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© 27th Ephorate of Prehistoric and Classical Antiquities, Greece. s. Ignatiadou, A haematinon bowl from Pydna, p. 69

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Preface

I have great pleasure in presenting you with the Annales of the 18th congress of the Association Internationale pour l'Histoire du Verre, and I wish to thank all those who have ensured that this publication appears with the least delay: principally the authors, the academic committee, and especially the academic editors of the volume, **Despina Ignatiadou**, vice-president, and member of the board of the AIHV for the years 2006-2012, and **Anastassios Antonaras**.

The **18th congress of the AIHV** was held in **Thessaloniki** from **September 21st - 25th, 2009**. It was dedicated to **Clasina Isings**, who came, via a video, to offer us her best wishes. Here we have to warmly thank the **Archaeological Museum of Thessaloniki** which has organized the whole manifestation, and the **Museum of Byzantine Culture**, which has hosted our sessions in the brand new auditorium of the Museum, used for the first time for our congress. All our warm thanks also to The Friends of the Archaeological Museum of Thessaloniki who supported the organization of the congress among the others with the nice bag decorated with bird-balsamaria, and The Prefecture of Thessaloniki, who has hosted us at the end of the congress. Last, but not the least, from the bottom of our heart, our thanks go to **Despina Ignatiadou**, **Anastassios Antonaras** and the Organizing committee for their hard work in organizing this congress and for offering us the opportunity to meet once again to share our discoveries and our thoughts on this wonderful material, glass, to which we are all dedicated.

During the **33 parallel sessions, 95 oral communications and 55 posters** were presented, displaying the vitality of research on the history of glass in the scientific world. Thanks to the energies of the **Greek Committee**, after a first glance at Thessaloniki at the beginning of our congress, thematic visits were organised to discover the different aspects of **Thessaloniki - Hellenistic and Roman city, Byzantine city, Ottoman city** with its important **Jewish community**, contemporary city. In the post-congress trips, the participants were able to visit the heart of **Macedonia**, with the cities of **Vergina** and **Dion**, and the **Pikrolimni Lake**, producing natron in Antiquity and still today, the ancient cities of **Amphipolis** and **Philippi**, or to make a cruise around **Mount Athos**.

This volume brings together **84 contributions**, which cover a vast chronological span from the **second millennium BC** up to the present day, touching on all aspects of the history of glass with a good networking between archaeology, history of art and archaeometry. An important part is devoted to the **beginnings of the history of glass in the second millennium and the beginning of the first millennium BC**, and the

developments in the **Hellenistic world** with papers covering the **Near East, Egypt and Sudan, Greece and Turkey**. The **Roman and Byzantine worlds** are approached from two directions: the study of the **production and consumption of vessels and ornaments** and the expanding study on the glass in **mosaic pavements and walls**. The papers on the **Islamic world** build on the start made at the **15th congress** and show the vitality of research in this area. The presentation of discoveries and research coming from the **Czech Republic, Great Britain, Italy, Kosovo, Montenegro, Portugal, Poland, Romania and Serbia**, fuels the debates about glass during the medieval and post-medieval period in Europe. The 18th and 19th centuries are not ignored, with papers dealing with glass in roofs, glass flowers and mosaic glass and there are also studies dealing with African and Asian glass.

During the General Assembly the **board of the AIHV changed**. **Jan Egbert Kuipers** (Treasurer) and **Ian Freestone**, to whom we extend all thanks for their work, submitted their resignations. The newly elected members were **Irena Lazar**, organizer of the **19th Congress** in **2012**, as Vice President, and **Huib Tijssens**, as Treasurer. Already present in the board, **Despina Ignatiadou** was elected member, were re-elected **Jane Spillman** as General Secretary, **David Whitehouse** as member, and I [**Nenna**] as President. The executive committee which assembled six elected members as well as the presidents of the national Associations or Committees, was partly renewed, with the election of **Fatma Marii** and **Yoko Shindo**; **Sylvia Fiinfschilling**, **Lisa Pilosi**, **Marianne Stern** et **Maria Grazia Diani** were re-elected. We mourned during the congress the recent death of two long time members, **Sarah Jennings** from England and **Claudia Maccabruni** from Italy.

The preparations for the **19th congress** are progressing under the guidance of **Irena Lazar**. The congress will be held at **Piran** (**Slovenia**) from **September 17th to September 21th 2012** (**www.aihv.org, www.zrs.upr.si**). After the wider opening towards eastern Mediterranean members effectuated during the Thessaloniki Congress, we will receive in Piran more **information and members coming from Central Europe**.

E. Marianne Stern

Ancient Greek Technical Terms Related to Glass Production

Ancient Greek authors developed a range of **technical terms for glass production** [1]. The purpose of this excursion into the realm of philology is to establish whether these terms reflect a **growing understanding over time of production processes**, similar to the way scholars developed new terminology following the recognition that in antiquity glass was usually made from raw ingredients in '**primary**' **workshops**, but shaped and made into objects in '**secondary**' **workshops**. Clarification of the technical terms' meanings will enable us to better understand ancient texts and their implications for the history of glass production. This is not the place for an exhaustive study of all the evidence. I will discuss a few selected passages that shed light on the question of primary and secondary workshops.

Strabo (ca. 62 BCE - 24 CE) is the **first Greek author** to discuss raw ingredients for primary glass production (Geogr. 16.2.25):

> «… μεταξὺ δὲ τῆς **Ἄκης** καὶ **Τύρου** θινώδης αἰγιαλός εστιν ο φέρων τὴν ὑαλῖτιν ἄμμον ενταῦθα μὲν οὖν φασι μὴ χεῖσθαι, κομισθεῖσαν εις **Σιδῶνα** δὲ τὴν χωνείαν δέχεσθαι τινὲς δὲ καὶ τοῖς Σιδωνίοις εἶναι τὴν υαλῖτιν φάμμον επιτηδείαν εις χύσιν, οι δὲ πᾶσαν πανταχοῦ χεῖσθαί φασιν.»

"Between **Akê** and **Tyre** is a hilly beach which produces the sand for making glass; however, it is **not made fluid on the spot**, they say, but it is carried to **Sidon** and **melted** (and/or cast into **ingots**) there. According to some, the **Sidonians** too possess the glass-sand suitable for melting, while others say that all sand, everywhere can be melted." [2]

Speaking about the melting of sand from the Syro-Palestinian coast, **Strabo** uses the noun **χωνεία** (khôneia, '**melting, casting**') and the related verb χεῖσθαι (kheisthai, 'to **become fluid**'). The verb kheisthai (with Perfect Passive κέχυμαι kekhymai) recalls λίθινα χυτά (lithina khyta, '**cast stones**'), the phrase used by **Herodotus** to describe the glass earrings worn by sacred crocodiles in **Egypt** (History 2.69). A similar expression, χυτὰ λίθινον έν (khyta lithinon hen), in an **Athenian** inventory of the year 329/328 BCE, refers probably to a **chunk or ingot of raw glass**. [3].

SG: MS Windows Word can not set all accents of the ancient Greek language correctly -
mit MS Windows Word können nicht alle Akzente der altgriechischen Sprache richtig gesetzt werden, der Spiritus wurde hier weggelassen.

[1] Trowbridge 1930, 49-53.

[2] I quote Strabo after Radt 2005, 332-333. Unless otherwise stated, all translations into English are mine.

[3] Aleshire 1989, 131; Stern 1999a, 23-24.

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These expressions originated in a time when the **Greek language did not yet have a proper word for glass** and followed the **Egyptian and Akkadian** methods of referring to glass as a **manmade** '**melted**' precious or semiprecious stone [4].

Most Greek words used in connection with glass production and glass producers are **compounds**. They consist of a noun meaning **glass** plus a suffix containing the root of a verb indicating how the **glass was processed**. One may compare English words like glassblower, glassmaker, and so forth.

The **earliest compounds** are those composed with a suffix containing the root ***erg**, with the meaning **work** (cf. Greek ἔργον, ergon); the English word '**work**' and the German '**Werk**' are derived from the same root, which was originally pronounced as ***werg**. (The letter wau 'w' was no longer written in classical Greek.) Compounds based on the root *erg can be traced back to the syllabic '**Linear B**' script of the **Mycenaean** period. The Mycenaean 'ku-wa-no-wo-ko' was an **artisan** who worked (wo-ko) with ku-wa-no: **κύανος** (kyanos, '**lapis lazuli**' or 'dark blue glass resembling lapis lazuli'), a profession that translates into classical Greek as **κυανουργός** (kyanourgos) [5]. For our purpose, it makes no difference whether the artisan worked with the **natural or the manmade lapis** (glass), because lapis lazuli does not occur in Greece. **Mycenaean beads and inlays** are made from glass that was imported from elsewhere, as in the workshop on the citadel of **Tiryns** which produced **architectural ornaments of blue glass** [6]; the material itself was not made in Greece. We may therefore conclude that compounds including a suffix derived from the root *erg refer to **secondary production**: they denote the craft or craftsman working with a specific material.

Far more numerous are **compounds** based on the noun **ὕαλος** (hyalos) also spelled **ὕελος** (hyelos, vel sim., 'glass') [7] plus a suffix. They appear after **hyalos became the generic word for glass in Greek in the fifth century BCE** [8]. There are two groups of compounds: the first combines hyalos or hyelos with the root ***erg** and the second combines hyalos with suffixes derived from the verb **ἕψειν** (hepsein, 'to **cook, boil, or smelt**'). The simple form **ὑαλᾶς** (hyalas, also spelled **οιαλᾶς** hoialas) does not concern us here because it is non-descript, like the French substantive '**verrier**'. Any craftsman involved in primary or secondary production or even a glass merchant probably could be called a **hyalas** as on two late antique gravestones in Athens [9].

[4] Stern 2007a, 388, 390-392.

[5] Stern 2007a, 388-389 with previous lit.

[6] Panagiotaki et al. 2005

[7] Trowbridge 1930, 50-51

[8] Stern 2007a, 392-397

[9] Athens, Epigraphical Museum, nos. EM 9869 and 13068, cf. Sironen 1997, 147-148, no. 72 and 180-181, no. 113; Triantafyllidis 2007, 262-264

Hyalourgos

The compound **hyalourgos** is documented in several **early first-century papyri** [10] and in **Strabo's Geography** (16.2.25):

> «... ἠκουσα δ' εν **Αλεξανδρεία** παρά τῶν υαλουργῶν εἶναί τινα καὶ κατ' **Αίγυπτον** υαλῖτιν γῆν, ης χωρις ουχ οιόν τε τὰς πολυχρόους καὶ πολυτελεῖς κατασκευὰς αποτελεσθῆναι, καθάπερ καὶ ἄλλοις ἄλλων μιγμάτων δεῖν.»

"I heard in **Alexandria** from the glassmakers that there exists also in **Egypt** a **vitreous earth** without which it is impossible to accomplish the making of the polychrome and valuable artifacts, just as each (product) requires its own mixture." [11]

Strabo applies the word **υαλουργός**, (hyalourgos) to the artisans in Alexandria who told him about Egypt's vitreous earth **υαλῖτις γῆ** (hyalitis gê), one of the **main ingredients** for producing raw glass [12]. The **primary production** sites which made **raw glass** were concentrated in just a few areas. As we have seen, Strabo mentions the **sands** of the **Syro-Palestinian coast** and **Egypt**; in the **first century CE**, **Pliny** (HN 36.194) adds **Campania, Spain, and Gaul**. It has been known for a long time that **natron**, one of the main ingredients for making glass, occurs naturally in the **Wadi Natrun** region near **Alexandria**. Archaeological research has now located sands suitable for glassmaking (the vitreous earth mentioned by Strabo) as well as **remains of several primary production** installations in the vicinity of Alexandria; those at **Beni Salama** appear to have functioned as early as the **first or second century CE** [13].

On the other hand, **glass ornaments, inlays, vessels**, and other objects were fashioned at **many sites throughout the ancient world**. The capital of **Ptolemaic Egypt** can hardly have been an exception, although glass historians disagree about the type of objects produced in Alexandria in the late Hellenistic period [14].

[10] Johnson et a1. 1915, 409, no. 374, line 5, spelled υελλουργός (huellourgos)with two lambdas, late 1st century BCE or early 1st century CE; Grenfell et al. 1907, 34, no. 278, hyalourgos, early 1st century CE

[11] My translation agrees with the interpretations by Radt 2005, 333 and von Saldern 2004, 554. Jones (1930) translates: "just as elsewhere different countries require different mixtures."

[12] On hyalitis gê see also Theophrastus (372/69-288/5 BCE) Lap. 49, with discussion in Stern 2007a, 396

[13] Nenna 2007, 127; Nenna et al. 2005; Nenna et al. 2000

[14] Cf. von Saldern 2004, 553-554, rec. Stern 2006, 431

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The valuable **polychrome artifacts** (kataskeuas) mentioned by **Strabo** could have been **various types of colored mosaic glass** - inlays, vessels, and the like - which required **raw glass of different compositions**. These artifacts were made by a variety of traditional techniques [15], but they were probably **not blown**. The **Egyptians appear to have been slow in adopting the art of glassblowing** which was still relatively **new in Strabo's time** [16].

Since **Strabo** lived in **Alexandria** from **25/24 BCE** perhaps until **20 BCE**, he would have had ample opportunity to speak both to **secondary and to primary glassmakers**. Thus, we cannot be absolutely sure that his **hyalourgoi** were active in secondary glass-working as opposed to primary production. However, the circumstance that compounds based on the root ***erg** were still associated with secondary production in the following centuries suggests the suffix retained its original meaning.

Two **fourth-century invoices** from Oxyrhynchus in **Egypt** inform us that the **local glassworkers** were organized in a **guild** κοινὸν τῶν υελουργῶν (koinon tôn hyelourgôn), an organization in which the members were **independent entrepreneurs** [17]. I have argued elsewhere that the **price of the glass** suggests the guild supplied **window panes** and also took care of placing them, 'fitting out' the buildings [18]. It is not clear whether the glassworkers were responsible for making the glass itself. **Diocletian's Price Edict** (PE) mentions two prices for window glass, depending on the quality of the glass. Although it states different prices for glass vessels and the raw glass from which they were made, the PE does not distinguish between window panes and the raw glass used in their production [19]. The representatives of various building trades involved in repairs to public baths at Oxyrhynchus in early 316 CE included hyalourgoi, lead-workers (molybourgoi), and plasterers [20].

My identification of the **hyalourgoi** at **Oxyrhynchus** as **producers of window glass** finds additional support in a mid third-century contract of uncertain provenance [21]. This papyrus is of additional interest because it states unambiguously that one of the hyalourgoi was a **woman** [22]. Three hyalourgoi, two men from **Koptos** (a father and his son) and a **woman** named **Sarapodora** from **Didyme**, contract to work on the νουμενάρια (noumenaria, i.e. lumenaria, 'windows') of three baths for a smaller salary than that which they had received previously [23].

Whereas the hyalourgoi mentioned in Egyptian papyri appear to be predominately **glaziers** [Glaser zum Einglasen der Fenster], the word could also denote a **glassblower** (see below).

The ending of the substantive **υαλουργεῖον** (hyalourgeion) indicates a **location**, in other words, the place where the hyalourgos plied his craft: his **workshop**. Pedanius Dioscorides (5.161), writing in the second half of the first century CE, observed that the best **soot** [Ruß] for painters came εκ τῶν υελουργείων (ek tôn hyalourgeiôn 'from the glass workshops'). The mention of soot in connection with a glass workshop suggests to me that Dioscorides was thinking of a glassblower's workshop whose furnace would have provided 'quality soot' [Qualitäts Ruß].

The substantive **υελουργία** (hyelourgia) [24] refers to the **art** of the hyalourgos rather than to his workshop:

> Πρέποντα κόσμον τῶ[ι] θεηδόχω[ι] τάφωιΤέτευχε τὴν δὲ λαμπρὰν υελουργίαν Θωμάς μονάζων ζωγράφος Δαμασκόθεν [25].

A **painter** from **Damascus** named **Thomas** states that he created singlehandedly (τέτευχε μονάζων teteukhe monazôn) a **radiant work of glass** (λαμπράν υελουργίαν lampran hyelourgian) as befitting decoration for a **holy tomb** (πρέποντα κόσμον τῶ[ι] θεηδόχω[ι] τάφωι preponta kosmon tô[i] theêdokhô[i] taphôi). In view of the fact that the **hyelourgia** was designed and created by a painter, I am tempted to think of an **opus sectile panel** [26] [Mosaik aus flächigen Stücken]. Bruneau suggested a figural (?) floor mosaic [27]. Another possibility is a **painted glass platter** [28]. Establishing the original context of the painter's statement will hopefully shed more light on the date and technique of his creation.

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[15] Cf. Stern and Schlick-Nolte 1994,19-94

[16] Stern 1999b, 443-444

[17] POxy vol. 45 (1977) no. 3265, POxy vol. 54 (1987) no. 3742

[18] Stern 1999b, 464-466

[19] PE 16, 1-9, cited after Giacchero 1974

[20] POxy vol. 64 (1997) no. 4441, col. ix

[21] Skeat 1964, xxxiii "from the Panopolite nome"

[22] On **women glassblowers**: Stern 1999b, 454

[23] Frisk 1929, 16-18. The 4th-century date suggested there has been revised to mid 3rd century by Skeat 1964. xxxiii; he suggests that "the baths and the public buildings to which they were attached were situated in Panopolis".

[24] Gasparetto 1975, 112 cites Paulus Aegineta, De re medica (7th century) as evidence for a substantive hyalourgia, meaning workshop, but Trowbridge 1930, 50-51, n. 16, argues convincingly that the manuscript is erroneous and the correct form must have been hyalougeion.

[25] Euangelatou-Notara 1982, 123, no. 7; cf. Schönauer 2008

[26] As in Ibrahim et al. 1976

[27] Bruneau 1988, 54. He does not mention the source of his hyelourgia, but he says it occurs only once.

[28] As published by Nenna 2003

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The adjective **υαλουργικός** (hyalourgikos, also spelled hyelourgikos '**glassworker's**, of a glassworker') was in common use from the **fifth century CE** onward, especially with reference to a type of **furnace used by alchemists**. The adjective does not yet occur in alchemistic papyri of the early fourth century CE [29], but from the fifth century on, **Greek alchemists** often recommend the use of a **υελουργική κάμινος** (hyelourgikê kaminos 'glassworker's furnace') for preparing various recipes [30]. The verbal form, υελουργέω (hyelourgeô also spelled hyalourgeô 'to **work with glass**') is found in **Byzantine texts** [31].

Hyalepsos

The second group of **compounds** interesting us are those formed with **έψειν** (hepsein 'to **cook or smelt**'). If we are looking for a craftsman associated with **primary production**, this new compound, with its association of **fire and heat**, would be the most appropriate.

Υαλεφός (hyalepsos, also written hyelepsês, hyalopsos vel sim., '**glass smelter**') [32] is documented for the first time in **fifth-century CE** texts, as in Olympiodorus commentary on **Aristoteles' Meteorologica** and in **Hesychius' lexicon**, who explains it as **hyalourgos** [33] The noun and its adjective **hyalepsikos** occur in **alchemical** and other texts, but seem to be rare in documentary papyri. The electronic database DDBDP lists just one example, in a list of expenses dated **seventh to eighth century CE** [34].

Several texts employ the word **hyalepsos** (vel sim.) to designate an artisan who can hardly have been anything other than a **glassblower**. Bishop Leontios (fl. ca. 615 CE) composed a Life of Symeon Salos, also known as Symeon the Fool, who lived in the sixth century. Leontios writes that Symeon and other beggars used to visit a hyelopsos in Emesa (mod. **Homs** in Syria) to warm themselves at his furnace [35].

> Ην δὲ πάλιν άπαξ καθήμενος μετὰ αδελφῶν καὶ θερμαινόμενος πλησίον τοῦ καμινίου τοῦ υελοφοῦ. ἦν δὲ ο υελοφός Εβραῖος. καὶ λέγει τοῖς πτωχοῖς παίζων "θέλετε ποιῶ υμᾶς γελάσαι; ἰδοὺ κατα ποτήριον ο ποιεῖ ο τεχνίτης ποιῶ σταυρὸν καὶ κλάνεται." ως ούν έκλασεν ενορδίνως κὰν επτὰ, ήρξαντο γελᾶν οί πτωχοί, καὶ εἰπαν αύτῶ τό πρᾶγμα και εδίωξεν καυτηριάσας αύτόν. ώς ούν απήρχετο, έκραξεν αύτὸν λέγων "οντως, μάνζηρε, έως ού ποιήσης είς τὸ μέτωπόν σου σταυρόν, όλα συντρίβονται". καὶ κλάσας πάλιν άλλα δεκατρία ενορδίνως κατερράγη καὶ ποιεῖ στανρόν εις τὸ μέτωπον αύτῶ, καὶ ουκέτι έκλασεν τίποτε. εκ τούτου ούν τοῦ τρόπον απήλθεν καὶ εγένετο Χριστιανός.

"Another day, he was sitting again with his (beggar) companions and warming himself at the little furnace (kaminion) of the hyelopsos. The **hyelopsos** was a **Jew**. He (Symeon) said to the beggars jestingly: "Do you want me to make you laugh? Watch! I will make the sign of the cross over the cup which the **tekhnitês** ('**craftsman**') is fashioning and it (will) break." When he had broken seven in a row, the beggars began to laugh and explained the matter to him (sc. the artisan), whereupon he chased Symeon away after branding him with his red hot blowpipe. When the artisan went back (to his furnace), Symeon shouted after him saying "they will all continue to break, until you make the sign of the cross on your forehead." After he had broken another thirteen glasses in a row, the artisan gave in and made the sign of the cross on his forehead, and never broke another piece. In this way he went and became a Christian."

A gruesome miracle associated with Menas, patriarch of Constantinople in the mid sixth century, involves a **Jewish glassblower** who was so outraged when he learned that his son had eaten leftover Eucharistic bread with his Christian fellow schoolmates that he took the boy to his **εργαστήριον** (ergasterion "**workshop**") and threw him into the **κάμινος** (kaminos "**furnace**"). The son miraculously survives the flames, whereupon he and his mother convert to Christianity. The father refuses to convert and Menas sentences him to death as a parricide. The story has come down to us in two versions. In the one, the father's profession is given as **hyalourgos** [36], in others as **hyelopsos** [37].

Small workshops like those of the **Jewish glassblowers** described above must have been **common in the early Byzantine period**. The introduction of the new compounds hyalepsos and hyelepsikos (vel sim.) can perhaps be explained by the **increased use of crucibles and/or tank furnaces for remelting raw glass inside the furnace** as **opposed to picking up chunks of glass preheated outside the furnace and melting them individually on the tip of the blowpipe**, an operation called **αρπάζειν βῶλον** (harpazein bôlon 'snatching a chunk') [38].

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[29] Halleux 1983, index

[30] Trowbridge 1930, 51, n. 17, citing various passages from Berthelot 1887.

[31] Schönauer 2008

[32] Liddell-Scott-Jones, Greek Lexicon

[33] Trowbridge 1930, 50-51

[34] Cf. Bilabel 1924, 151, no. 97, line 35

[35]. Ryden 1963, the cited paragraph is on p. 163. For a translation into Dutch, see Aerts and Hokwerda 2006. For Roman and late antique glass from Homs: Abdul-Hak 1965.

[36] Acta Sanctorum 1741, Augustus 25, 169-171: "Vita auctore anonimo: Ex Ms. Codice bibliotheca Caesarea Vindobonensis, Interprete J[oannes] P[inius]", a Life of Menas by an anonymous author of unknown date, 170. Cf. Mentzou 1975, 86

[37] Migne 1894, 687

[38] POxy vo1. 50 (1983), no. 3536; cf. Stern 2007a, 349-354; eadem 1999b, 452-454

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Visitors saw with their own eyes how the glassblower gathered molten glass from his or her furnace. An ancient onlooker would not have questioned how the glass got into the furnace any more than a modern spectator watching a glassblower at work. The new terms were inspired by the '**cooking**' or '**melting**' **of the glass**. The **Greek-speaking world marveled that white-hot flowing glass could be transformed into a tangible, stable object**. Similarly, the English and German languages stress the fact that **glass can be shaped by something as intangible as human breath**. One is reminded of **Pliny's flatu figurare** (HN 36.193).

Conclusions

The compounds formed with ***erg** and **hepsein do not reflect a distinction between secondary and primary glass production** as suggested in the past [39]. However, it does seem that the two groups of words were used differently. **Hyelourgos** had a broad meaning. It applied to all artisans working with glass, whether it was cold working or hot working. The **hyalourgos** might produce inlays, ornaments, vessels (blown or made by other techniques), or architectural glass such as window panes, opus sectile panels, and, perhaps, figural wall or floor mosaics. **Hyalepsos**, on the other hand, appears to have had a more restricted meaning, as is to be expected from the meaning of hepsein, suggesting heat and melting. The Byzantine texts cited above suggest that hyalepsos and hyalepsikos designated predominately the **glassblower** and his **furnace**.

[39] Stern 2007b, 777. For linguistic evidence suggesting that the compound hyalepsos referred originally to a primary glassmaker, see Stern forthcoming.

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