should also inhabit the area between Arabia and the northeastern Egyptian desert: the Sinai and the Arabah Valley.

This geographic habitat of the flying serpent corresponds precisely to that of *Echis coloratus*, which inhabits the area from Yemen / Dhofar in the south to the northwestern parts of the Arabian Peninsula. This serpent also abounds in Arabah and Sinai (especially the mountainous southern part of this peninsula) and is rarely observed in the eastern part of the Egyptian desert. This area marks the western bound of the habitat of this species, which excludes the Nile Valley and the western Egyptian desert.²⁷ Therefore, the territory of the flying serpent and the geographic range of *Echis coloratus* correspond perfectly.

Biology

Both the biblical authors and Herodotus provide details about the mode of life of the saraph / flying serpent. This allows us to compare them with the biology of *Echis coloratus*.

- **Rocky habitat:** According to Isa 30:6, the saraph lives in a rocky / mountainous environment. Esarhaddon also reports that the flying serpent attack occurred during an eight-day journey in a stony, arid area.²⁸ Herodotus and Theophrastus confirm that the flying serpents inhabit mountainous / ravine areas.²⁹ Similarly, the *Echis coloratus* lives exclusively in difficult terrain.

²⁷ Babocsay 2003: 30.

²⁸ Radner 2007: 355.

²⁹ Theophrastus (*Hist. Plant*, ix, 6) confirms this by describing the flying serpent as a poisonous serpent that lives on trees growing in ravines (reference reported by Wiseman 1972: 109). The bone deposit mentioned by Herodotus is located in a mountainous area east of the Nile Valley, which represents the westernmost bound of this serpent’s habitat: “*This place, where the backbones lay scattered, is where a narrow mountain pass opens into a great plain which adjoins the plain of Egypt. Winged serpents are said to fly from Arabia at the beginning of spring, making for Egypt; but the ibis birds encounter the invaders in this pass and kill them*” (II, 75).

This characteristic restricts its geographical distribution to the mountainous / rocky areas of Arabia, Arabah, Sinai, and the eastern Egyptian desert.

- **Arboreal habitat:** Both Herodotus and Theophrastus specify that the flying serpents live in trees. This characteristic is uncommon. Serpents may exploit the shady environment of bushes and small trees for nesting and ambushing, especially under arid conditions, but they rarely climb them. However, *Echis coloratus* is specifically encountered *within* desert bushes, where it ambushes its prey (**Fig. 3**).³⁰ This is another singularity that specifically links the flying serpent with *Echis coloratus*.
- **Bird predation:** *Echis coloratus* is one of the rare serpents that preys on birds.³¹ In the Arabah valley, birds even constitute the main nourishment of *Echis coloratus coloratus*, which ambushes migrant passerines that pause by alighting on bushes and trees. This explains why this serpent spends most of its time in trees and bushes, especially in this region. In the mythical mind, the capture of birds such as migratory passerines indicates that the predator knows a great deal about flying. Furthermore, serpents swallow their prey whole, meaning that *Echis coloratus* ingests not only the birds' flesh but also their inedible feathers. This feature encourages the identification of this species with its avian prey and their flying motion. Even more, the ingestion of birds is a very long and difficult thing for a serpent to do: when the serpent presses on the bird's thorax in an attempt to swallow, it causes the bird's wings to open. Accordingly, the head of *Echis coloratus* may sometimes be observed as flanked by a pair of open wings until the bird is completely swallowed. As shown in **Fig. 4**, this transforms *Echis coloratus* into a temporarily winged serpent.

Venom Characteristics

Flying serpents are considered threatening creatures. Herodotus (II, 75) reports that the Egyptians worshipped Ibis birds because they protect the Nile Valley from serpent invasion. In Num 21:6–9, too, the Israelites complain about being killed by the venom of the saraph. This invites us to compare the

³⁰ Yosef, Roman and Zduniak (2012). In the southern Arabah region, this species is especially associated with the desert bush *Salvadora persica*. See Tsairi and Bouskila 2004.

³¹ Concerning singularities of the regime of *Echis coloratus* in comparison with other species of the *Echis* genus, see Richards, Barlow and Wüster (2012). This characteristic corresponds to Herodotus' mention of flying serpent from in the eastern Egyptian desert especially observable in the spring. This season is the period of bird migration, in which *Echis coloratus* finds its prey in abundance.

effect of the venom of *Echis coloratus* with that of the burning serpents mentioned in Num 21:6–9.

- **Burning effect:** Two main types of serpent venom coexist in the wild: neurotoxic and hemotoxic. Neurotoxic venoms produce muscle paralysis accompanied by a cold and heavy sensation that spreads gradually from the bite wound. Hemotoxic venoms cause internal bleeding and rapid cell necrosis, stimulating a general inflammatory reaction due to the massive release in blood of cellular components. They provoke a sensation of intense burning that rapidly diffuses from the bite wound.³² Such a distinction between the two types of venoms apparently existed in ancient Hebrew.³³ From the etymology of saraph (שרף = to burn), many scholars have deduced that the appellation “burning serpent” (נחשים שרפים) evokes the burning / fiery sensation provoked by the venom.³⁴ The venom of *Echis coloratus* also falls into the hemotoxic category; it stimulates an intense sensation of burning that rapidly diffuses from the bite wound.
- **Relative lethality:** The incidence of mortality caused by seraph bite is described as follows: “*And YHWH sent among the people the fiery serpents (הנחשים השרפים), they bit the people (העם) so that died much people of Israel (עם רב מישראל)*” (Num 21:6). Whereas the second section of verse 6 describes the people at large (העם) as having been bitten by the seraph, the third section reports that the venom kills only some of them. This indicates that the venom of the saraph is not universally lethal. Similarly, the venom of *Echis coloratus* is moderately lethal, killing about 30% of bitten individuals.³⁵
- **Treatment:** Jeremiah mentions two types of serpents: those whose venom may be neutralized by charms (לחש) and others whose venom resists such treatment (Jer 8:17). This distinction reveals an empirical knowledge about efficiency of charms and other artifices against the venom of some

³² Warrell 2010: 79.

³³ This is indicated by the two nouns that denote serpent venom: חמה (literally, the *hot*, Deut 32:24, 33; Pss 58:15; 140:4), which evokes the burning sensation, and מרורה (= the *bitter*, Job 20:14), which corresponds to the very bitter taste that the neurotoxins of the venom leave in the mouth, occasioned by the abnormal reflux of bile and other digestive secretions due to the effect of neurotoxins on stomach smooth muscles.

³⁴ HALOT 3: 1360; Wyatt 2009: 32; Charlesworth 2010: 16, 330.

³⁵ Porath *et al.* 1992; Benbassat and Shalev 1993. Among the species of the *Echis* genus, *Echis coloratus* is considered the least dangerous. This singularity is apparently related to its specialization in ambushing and capturing small passerines, for which highly toxic and poisonous venom is not necessary. See Richards Barlow and Wüster (2012).

serpent species but not of others. Indeed, charms and similar features may do much to mitigate physiological stress among victims of snakebite, even preventing the lethal consequences of the venom in some cases.³⁶ The “miraculous” healing of the Israelites by the copper serpent in Numbers 21 should be credited to such stress-mitigating treatment. The venom of *Echis coloratus* kills small passerines and mammals almost instantaneously but affects humans more slowly.³⁷ Death is usually consequential to heart failure induced by the rapid diffusion of the venom and its attendant physiological shock. This means that, exactly as with the burning serpents in Numbers 21, mortality by *Echis coloratus* may be mitigated effectively by lowering the victims’ level of stress.

This series of observations reveals a strong correspondence between the characteristics of the seraph / flying serpent and those of *Echis coloratus*. These two creatures display exactly the same geographic range and the same singularities of habitat. The venom of both has a similar burning effect. Even the flying quality of the seraph finds a correspondence in the bird predation that characterizes *Echis coloratus*, especially the subspecies that inhabits the Arabah and Sinai. Such an affinity with the saraph / flying serpent is not observed among any other species serpent in the Arabah.³⁸ Hence the seraph should be identified with *Echis coloratus* and, more particularly, with the *Echis coloratus ssp. coloratus* subspecies that inhabits the Arabah Valley and southern Sinai.

³⁶ The efficacy of such treatment for viper species living in this geographical area is well known. It efficiently counteracts the effect of sarafotoxin, a peptide identified in the venom of *Atractaspis engaddensis* and many *Echis* species that stimulates an abnormal vasoconstriction of the coronary arteries, inducing death by heart attack. See Warrell 2010: 79.

³⁷ Gilon, Shalev and Benbassat (1989). More rarely, death may occur within a few days, following complications (mainly renal) of the internal bleeding.

³⁸ The other snakes living in this area are the desert horned viper *cerastes cerastes* (and related species such as *cerastes vipera*) and the black desert cobra, *walterinnesia aegyptia*. None of these serpents, however, displays a significant level of similarity with the seraph or the flying serpent in geographic range, biology, and venom effect. The viper *Pseudocerastes persicus fieldi* also ambushes its prey—probably birds—on bushes but is mainly encountered in the Negev and not in the the Arabah Valley.

CONSEQUENCES OF THE SARAPH / *ECHIS COLORATUS* HOMOMOLOGY

The Question of Egyptian Influence

The Egyptian influence on the glyptic of winged serpents, especially apparent in Canaan in the Late Bronze/Iron Age, led most scholars to assume that the saraph symbol is of Egyptian origin (see Introduction). The foregoing findings, however, urge us to reconsider this assumption. Given that *Echis coloratus* is not encountered in the Nile Valley, its affinity with the saraph lends itself to two possible explanations: (i) the saraph is an Egyptian symbol that became identified with the Canaanite species *Echis coloratus* in the course of its naturalization; (ii) the saraph is a purely Canaanite symbol whose figuration was influenced by the Egyptian glyptic in the Late Bronze Age.

Herodotus reports having visited the site east of the Nile Valley where the invasion of flying serpents *from Arabia* is stopped annually (II, 75; III, 109). If so, the Egyptians regarded the flying serpent as a foreign creature. This evidence is hardly compatible with the belief that the Israelites borrowed the saraph from the Egyptian religion. The Egyptians' memory of the foreign origin of the flying serpents also suggests that the saraph symbol was already in use in Canaan *before* it was represented as an Egyptian uraeus in the Late Bronze Age. Accordingly, the biblical sources that typically identify the saraph as *Echis coloratus* probably refer to a south Canaanite tradition anchored in the Middle Bronze Age, if not earlier.

The saraph is also represented as a copper serpent, a cultic artifact encountered almost exclusively in Canaan.³⁹ It is neither figured as a cobra-like serpent nor inspired any more by the Egyptian glyptic. This means that in Canaan, the influence of the Egyptian glyptic on the saraph symbol coexisted in the Late Bronze Age with its indigenous representation as copper serpent. The latter form is encountered especially in sanctuaries and even in the holy of holies, indicating that the indigenous representation of the saraph maintained its religious importance alongside the Egyptian cultural influence.

³⁹ Koh 1994: 113–114; Münnich 2005: 39–41. Copper serpents have been identified at Meggido, Tel Mevorakh, Sichem, Gezer, and Hazor from the Late Bronze Age. All are similar in shape and size (about 10–20 cm) and all were unearthed in the sacred temple area. In Temple H at Hazor, two copper serpents (the first from Stratum IB [1400–1300 BCE] and the other from Stratum IA [1300–1200]), were unearthed from the holy of holies. Koh (*Snake cult*, p. 115) concludes: “*Taking all these factors in consideration, it is apparent that the metal snake symbols are strictly a southern Levantine development, more precisely a Canaanite heritage.*”

Essential Relationship between YHWH and the Saraph

The identification of the saraph as an authentic Canaanite symbol, along with its proximity to YHWH, suggests once again that this symbol may have belonged to the Yahwistic religious sphere from its very origin. This hypothesis is strengthened by the mention of YHWH as “originating” in Seir (Arabah Valley) and Sinai (Deut 33:2), the specific habitat of *Echis coloratus ssp. coloratus*. The essential link between the seraph and YHWH is confirmed by their shared association with metallurgy.

- The living saraph and areas of copper production: Due to its preference for rocky environments, *Echis coloratus* is encountered mainly in the mountainous parts of the Arabah and Sinai, where copper is mined (**Fig. 1**). The linkage with copper is reinforced by the reddish color of the morph specifically encountered in the southern Arabah and southern Sinai (**Fig. 2**),⁴⁰ which evokes the ruddy metal. The creature’s mysterious motion on the rocks may easily be associated with the serpentine motion of liquid metal on solid ground, and its burning venom even recalls contact with copper in its molten state.
- The saraph as a symbol of metallurgy: The representation of the seraph as a copper serpent spontaneously associates it with copper metallurgy. Such a kinship is supported by the appellation of this artifact as *Nehushtan* (2 Kgs 18:4), a term stressing the semantic proximity of copper (נְחָשׁ) and serpent (נָחָשׁ). It is also revealed by the association of the copper serpent found in the tent-sanctuary of Timna with the cultic metallurgy that took place there.⁴¹

⁴⁰ Mendelsohn 1965: 185–187; Babocsay 2003. This reddish morph is apparently an adaptation to the reddish color of the sandstone of the mountains in this area.

⁴¹ See Rothenberg (1988: 147 and pl. 11) concerning the copper serpent from Timna. A metallurgical casting workshop with two furnaces has been identified at Locus 109 of Site 200 (the Timna sanctuary area). This workshop was active in the Egyptian period (Stratum III) and the “Midianite” period of the tent-sanctuary (Rothenberg 1988: 192–198). The nexus of cultic metallurgy and the copper serpent is confirmed by the discovery of a similar copper serpent in a metallurgical cultic context in the copper production area of Bithnah, Masāfi, Salūt and Sarūq al-Hadīd, in the Oman peninsula area (Benoist *et al.* 2015). Exactly as in Timna, the sanctuary (apparently operative between 1100 and 650 BCE) displays traces of cultic metallurgy from its earliest phase. Just as in 2 Kgs 18:4, the profusion of incense burners, especially identified at Bithnah, indicates that the copper serpent was worshipped with incense. As stressed by Benoist (2007: 50–51), affinities between this copper-serpent metallurgical cult and that of Timna are confirmed by the stylistic parallels between the painted ware found in the site and the Qurayyah

- **YHWH and metallurgy:** YHWH's association with metallurgy is revealed by his origin in areas that are known for the mining and production of copper: the mountains of Seir (Judg 5:4; Deut 33:2) near Punon; Mount Paran (Deut 33:2, Hab 3:3), located near the Wadi Abu Kusheiba mining area⁴²; Teman (Hab 3:3), probably the southern Arabah Valley including the Timna mining district; and the mountainous area of Sinai (Deut 3:3; Judg 5:5), comprising the mining district of Serabit el Khadim (**Fig. 1**). Such a connection is confirmed by Zech 6:1, which states explicitly that YHWH dwells in *mountains of copper*.⁴³ This metallurgical background is further reinforced by the assumed pre-Israelite worship of YHWH among the Canaanite metalworkers (the Kenites),⁴⁴ the volcanic theophany of YHWH at Sinai (a typical characteristic of gods of metallurgy in antiquity),⁴⁵ the likening of YHWH's *kabod* with the radiance of molten metal,⁴⁶ and the deity's metallurgical *modus operandi*.⁴⁷ All this evidence implies that YHWH was acknowledged in Canaan for his essential relation with metallurgy before he was worshipped by the Israelites.

The convergence of these observations reveals an essential relation between the saraph and YHWH through copper metallurgy. The continuity of the serpent figuration as a religious symbol is evidenced in Canaan from the Chalcolithic to the Persian periods.⁴⁸ Accordingly, if in Canaan the serpent is related to copper metallurgy from the very origin of this activity (Chalcolithic) and if it is also essentially related to YHWH, the deity with strong metallurgical background, we may conclude that the cult of the god of Israel is rooted in the early development of copper metallurgy in Canaan.⁴⁹

"Midianite" pottery found in northwestern Arabia, northern Sinai, the Arabah, and the Negev at this time (see Rothenberg 1998; Tebes 2007: 85; Ben-Yosef *et al.* 2012: 62–63).

⁴² According to Deut 1:1, Paran is explicitly located in the Arabah Valley. This location probably corresponds to the outfall of Nahal Paran, the most important wadi in the Negev.

⁴³ The unrealistic description of the Promised Land as a mining area (a land where copper and iron are abundantly found—Deut 8:9) also finds justification in the representation of YHWH's dominion as a metallurgical area. See Amzallag 2013: 157–158.

⁴⁴ McNutt 1990: 237–244; Blenkinsopp 2008: 133–136; Mondriaan 2011.

⁴⁵ Amzallag 2014.

⁴⁶ Amzallag 2015a.

⁴⁷ Amzallag 2013.

⁴⁸ Joines (1974: 63) concludes that, in Canaan, "*The bronze serpent was a cultic symbol, and its use dated from at least the end of the Chalcolithic Age to the Persian period.*" This is confirmed by Koh 1994: 110–116.

⁴⁹ Amzallag 2016.

The Israelites' sin in Numbers 21

At first sight, the sin that brought on the attack of the burning serpents in Numbers 21 (v. 6) is the Israelites' indictment of Moses for having taken them from the fertile land of Egypt "to die in the wilderness" (v. 5). However, the Israelites express a similar protestation before (Ex 14:11–12, 16:3; Num 14:2, 16:3, 20:4) without precipitating a similar reaction of divine anger. In these precedents, the complaint is answered by mention of the power of YHWH against the Egyptians (Ex 14:13) and his ability to supply food (Ex 16:4) and water (Num 20:4). At worst, the punishment for such a grievance is none other than its fulfillment: the "complaining generation" is condemned to expire in the wilderness instead of conquering the Promised Land (Num 14:35, 26:65). For this reason, the serpent attack in Num 21:6–9 can hardly be interpreted as a divine reaction to the complaint voiced. If so, it was probably triggered by a different sin that Numbers 21 silences prudently.

The serpent attack occurs immediately after the Israelites are instructed to circumvent the land of Edom from the south (Num 21:4) after the Edomites deny them access (Num 20:18, 20–21). This interdiction against Israelite entry to the land of Edom (or at least some of it) is reiterated in Deut 2:1–5:

¹Then we turned and journeyed into the wilderness in the direction of the Red Sea, as YHWH told me. And for many days we compassed Mount Seir. ²Then YHWH said to me: ³You have been compassed this mountain long enough. Turn northward (פנו לכם צפונה) ⁴and command the people, "You are about to pass by the border of your brothers, the people of Esau, who live in Seir. They will be afraid of you [but] be very careful (ונשמרתם מאוד). ⁵Do not contend with them, for I will not give you any of their land, no, not so much as for the sole of the foot to tread on, because I have given Mount Seir to Esau as a possession.

Here we learn that this injunction is not simply an expression of Edomite hostility to the Israelites but a divine interdiction. The Israelites are also warned about the hazard that inheres to entering the land that YHWH has given to Edom (v 4). The nature of the peril is not specified but it probably refers to none other than the burning serpents evoked in Numbers 21. Immediately before the attack, the biblical account reports that the Israelites became impatient (ותקצר נפש העם בדרך) due to the arduous detour attending to this interdiction (Num 21:4). We may conclude, therefore, that the serpent attack is a

reaction to the Israelites' attempt to shorten their journey by crossing the forbidden areas of the land of Edom.

According to Numbers 21, the serpent attack occurs after the Israelites leave Mount Hor (v. 4) and before they reach Oboth (v. 10). In Numbers 33, however, where the Israelites' itinerary is recapitulated, two additional stops, Zalmonah and Punon, are mentioned between Mount Hor and Oboth (Num 33:41–43). If their omission in Numbers 21 is intentional, we may guess that at least one of them is closely related to the Israelite sin that precipitated the serpent attack.

In the early Iron Age, Punon was the most important site of copper mining and smelting activity in the Arabah. If the incident occurred there (or in one of the many other stations of copper production in its vicinity), as scholars have suggested,⁵⁰ we may deduce that (i) the invasion of the forbidden area of copper production is the hidden sin of the Israelites; (ii) it is the burning serpents that prevent access to this forbidden mining area in the name of YHWH. The use of burning serpents as guardians of copper mines in Numbers 21 is echoed by Herodotus' mention (III, 107) of the flying serpents that guarded the precious incense trees in southern Arabia. It also coheres with the guardianship of mineral resources and treasures that is traditionally attributed to the dragon in antiquity.⁵¹

The Israelites' sin is now clear: it is none other than their incursion into the forbidden metallurgical areas of the Arabah Valley, which are guarded by saraph serpents at YHWH's bidding. This conclusion explains why the true nature of this sin is so carefully silenced by the author of Numbers 21. The incident of the burning serpents occurred after the Sinai covenant transformed the sons of Jacob into the people of YHWH. As such, Israel expects to be authorized to cross, if not to inherit, the region where the cult of YHWH originated: the Arabah mountains (Seir, Paran, Timna). Accordingly, the explicit exclusion of the Israelites from these areas, by means of the serpent attack,

⁵⁰ More than a century ago, Lagrange (1900: 284–285) already localized the attack of the burning serpents at Punon: “*It could be added that when E[lohist] refers to a very difficult region infested with snakes where Moses made a serpent of brass or bronze (Num. 21.9), there is an unsought for, but nonetheless striking, coincidence with the situation of Araba and Faynan.*” This opinion is defended by some recent scholars, e.g., Sawyer 1986: 156 and Tebes 2009: 108. Other scholars suggest, however, that this story carries the memory of an incident at Timna. See Milgrom 1990: 175; Charlesworth 2010: 17, 327; Maneschg 1981: 157; Fabry 1998b: 380. The latter opinion is supported mainly by the discovery of a copper serpent at the early Iron Age stratum of the Timna sanctuary.

⁵¹ Grottanelli 1987: 433–434.

reveals that the Sinai covenant has not eradicated the primeval covenant of YHWH with the metalworkers and that their control of the former holy sites of his worship is sustained. The silence surrounding this sin in Numbers 21 looks like a literary artifice that is needed for the preservation of Israel's status as the *exclusive* people of YHWH, as promoted by biblical theology.

Canaanite Influence on the uraeus Symbol

The uraeus symbol is already evident in the pre-Dynastic period and is specifically affiliated with Wadjet, the patron cobra-goddess of Lower Egypt. This is why scholars consider Wadjet the archetype of the burning and flying serpent.⁵² This opinion, however, is challenged by the incongruity of the fiery / burning property of the uraeus and the cooling effect of cobra neurotoxic venom.⁵³ This discrepancy indicates that the Egyptian representation of the fiery and flying serpent as a cobra is not an original feature.

In the early pre-Dynastic period, the south Canaanite culture was the most important source of foreign influence in Lower Egypt.⁵⁴ Copper from the Arabah Valley was apparently of central importance in commercial trade between the Nile Valley and the south Canaanite civilization.⁵⁵ Maadi was the distribution center of goods imported from southern Canaan.⁵⁶ A population of south Canaanite origin dwelled permanently in Buto and Maadi and was apparently involved in the local development of metallurgy and trade in metallic implements.⁵⁷ These observations, together with the discrepancies between the characteristics and the figuration of the uraeus, suggest that this symbol emerged in Lower Egypt in close relation with the importation of copper from southern Canaan and the religious changes accompanying it. Therefore, it should be considered a naturalization, in the Nile Valley, of the Canaanite symbol of copper metallurgy through the substitution of the cobra, an impressive living species of local serpent, for the *Echis coloratus*.

⁵² Rollinger 2004: 936.

⁵³ As a neurotoxin, cobra venom creates a cold and paralyzing sensation that spreads from the location of the bite wound. Alternately, it has been suggested that the fiery nature of the cobra venom gives evidence that it is sometimes projected and dispersed by the serpent and causes skin irritation (Szpakowska 2012). This explanation, however, is challenged by testimonies about saraphs' / burning serpents' specifically biting their victims.

⁵⁴ See Maczynska (2014) for a review of the data.

⁵⁵ Gophna and Milevski 2003: 223; Klimscha 2011: 199; Golani 2014: 130–132; Hauptman *et al.* 2015: 2.

⁵⁶ Wenke 1989: 140; Tutundzic 1993; Joffe 2000: 114.

⁵⁷ Maczynska 2014: 192–193.

EVOLUTION OF THE SARAPH SYMBOL

The foregoing findings, taken together, allow us to reconstitute the history and evolution of the saraph symbol in Canaan:

- 1 Emergence of the saraph symbol: At its earliest stage, saraph apparently denoted *Echis coloratus coloratus*. This venomous serpent species, common in the mining areas of the Arabah and Sinai, was identified as the guardian of these domains and, by extension, with copper production. It also became identified with religious changes that were stimulated by the experience of copper metallurgy, mainly the interpretation of copper smelting as the literal creation of matter and of furnace recycling as the rejuvenation of matter.⁵⁸ This identification is probably rooted in the earliest stages of copper production in the southern Levant.
- 2 Naturalization of the saraph in Egypt: The importation of copper to Lower Egypt precipitated the integration of the Nile Valley into the international network of copper trade that was centered in southern Canaan in the fourth millennium BCE.⁵⁹ This process promoted the emergence of complex societies and of new beliefs shaped by the experience and wonders of copper metallurgy. As the saraph symbol was naturalized, the foreign *Echis coloratus* species was replaced by a local cobra species but its original properties (flying, burning, and its association with metallurgy) were preserved.
- 3 Egyptian influence on the saraph symbol in Canaan: The Egyptian cultural influence in Canaan (especially important in the Late Bronze Age) encouraged the representation of the saraph as the uraeus cobra. This trend, however, coexisted with the local figuration of the saraph as a copper serpent.
- 4 Rejection of the Egyptian religious influence: At the end of the second millennium BCE, the original Canaanite metallurgical worship made a sudden recovery at the expense of the Egyptian substitute en vogue in the Late Bronze Age. This is revealed in the mining district of Timna, where the Egyptian temple of Hathor, destroyed in the thirteenth / twelfth century BCE, was replaced by a tent sanctuary with a copper serpent that in no way recalls any species of cobra. The worship in the Jerusalem Temple of a copper serpent “made by Moses” suggests a similar trend in the Israelite religion, at least in its early form.⁶⁰

⁵⁸ Amzallag 2009, 2015b.

⁵⁹ Amzallag 2009.

⁶⁰ This assumption is supported by the account of YHWH fighting against Egypt upon the birth of Israel (the Exodus). The constantly repeated demand that Pharaoh *acknowledges* YHWH’s *Antiguo Oriente*, volumen 13, 2015, pp. 99–126.

- 5 Reformation of the Yahwistic cult: Hezekiah's elimination of the copper serpent from the Jerusalem Temple (2 Kgs 18:4) reflects not the purification of the Temple of a foreign symbol / deity, but rather a general reformation of the cult of YHWH by removing entities/figurations traditionally associated with him (such as the pillars and the Asherah that are also mentioned in this verse).

The reconstitution presented here shows that the saraph symbol was originally closely related to metallurgy and to a species of serpent, *Echis coloratus coloratus*, that inhabited the mining areas of the Arabah and Sinai. Rather than a foreign symbol that gradually insinuated itself into the Yahwistic sphere, it appears to have been closely related to the god from the very origin of his cult. This indicates that the worship of YHWH is very ancient in Canaan⁶¹ and probably closely rooted in the early exploitation of the copper mines of the Arabah Valley.⁶² The present interpretation of the copper serpent and its significance even suggests that the Israelite religion, at least in its early stages, was a movement that rejected foreign cultural influences in order to renew the ancient and prestigious cult of YHWH in southern Canaan.

ACKNOWLEDGEMENTS

I would like here to warmly thank Gergely Babocsay for his valuable contribution to my understanding of the biology of *Echis coloratus*, for **Fig. 2**, and for having discussed the contents of this paper. I also thank Patrick Jean-Baptiste for drawing the map (**Fig. 1**) and for his useful comments. Aviad Bar and Hadas Hawlena are acknowledged for contributing **Figs. 3** and **4** respectively.

supremacy even suggests that, exactly as in Timna, the opposition to Egypt was religious in nature. Such a trend is echoed in evidence that the conquest of the land of Canaan is treated in Jos 5:9 as the removal of the “shame of Egypt” (חרפה מצרים), that is, the Egyptian influence) on the country.

⁶¹ See Amzallag 2016. This is suggested in Deut 33:27 by the reference to YHWH as אלוהי קדם (= the very ancient deity).

⁶² This point is confirmed by the first mention of YHWH (neither as Elohim nor as YHWH-Elohim) upon the birth of Cain (= the first smelter) in Gen 4:1, a feature emphasizing the essential linkage between the development of metallurgy in Canaan and the “discovery” of YHWH.

ABBREVIATIONS

HALOT = KOEHLER, L. and W. BAUMGARTNER, (ed.). 1994. *The Hebrew and Aramaic Lexicon of the Old Testament*. Trans. M.E.J. Richardson. Leiden, Brill.

BIBLIOGRAPHY

- AMZALLAG, N. 2009. "From metallurgy to Bronze Age Civilizations: The Synthetic Theory". In: *American Journal of Archaeology* 113, pp. 497–519.
- AMZALLAG, N. 2013. "Copper Metallurgy: A Hidden Fundament of the Theology of Ancient Israel?" In: *Scandinavian Journal for the Old Testament* 27, pp. 155–180.
- AMZALLAG, N. 2014. "Some Implication of the Volcanic Theophany of YHWH on his Primeval Identity". In: *Antiguo Oriente* 12, pp. 11–38.
- AMZALLAG, N. 2015a. "The Material Nature of the Divine Radiance and its Theological Implications". In: *Scandinavian Journal for the Old Testament* 29, pp. 80–96.
- AMZALLAG, N. 2015b. "Furnace Re-melting as Expression of YHWH's Holiness: Evidence from the Meaning of qanna (קנן) in Divine Context". In: *Journal of Biblical Literature* 134, pp. 233–252.
- AMZALLAG, N. 2016. "The Serpent as a Symbol of Primeval Yahwism". In: *Semitica* (in press).
- BABOCSAY, G. 2003. "Geographic Variation in *Echis coloratus* (Viperidae, Ophidia) in the Levant with the Description of a New Subspecies". In: *Zoology in the Middle East* 29, pp. 13–32.
- BEN-YOSEF, E., R. SHAAR, L. TAUXE and H. RON. 2012. "A New Chronological Framework for Iron Age Copper Production at Timna (Israel)". In: *Bulletin of the American Schools of Oriental Research* 367, pp. 31–71.
- BENBASSAT, J. and O. SHALEV. 1993. "Envenomation by *Echis coloratus* (Mid-East Saw Scaled Viper) – A Review of the Literature and Indications for Treatment". In: *Israel Journal of Medical Sciences* 29, pp. 239–250.
- BENOIST, A. 2007. "An Iron Age II snake cult in the Oman peninsula: Evidence from Bithnah (Emirate of Fujairah)". In: *Arabian Archaeology and Epigraphy* 18, pp. 34–54.
- BENOIST, A., C. LE CARLIER, J. GOY, M. DEGLI ESPOSTI, B. ARMBRUSTER and G. ATTAELMANAN. 2015. "Snake, Copper and Water in South-Eastern Arabian Religion during the Iron Age: The Bithnah and Masafi Evidence". In: M. ARBACH and J. SCHIETTECATTE (eds.), *Pre-Islamic South Arabia and its Neighbours: New Developments of Research Proceedings of the 17th Rencontres Sabéennes held in Antiguo Oriente, volumen 13, 2015, pp. 99–126.*

- Paris, 6–8 June 2013*. British Archeological Reports International Series 2740, Oxford, Archaeopress, pp. 21–26.
- BLENKINSOPP, J. 2000. *Isaiah 1–39: A New Translation with Introduction and Commentaries*. New York, Doubleday.
- BLENKINSOPP, J. 2008. “The Midianite-Kenite Hypothesis Revisited and the Origins of Judah”. In: *Journal for the Studies of the Old Testament* 33, pp. 131–153.
- BORGER, R. 1956. *Die Inschriften Asarhaddons, Königs von Assyrien*. Archiv für Orientforschung, Beheft 9. Graz, Ernst Weidner.
- BRAUN, T. 2004. “Spines of Winged Snakes”. In: V. KARAGEORGHIS and I.G. TAIPHACOS (eds.), *The World of Herodotus*. Nicosia, Foundation Anastasios G. Leventis, pp. 265–285.
- CHARLESWORTH, J.H. 2010. *The Good and Evil Serpent*. New Haven, Yale University Press.
- DAY, J. 1979. “Echoes of Baal’s Seven Thunders and Lightnings in Psalms XXIX and Habakkuk III:9 and the Identity of the Seraphim in Isaiah VI”. In: *Vetus Testamentum* 29, pp. 143–151.
- DE SAVIGNAC, J. 1972. “Les Seraphim”. In: *Vetus Testamentum* 22, pp. 320–325.
- FABRY, H-J. 1998a. “*nḥs*”. In: G.J. BOTTERWECK, H. RINGGREN and H-J. FABRY (eds.), *Theological Dictionary of the Old Testament*, vol. 9. Trans. D. Green. Grand Rapids, Eerdmans Publishing, pp. 356–369.
- FABRY, H-J, 1998b. “*nḥst*”. In: G.J. BOTTERWECK, H. RINGGREN and H-J. FABRY (eds.), *Theological Dictionary of the Old Testament*, vol. 9. Trans. D. Green. Grand Rapids, Eerdmans Publishing, pp. 370–380.
- FARBRIDGE, M.H. 1970 [1923]. *Studies in Biblical and Semitic Symbolism*. New York, Ktav Publishing.
- GILON, D., O. SHALEV and J. BENBASSAT. 1989. “Treatment of Envenomation by *Echis coloratus* (Mid-East Saw Scaled Viper): a Decision Tree”. In: *Toxicon* 27, pp. 1105–1112.
- GODLEY, A.D. 1920. *Herodotus*. London, William Heinemann.
- GOLANI, A. 2014. “Ashqelon during the EB I Period – A Centre for Copper Processing and Trade”. In: A. MACZYNSKA (ed.), *The Nile Delta as a Centre of Cultural Interactions between Upper Egypt and the Southern Levant in the 4th Millennium BC*. Studies in African Archaeology 13. Poznan, Poznan Archaeological Museum, pp. 119–137.
- GOLDING, W.R.J. 2013. *Perceptions of the Serpent in the Ancient Near East: Its Bronze Age Role in Apotropaic Magic, Healing and Protection*. MA Thesis, University of South Africa.

- GOPHNA, R. and I. MILEVSKI. 2003. "Feinan and the Mediterranean during the Early Bronze Age". In: *Tel Aviv* 30, pp. 222–231.
- GÖRG, M. 1978. "Die Funktion der Serafen bei Jesaja". In: *Biblische Notizen* 5, pp. 28–39.
- GROTTANELLI, C. 1987. "Dragons". In: M. ELIADE (ed.), *The Encyclopedia of Religion*, vol. 4. New York, McMillan Publishing, pp. 431–436.
- HAUPTMANN, A., S. SCHMITT-STRECKER, T.E. LEVY and F. BEGEMANN. 2015. "On Early Bronze Age Copper Bar Ingots from the Southern Levant". In: *Bulletin of the American Schools of Oriental Research* 373, pp. 1–24.
- HENDEL, R.S. 1999. "Nehushtan". In: K. VAN DER TOORN, B. BECKING and P.W. VAN DER HORST (eds.), *Dictionary of Deities and Demons in the Bible* (2nd ed.). Leiden, Brill, pp. 615–616.
- JOFFE, A.H. 2000. "Egypt and Syro-Mesopotamia in the 4th Millennium: Implications of the New Chronology". In: *Current Anthropology* 41, pp. 113–123.
- JOINES, K.R. 1974. *Serpent Symbolism in the Old Testament*. Haddonfield, Haddon Field House.
- KEEL, O. 1977. *Jahwe-Visionen und Siegelkunst. Eine neue Deutung der Majestätsschilderungen in Jes 6, Ez 1 und Sach*. Stuttgart, Verlag Katholisches Bibelwerk.
- KEEL, O. and C. UEHLINGER. 1998. *Gods, Goddesses and Images of God in Ancient Israel*. Minneapolis, Fortress Press.
- KLIMSCHA, F. 2011. "Long-Range Contacts in the Late Chalcolithic of the Southern Levant. Excavations at Tall Hujayrat al-Ghuzlan and Tall al-Magass near Aqaba, Jordan". In: J. MYNAROVA (ed.), *Egypt and the Near East: The Crossroad*. Prague, Czech Institute of Egyptology, pp. 177–209.
- KOH, S. 1994. *An Archaeological Investigation of the Snake Cult in the Southern Levant: The Chalcolithic Period through the Iron Age*. PhD Dissertation, University of Chicago.
- LAGRANGE, M.J. 1900. "L'itinéraire des Israélites. Du pays de Gessen aux bords du Jourdain". In: *Revue Biblique* 9, pp. 273–287.
- MACZYNSKA, A. 2014. "Some Remarks on the Visitors in the Nile Delta in the 4th Millennium BC". In: A. MACZYNSKA (ed.), *The Nile Delta as a Centre of Cultural Interactions between Upper Egypt and the Southern Levant in the 4th Millennium BC*. Studies in African Archaeology 13. Poznan, Poznan Archaeological Museum, pp. 181–216.
- MANESCHG, H. 1981. *Die Erzählung von der ehernen Schlange (Num 21, 4–9) in der Auslegung der frühen jüdischen Literatur*. Frankfurt am Main, Peter Lang.

- MCNUTT, P. 1990. *The Forging of Israel – Iron Technology, Symbolism, and Tradition in Ancient Society*. Sheffield, Sheffield Academic Press.
- MENDELSSOHN, H. 1965. “On the Biology of the Venomous Snakes of Israel”. In: *Israel Journal of Zoology* 14, pp. 185–212.
- METTINGER, T.N.D. 1999. “Seraphim”. In: K. VAN DER TOORN, B. BECKING and P.W. VAN DER HORST (eds.), *Dictionary of Deities and Demons in the Bible* (2nd ed.). Leiden, Brill, pp. 742–744.
- MILGROM, J. 1990. *Numbers*. JPS Torah Commentary. Philadelphia and New York, The Jewish Publication Society.
- MONDRIAAN, M. 2011. “Who were the Kenites?” In: *Old Testament Essays* 24, pp. 414–430.
- MORENZ, L.D. and S. SCHORCH. 1997. “Der Seraph in der Hebräischen Bible und in Ägypten”. In: *Orientalia* 66, pp. 365–386.
- MÜNNICH, M. 2005. “The Cult of Bronze Serpents in Ancient Canaan and Israel”. In: *Iggud – Selected Essays in Jewish Studies* 1, pp. 39*–56*.
- ORNAN, T. 2012. “Member in the Entourage of Yahweh: A Uraeus Seal From the Western Wall Plaza Excavations, Jerusalem”. In: *Atiqot* 72, pp. 15*–20*.
- PORATH, A., D. GILON, H. SCHULCHYNSKA-CASTER, O. SHALEV, A. KEYNAN, and J. BENBASSAT. 1992. “Risk Indicators after Envenomation in Humans by *Echis coloratus* (Mid-East Saw Scaled Viper)”. In: *Toxicon* 30, pp. 25–32.
- RADNER, K. 2007. “The Winged Snakes of Arabia and the Fossil Site of Makhtesh Ramon in the Negev”. In: M. KÖHBACH, S. PROCHÁZKA, G.J. SELZ and R. LOHLKER (eds.), *Festschrift für Hermann Hunger zum 65 Geburtstag*. Vienna, Institute für Orientalistik, pp. 353–365.
- RICHARDS, D.P., A. BARLOW and W. WÜSTER. 2012. “Venom Lethality and Diet: Differential Responses of Natural Prey and Model Organisms to the Venom of the Saw-scaled Vipers (*Echis*)”. In: *Toxicon* 59, pp. 110–116.
- ROLLINGER, R. 2004. “Herodot (II 75f, III 107–109), Asarhaddon, Jesaja und die fliegenden Schlangen Arabiens”. In: H. HEFTNER and K. TOMASCHITZ (eds.), *Ad Fontes! Festschrift für Gerhard Dobesch zum 65 Geburtstag*. Vienna, Eigenverlag der Ausgeber, pp. 927–944.
- ROTHENBERG, B. 1988. *The Egyptian Mining Temple at Timna*. London, Institute for Archaeo-Metallurgical Studies [and] Institute of Archeology.
- ROTHENBERG, B. 1998. “Who Were the ‘Midianite’ Copper Miners of the Arabah?” In: *Metallurgica Antiqua* 8, pp. 197–212.
- RÜTERSWÖRDEN, U. 2004. “Saraph”. In: G.J. BOTTERWECK, H. RINGGREN and H.-J. FABRY (eds.), *Theological Dictionary of the Old Testament*, vol. 14. Trans. D.W. Stott. Grand Rapids, Eerdmans Publishing, pp. 218–228.
- Antiguo Oriente*, volumen 13, 2015, pp. 99–126.

- SAWYER, J.F.A. 1986. "Cain and Hephaestus: Possible Relics of Metalworking Traditions in Genesis 4". In: *Abr-Nahrain* 24, pp. 155–166.
- STERN, E. 2001. "Pagan Yahwism: The Folk Religion of Ancient Israel". In: *Biblical Archaeological Review* 27, pp. 20–29.
- SWEENEY, M.A. 2007. *I & II Kings – A Commentary*. Louisville, Westminster John Knox Press.
- SZPAKOWSKA, K. 2012. "Striking Cobra Spitting Fire". In: *Archiv für Religionsgeschichte* 14, pp. 27–46.
- TEBES, J.M. 2007. "A Land Whose Stones Are Iron, and Out of Whose Hills You Can Dig Copper: the Exploitation and Circulation of Copper in the Iron Age Negev and Edom". In: *DavarLogos* 6, pp. 69–91.
- TEBES, J.M. 2009. "The 'Wisdom' of Edom". In: *Biblische Notizen* 143, pp. 97–117.
- TSAIRI, H. and A. BOUSKILA, 2004. "Ambush Site Selection of a Desert Snake (*Echis coloratus*) at an Oasis". In: *Herpetológica* 60, pp. 13–23.
- TUTUNDZIC, S.P. 1993. "A Consideration of Differences between the Pottery Showing Palestinian Characteristics in the Maadian and Gerzean Cultures". In: *Journal of Egyptian Archaeology* 79, pp. 33–55.
- WARRELL, D.A. 2010. "Snake Bite". In: *Lancet* 375, pp. 77–88.
- WENKE, R.J. 1989. "Egypt: Origin of Complex Societies". In: *Annual Review of Anthropology* 18, pp. 129–155.
- WILDBERGER, H. 1991. *Isaiah 1-12, A Continental Commentary* (trans. Thomas H. Trapp). Minneapolis, Fortress Press.
- WISEMAN, D.J. 1972. "Flying Serpents?" In: *Tyndale Bulletin* 23, pp. 108–110.
- WYATT, N. 2009. "Grasping the Griffin: Identifying and Characterizing the Griffin in Egyptian and West Semitic Tradition". In: *Journal of Ancient Egyptian Interconnections* 1, pp. 29–39.
- YOSEF, R., J.R. ROMAN and P. ZDUNIAK. 2012. "Habitat Choice of Palestine Saw-Scaled Viper (*Echis coloratus*) in an Extreme Environment". In: *Journal of Herpetology* 46, pp. 671–674.

FIGURES

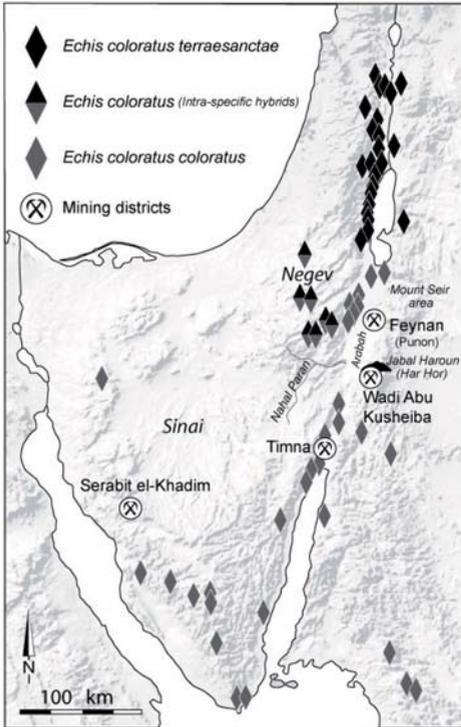


Fig. 1.
Geographic distribution of *Echis coloratus* in Canaan and Sinai.
(Drawn by Patrick Jean-Baptiste)

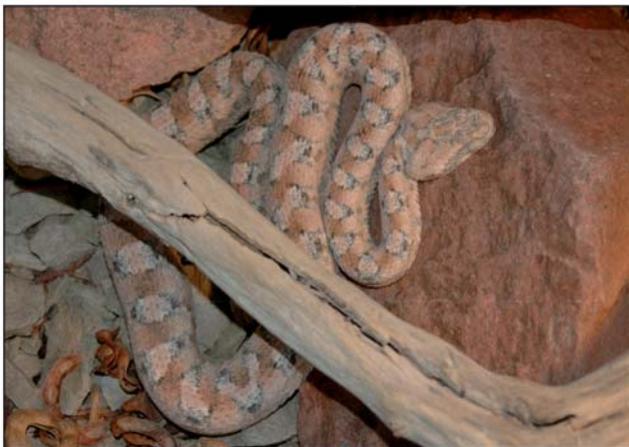


Fig. 2.
The *Echis coloratus* ssp. *coloratus* reddish morph.
(Courtesy of Gergely Babocsay)



Fig. 3.
The arboreal habitat of *Echis coloratus*
(Courtesy of Aviad Bar)



Fig. 4.
Bird predation in *Echis coloratus*.
(Courtesy of Hadas Hawlena)