## חשמל: IS IT AMBER OR METAL?

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#### **ABSTRACT**

The KJV translates אוד in Ezekiel 1 as "amber" (fossilized resin) whereas the Septuagint renders it "electron" (translated in the Vulgate as electrum, which is a mixture of gold and silver). Amber possesses the characteristic of static electricity, and has been known to fly into splinters when polished, thus the use of אוד with the meaning of amber contributes to the sense of a dynamic mechanism moving outwards from the merkebah throne. When אוד is taken in context the communicative aspect is most clearly conveyed in Ez 1:14, which suggests angelic activity in the movement described as back and forth from the throne of YHWH. The suggestion of a dynamic communicative aspect is confirmed when extra-biblical texts relating to Ezekiel chapters 1 and 10 such as I Enoch, Book of Watchers, and the Angelic Liturgy from Qumran, are consulted. Thus it is argued that the metaphorical use in Ezekiel 1 of אוד משמל as amber to explain the mechanism of mediation believed to arise from the enthroned deity justifies the translation as amber.

#### INTRODUCTION

To find the relevance of ancient biblical metaphors and similes for our current cultural context is becoming increasingly difficult as post-modernity speeds away from biblical terminology. One aspect that makes it even more difficult, is what a commentator on ancient Celtic Christianity has called the "multivalent mentality". Such nuanced content is also encountered in the Hebrew scriptures. The word חשמל only appears in the Hebrew Bible in connection with the throne of God and only at Ez 1:4, 27 and 8:2. It is always preceded by the word כעין ("as the appearance/colour of"). Halperin (1988:4) states that no one is yet quite sure what Ezekiel meant by Greenberg (1983:43, 53) understands חשמל to belong "to the heart of the

vision of Majesty", and notes that it later came to be regarded as "endowed with holy and dangerous properties". The Staats Bijbel reflects the difficulty by simply rendering בעין חשמל as "als de verf van Hasmal". But why does the KJV translate as "amber"? Rupert Chapman of the Middle East Department at the British Museum suggests that the KJV translation of השמל as "amber" is "a curious bit of mistranslation" based on ignorance. To gain a better understanding of the meaning of the word חשמל the following methodological approach was used.

#### **METHODOLOGY**

Three approaches were followed: first, all available dictionaries were consulted. Secondly, current knowledge about ancient and modern jewelry technology utilizing both amber and electrum was accessed by consulting the following resources: a specialist in the Middle East department of the British Museum, a practicing goldsmith, a standard modern textbook on metallurgy and jewelry techniques, and substantiated websites on the internet. Thirdly, eleventh century rabbinic interpretations were consulted. Fourthly, the following extra-biblical texts relating to Ezekiel 1 were closely read: The Angelic Liturgy (4Q403 Frg.1ii, lines 5-9; 4Q405 Frg. 15ii-16; 4Q405 20ii-21, line 10); 1 Enoch (Book of Watchers 14.19). Daniel 7:9b-10 was the only biblical text that was relevant to the specific problem of understanding the metaphorical meaning of \$\text{vigar}\$?

# AS AMBER חשׁמל

The following entry from *Jewelry concepts and technology* (Untracht 1985:562) goes some way to explain the "curious bit of mistranslation":

BT Hagigah 13a reports that a child pondering over the meaning of שמל was consumed by fire.

<sup>2</sup> The Peshitta (De Boer & Baarts 1972, MS B21 Inferiore (=7a1) of the Ambrosian Library, Milan) does not render חשמל at all at Ez 1:4, yet at Ez 1:27 and Ez 8:2 it renders the word as אבאם, 'alha, God (The English translation is taken from the Lamsa Bible: Dr George Lamsa. Peshitta Old Testament English translation from the Aramaic Bible Society. www.aramaicpeshitta.com/OTtools/LamsaOT.htm. Accessed 20/08/2013).

Rupert L. Chapman III, Sept 2012, personal communication: "That is indeed a curious bit of mistranslation, for which I really can't see any excuse."

Amber has been used for ornament, mostly as beads, since the Bronze Age. Upon being rubbed, amber generates a negative electric charge which makes it magnetic and capable of picking up light objects such as paper. Because of this, the Greeks called it electron. This is also the reason that it has been thought of as a mystic stone possessing magical properties, therefore long used as an amulet, especially in the Near and Far East. Its property of becoming electrically charged is a problem to polishers because during polishing, if not carefully cooled, its electrical charge can cause it to fly into splinters. Professional amber polishers are often seized by wrist and arm tremors because of the electricity amber generates.

The Septuagint confirms the ancient knowledge that amber possesses the property of what we now know as static electricity by rendering ηλέκτρον. Furthermore, in Modern Hebrew ηλέκτρον is the word for electricity. Plato, who lived about two hundred years after Ezekiel's date, gives the following remarkable description of ηλέκτρον, which Bury notes is amber:

Furthermore, as regards all flowings of waters, and fallings of thunderbolts, and the marvels concerning the attraction of electron [i.e., amber], and of the Heraclean stone (loadstone or magnet) – not one of all these ever possesses any real power of attraction; but the fact that there is no void, and that these bodies propel themselves round one into another, and that according as they separate or unite they all exchange places and proceed severally each to its own region, – it is by means of these complex and reciprocal processes that such marvels are wrought, as will be evident to him who investigates them properly (*Timaeus* 80C, trans. Bury 1966:215).<sup>5</sup>

<sup>4</sup> This use of אימל was proposed by the Hebrew poet Yehuda Leb Gordon in the late 1800s (Sienna 2013).

The physicist Frank Close (2000:102-103) describes the electron as follows: "Electrons ... power industrial society; they travel through the labyrinths of our central nervous system and maintain our consciousness, and their motions from one atom to another underpin chemistry, biology and life ... The electron is present in all space and for all time: modern theory suggests that the electron was the first material inhabitant of the universe in the act of creation."

Collins (1997:317) provides further evidence for אשמל as amber in his statement that could be a cognate of Akkadian *elmešu*, which may well mean amber.<sup>6</sup>

## THE "SPARK" ASSOCIATION WITH חשמל

Untracht's description of the behaviour of amber upon being polished as flying into splinters and causing a tremor in the polishers makes an interesting connection to the hapax legomenon מתלקחת (a hitp. participle of קלקח) which also appears in the theophanic context of שמל in Ez 1:4: with the concurrence of a cloud, fire, and brightness, מתלקחת (i.e., fire flashing continually) appears to go out of the cloud at different points. According to Greenberg (1983:43) the meaning of מתלקחת is uncertain. מתלקחת is rendered in OG by the participle ἐξαστράπτον, a neologism derived from ἐξαστράπτω "to flash as with lightning". The metaphor of lightning is elaborated on a little further at v. 14:

### והחיות רצוא ושוב כמראה הבזק

Codex *Alexandrinus* και τα ζωα ετρεχον και ανεκαμπτον ως ειδος του βεζεκ. "and the creatures darting to and fro with the appearance of sparks"

This translation of חשמל by Greenberg (1983:37) as "with the appearance of sparks" resonates with the description of amber when polished as "flying into splinters". Verse 14 is attested at Qumran, in Codex Alexandrinus and in Origen's Hexapla, but absent in the OG. In his commentary on Ezekiel, Jerome explains the absence by stating that the translators deliberately omitted verse 14 because it appears contradictory to what

Black (2000, IV:108a) defines *elmešu* as a "quasi-mythical precious stone of great brilliancy and with a colour which one tried to imitate with dyes". Amber is a yellow, translucent resin originating from the fossilized sap of a certain species of coniferous trees. The word amber is derived from the Arabic *anbar*, "ambergris" (derived from whales) with which it was confused because both were found washed up on beaches (Untracht

<sup>1985:562).</sup>Greenberg (1983:43) states that at Ez 1:4 a supernatural fire is denoted – perhaps fire "burning in the air as a fiery mass without having an object onto which it has caught". The word מתלקחת occurs only once more in the Hebrew Bible in a magical context associated with Yahweh, in Exodus 9:24: the plague of hail and "fire flashing continually".

<sup>&</sup>lt;sup>8</sup> Lust et al. (1992:158). Hauspie (2001:17) defines a neologism in the Septuagint book of Ezekiel as "a newly used word not found in the vocabulary known before the 2<sup>nd</sup> C BCE". The word is also used at LXX Dn 10:6 and Na 3:3 to translate ברק (also meaning "lightning").

has previously been stated about the living creatures in verses 9, 12 and 17 which stress that the creatures went straight ahead and did not turn. Interestingly, Peshitta Ezekiel negates the "returning" as follows: "And the living creatures were running but were not returning like the appearance of a lightning bolt." Jerome, in the Vulgate, does not add the negation. Lund (2001) suggests that the Peshitta reading is a case of a variant Hebrew source text created by textual harmonization with verses 9, 12 and 17; if the translator understood the Hebrew hapax legomenon as a lightning bolt, thus having a visual image of a lightning bolt travelling rapidly in one direction, the living creatures would indeed not return. Whatever the original, this verse conveys a sense of emission outwards from the throne, thus conveying a hint of angelic/messenger functioning associated with the living beings. In terms of such imagery as sparks, or flying into splinters, non-biblical texts such as I Enoch Book of Watchers, and the Angelic Liturgy found at Qumran confirm these angelological hints in Ez 1:14. For example:

## 1 Enoch 14.19.

And from underneath the high throne there flowed out rivers of burning fire so that it was impossible to look at it (transl. Knibb).

and from beneath the throne issued streams of flaming fire.

And I was unable to see (transl. Nickelsburg).

ומן תחות כרסיא נפקין] שבלין ד[י] [נור ולא יכלת למחזה

[And from beneath the throne came forth] streams of [fire, and I could not look (transl. Milik).

The Peshitta reading could be either that its addition of the negation is the result of textual corruption or that it is the product of exegesis on the part of the translator. Contextual harmonization on the part of the translator could have produced the reading with the negation either in the Hebrew source text of the Peshitta or as an inner-Peshitta development.

OED: emission theory: "that light is emission of streams of imponderable particles from luminous bodies."

<sup>&</sup>lt;sup>12</sup> See Evans (2007:266-267; 2009:382). For textual details, see Evans (2007:115-119; 73-74).

"Fire" is a reasonable reconstruction here by Milik, because it is a consistent feature of the throne of God in heaven. The important angelological motif of rivers/streams of fire is also apparent in the Angelic Liturgy, for example:

Angelic Liturgy 4Q403 Frg. 1 ii, lines 1-16 (All translations by Carol Newsom).

The conclusion of the seventh song in Frg. 1 ii lines 1-16, describes the phenomenon of angelic function at the throne of God, with a sense of the immediacy of the angelic activity taking place, thus actually clarifying Ezekiel 1 and 10.

5 לכת רקי []ל[ ]לה לדוש <sup>13</sup> אלוהי [

Line 5: "moving rqy[]l[]lh to the chief of the god-like beings[

6 מבינותם ירוצו א[לו] הים מראי 14 גחלי[ אשׁ

Line 6: "from between them go[d-l]ike beings run like the appearance of coals of fire"

7 מתהלך סביב רוחות קודש קידשים [

Line 7: "moving round about, spirits of holiest holiness ["

9 ורוחות אלוהים בדני להבת אש סביבה לן

Line 9 "and divine spirits, shapes of flaming fire round about it 1["

Lines 6 and 9 reflect the angelic activity originally described in Ez 1:14. In Ez 1:6 the use of the word ידוצו here, makes the lexical connection to the word הוציו in Ez 1:14 MT. This is followed in line 9 by the description "flaming fire round about", which echoes the description in Ez 1:27 as "the appearance of fire round about within it". Both verses 1:14 and 1:27 are key angelological texts. It is striking that here they seem to be alluded to in a description of intense angelic activity.

# 4Q405 Frg. 15 ii-16

This fragment mentions the important angelological motif of "rivers of fire", which appears to represent a constant stream of angels going forth from, and returning to, the throne.

ונהרי אור [

Davila (2000:128) translates this as "divinities", and García Martínez (1994:423) as "gods".

This phrase appears in Ez 1:13, but is translated in RSV as "burning coals of fire" which in its literalness strengthens the association with Ez 10:2b where the phrase is translated in RSV as burning coals. The nearest phrase in *Pseudo-Ezekiel* line 11b is שבלי אלי which Dimant (2001:44) translates as "streams of fire", but this is a dubious reconstruction (cf. part 2B). Line 9 has another variation: "flaming fire".

Line 2 "and rivers of fire 15 [ ].[ ].. ...[ ].["

מראי להבי אשׁן

Line 3a "the appearance of flames of fire["

These references to fire demonstrate the constancy with which this element appears in connection with the shrine or sanctuary of the "King"/throne of God. 16

## THE FIERY CONTEXT OF חשמל

Greenberg (1983:43) has noted that the context of שמל indicates "a bright substance, with a colour like that of fire". The three biblical instances of שמל all appear in a fiery context. As regards the fiery aspect Greenberg (1983:58) has stated, "If a basis in some earthly reality exists for the fiery appearance moving about among the creatures, it escapes us." However, fire has been shown to be one of the major and most consistent motifs of Jewish angelology (Evans 2007:266-267; 2008:447; 2009:377). That the word שמל conveys underlying angelological concepts in terms of functioning as an intermediary is confirmed in eleventh century rabbinic interpretations (van Gemeren 1974). Rabbi Solomon Ben Isaac (Rashi, 1040-1105C.E.) comments that the Midrashic explanation is "creatures of fire are speaking". In Ez 1:4 the phrase "from the midst of it" describes a solar corona's halo

Newsom translates this word as "fire" rather than "light" here in DJD in 1998, because of criticism by Qimron (1986:370) of her 1985 critical edition, where she had translated אור as "rivers of light". Qimron states that the word here is not אור light, but "fire". This does seem to be in harmony with the rest of the content of this fragment, but also indicates the close connection between "fire" and "light" in an angelological context.

Newsom (1998:336) comments on 4Q405 Frg.15ii-16 line 2 that the motif of "rivers of fire" "becomes a standard part of the environs of the heavenly throne in descriptions of heaven from the time of *I Enoch*". *I Enoch* 14:19 is the earliest extant extra-biblical reference to this motif which is also present in Dn 7:10.

For instance the Pseudo-Joseph commentary on Ezekiel (c.1150) reiterates that the word אשמה refers to the bright fire which flashes forth from the cloud – more specifically, the flame of fire coming from the midst of the fire – "a very pure and clear brightness ... like a tongue of fire leaping from the fire". R. Eliezer of Beaugenci (c. 1175) deduces that the אשמה is a "natural" phenomenon which may be likened to the brilliant and blinding light of the sun, as reflected by the waves of water or the bright light of a flame shooting forth from a fire. Rashi warns that it is not permitted to consider either Ez 1:4, 27 or 8:2, the three texts where אשמה is mentioned in the Hebrew Bible (van Gemeren 1974:24, 30, 31). Levey (1987:4) confirms the specific prohibition against reading Ezekiel 1 for the Hafterah (m.

which extends in streams to a great distance from the sun: hashmal is "like the appearance of fire enclosed round about". The hashmal surrounds the fire, and is on the outside of it "since it goes out into the atmosphere of the world" (van Gemeren (1974: 120, 145). The mediatory quality of שמל is also hinted at in BT Hagigah 13b, where the question is asked: "What is hashmal?" Rab Judah [var. "i.e. Jose b. Hanina"] said: "Speaking hayyot of fire". Thus I argue that "שמל in its aspect as amber with its tendency to form electrical sparks when polished, conveys a sense of the source or origin of a emission outwards from the throne of God, in keeping with the ancient knowledge of amber's property of what we today understand as an electrical charge. To express the ancient understanding in modern terms, God on his heavenly throne could thus be conceived of as a dynamo or generator of a type of energy which is then conveyed by angelic beings functioning as messengers from God.

# THE MODERN TRANSLATIONS OF אווישמל AS BRONZE, BRASS, OR METAL

Bronze is an alloy of copper and tin, but BH makes no distinction between copper, brass or bronze – the only word used is חומת, and its dictionary translation is copper. Why do modern English translations render חשמל as bronze, brass, or metal, qualified variously as gleaming, glowing, or shining? If one looks a little further in chapter 1 to verse 7, one finds that it is actually only the legs or feet, or soles of the feet of the living creatures that are described as polished or burnished copper: לוחשת קלל. זוו לא בוחשת קלל בא בוחשת מארים ביש מאר

Meg. 4:10).

NETS: "and sparkled like bronze flashing as with lightning, and light in weight". The word ללף which normally means "polished" is doubly rendered in OG Ez 1:7 as ἐξαστράπτων ... καὶ ἐλαφραί, "flashing as with lightning and light in weight/light in moving, nimble", the latter as if pertaining to the plus in the LXX αἱ πτέρυγες αὐτῶν (Hatch and Redpath 1999:449). The double translation of ללף with ἐξαστράπτων and ἐλαφραὶ as qualifying נחשת signals some sort of difficulty for the translator.

word as "white gold".

Perhaps the confusion arises because in the Vulgate version of Ez 1:4, 27 Jerome (ca. 347-419 CE) translated כעין חשמל as "quasi species electri", electrum being the nominative form. 19 Electrum has nothing to do with amber. Electrum is a naturally occuring alloy of approximately 80 per cent gold and 20 per cent silver, pale yellow in colour. It was possibly associated with the Greek word because of the bright transparent vellow colour of clear amber. 20 Electrum was obtained from Punt in an impure form of gold containing about 20 per cent silver at least as early as the Old Kingdom (Andrews 1994:105). The Palermo stone (circa 2500 B.C.E.) for instance, bears a text which records that during the reign of Neferikare a standing statue of Ihy was made of "electrum" (Strudwick 2005:72, 73). In texts from Ugarit the word "electrum" is used to translate bbr [barra], usually interpreted as b+br, the latter understood as a metal name. For instance in CAT 1.4 lines 30-35, Smith & Pitard (2009:398) translate barra as electrum: "A grand dias of two myriads (- weight), a grand dias coated in silver, covered in liquid gold. A grand footstool overlaid in electrum (bi-barri)". <sup>21</sup> The process described in this text whereby silver is covered with a layer of gold is still used today and is known as Depletion Gilding. Depletion gilding is technologically simple and uses materials that were readily available to most ancient civilizations. In the technique of depletion gilding any copper or silver molecules in a gold and silver alloy are brought to the surface through a chemical process and then removed, leaving an almost pure gold surface which is then burnished (Dawson 1912:10; Grimwade 1999; Untracht 1985:361). But consider Isaiah's derisive railing in Is 40:18, 19: "To whom then will you liken God, or what likeness compare with him? The idol! A workman casts it, and a goldsmith overlays it with gold, and casts for it silver chains." Would the post-exilic prophet Ezekiel have

<sup>19</sup> Lust (1999:17).

The confusion may also be at least partly due to the fact that Homer, Hesiod, Sophocles, Aristophanes, Virgil, Strabo, Martial, Pausanias and Tertullian (living between the ninth century B.C. through the third century B.C.E.) all used the words *electron* or *electrum* to mean some sort of beautiful, lustrous, shining material used for ornamenting shields and other things (Cunynghame 1906:10). In 862 B.C. the Lydians were using coins made of a green gold-silver alloy known as "electrum" and composed of 73 per cent gold and 27 per cent silver. See Grimwade (1999).

<sup>&</sup>lt;sup>21</sup> Smith and Pitard stress that the meaning is uncertain compared with Akkadian *barru* (AHw 107). The word may mean simply *br*, "pure (metal)", assuming a cognate with BH *bar* "brightest metal"; Wyatt 1998:92: "gleaming metal".

used a gold and silver simile to describe יהוח on his heavenly throne? Would he have wanted יהוח to be associated with idols?

#### DISCUSSION

The Septuagint translation of אממל as צאבארףסט confirms the appropriateness of being likened to amber because the implication of a kind of electrical activity is the common denominator, but there is no justification for associating with with metal, whether bronze or electrum. Indeed, metal, especially copper, is a good conductor of electricity, but in Ezekiel 1 נחשת is associated only with the feet or legs of the living beings, not with the figure on the throne. The word אוני is confined to the description of the lower limbs of the living beings who uphold the throne. It has an important, but different, significance to that of אוני וושמל ווועמל הושמל in its ancient association with amber implies a generative, communicative function, whether in the form of lightning or sparks or splinters being given off because of a quasi electrical charge, the copper association with the lower extremities of the four living beings as conductors/conveyors of the impulse emitted by the השמל like presence on the merkebah throne contributes to the metaphor.

Niklas (2011) has noted that close consideration of the lexical choices of the Septuagint translators sometimes facilitates exegesis of the New Testament. Such an instance may be seen in the Old Greek version of Ez 1:7, where  $\dot{\epsilon}$ ξαστράπτων χαλκός describes the legs or feet of the four living beings as "flashing as with lightning". In the New Testament in three instances grammatical variations of the word  $\dot{\epsilon}$ ξαστράπτων are used, and all are in close association with the "Son of Man". This connection may not be coincidental, because in the Book of Ezekiel Ezekiel is referred to as "Son of Man" eighty-seven times. To see the connection

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At Mt 24:27 ἀστραπὴ and at Luke 17:24 ἀστραπὴ ἀστράπτουσα are translated in the RSV respectively as "lightning" and "lightning flashes", and at Luke 24:4 the word ἀστραπτούση is translated as "dazzling" (RSV). In the first two instances the Son of Man is mentioned in the same verse, in the third instance the Son of Man is mentioned a few verses later. MT ben 'adam is translated in Targum Ezekiel as bar 'adam. 'Adam is a proper noun in the Aramaic (Levey 1987:7), but Levey (1987:23 n. 1) regards it as an "expression of laudation and commendation". The only other place in the Hebrew Bible where the term is used is in Dn 38:17. It is notable that most modern commentators explain this phenomenon as the need to stress that even though Ezekiel had a heavenly vision, he was not an angelic being, but as a son of Adam, was unworthy because of his mortality.

between the mediatory aspects of Ezekiel's vision and New Testament exegesis consider the Lindisfarne Gospels c. 715 C.E., where the four apostles are associated with the four faces of Ezekiel's four living beings; Matthew as man, Mark as lion, Luke as ox, and John as eagle (Ez 1:10).<sup>23</sup> In this instance the Lindisfarne monks saw the connection between the lexical choices in the New Testament which had been influenced by the lexical choices of the Septuagint, and projected them backwards to contribute to exegesis of the Hebrew Bible. One must question whether, thirteen hundred years later, we have not perhaps lost certain connections that the early medieval Christians perceived in the dynamic, communicating aspects of the four living beings. The four gospel writers are portrayed here as Ezekiel's four living creatures not only because of their function as upholders of God's throne or sovereignty, but are also seen as God's messengers in their human capacity as sons of Adam. The simile of the appearance of the upper part of the figure on the throne as amber, which emits electrical sparks, in combination with the four gospel writers as the four living beings with their נהשת קלל feet – excellent conductors of electricity – resonates with the OT prophetic function of mediation from God to mankind. In this perspective, the often debated conceptual ambiguity between prophecy and angelic activity becomes relevant.<sup>24</sup>

#### CONCLUSION

In conclusion, I would like to suggest that the modern renderings of איס as bronze/brass/copper/metal weaken the metaphoric intention, and confuse the issue. In relation to the concept of איס as an electrical simile, in the text bronze/brass/copper/metal (נחשת) is restricted to the locomotory organs of the living beings, thus relegated to a subsidiary role as conductors of electricity, especially when one considers Isaiah 40:18 – "To whom then will ye liken God? Or what likeness will ye compare unto him?" As amber איס is an effective contextual metaphor for the physically imperceptible communication emanating from God's throne in heaven.

One has to question whether this understanding of the four gospel writers as secondary conductors of God's communication in terms of a modern day electrical

These illuminated pages of the Lindisfarne gospels may be viewed at www.bl.uk/onlinegallery/ttp/lindisfarne/accessible/pages 7,15,19,27.

<sup>&</sup>lt;sup>24</sup> See Joynes (1998:119); Deutsch (1999:157); Nicklesburg (2001:210).

metaphor, is not falling into the trap of reading the Hebrew Bible in terms of the New Testament. But, on the other hand, especially in the instances where the grammatical variations of the word  $\hat{\epsilon}$ ξαστράπτων are used, are the gospel writers not leading to a deeper appreciation of the power and fertility of Ezekiel the prophet's multivalent metaphors? Thereby the tantalising term  $\vec{r}$  reaches forward through the centuries and achieves some degree of relevance even in post-modernity. It seems to me that we need to preserve these mysterious metaphors in a solution that can flow with future scientific understanding - not try to cast them in culture-bound concrete, or in this case in metal.

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