Hour glass connection

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The falling sands of time have given modern poets their favorite metaphor for the passing hours.
In England, sand glasses were frequently placed in coffins as a symbol that life's time had run out. "The sands of time are sinking," went the hymn. "the dawn of heaven breaks."
Just as in the case of the mechanical clock, we have no certain knowledge when, where or by whom, so called sand-glasses were invented. The Romans and Greeks had the necessary technical knowledge and skill in glass making, but there is no positive evidence of the existence of sand-glasses in those early days. It has been claimed that the Greeks used sand-glasses in the third century, B.C., but the evidence upon which this claim was based has now been discredited. The evidence was provided by a marble bas-relief, formerly part of an old Greek sarcophagus, which was built into the wall of the Palazzo Mattei in Rome when it was constructed in about 1613-1616. The bas-relief shows a mythological scene which may possibly represent the marriage of Peleus and thetis and there is a sand-glass among the various figures. Recent archaeological study has shown, however, that the lower part of the bas-relief, in which the sand-glass appears, is a restoration which was probably carried out when the palazzo Mattei was built.
Coming to more modern times, there is the oft-repeated assertion that sand-glasses were first made about A.D. 800 by one luitprand, a monk of Chartres, but the assertion appears to be as apocryphal as the statement that the mechanical clock was invented by Gerbert in about A.D. 1000. There is no evidence whatsoever which would justify the claims made for Luitprand.
It is, however, certain that by the first half of the 14th century, the sand-glass was a commonly known form of time-keeper in Italy, and probably also in other places in Western Europe. This conclusion can be drawn from the inclusion of a sand-glass in the important series of allegorical frescoes which were painted by Ambrosio Lorenzetti in 1338 in the Sala della Pace of the Palazzo Pubblico at Siena. The subjects of the frescoes are Good and Evil Government and their effects, and in the fresco depicting Good Government, the six cardinal virtues are represented by maidens, three being on each side of the ruler. The three on the right-hand side are Mercy, Temperance and Justice, and Temperance is shown holding a large sand-glass in her right hand. This fresco provides us with what is, by far, the earliest known illustration of a sand-glass and it is interesting to see that the object is not dissimilar in appearance from a modern sand-glass, except that the sides of the ampoules are straight and not curved.
The earliest textual references of which the writer is aware, which can be said with certainty to refer to sand-glasses, are dated 1345/46 and 1380. The former of these is contained in the Receipt of Thomas de Stetesham, Clerk of the King's Ship called La George for the 19th year of the reign of Edward III, a translation of which from the Latin reads:
"The same Thomas accounts to have paid at Lescluse (Sluys) in Flanders for twelve glass horologes (pro xii orlogiis vitreis) price of each 4 1/2 gross' in sterling 9s.
Item, for four horologes of the same sort (de eadem secta) bought there, price of each five gross', making in sterling 3s. 4d."
The next reference is to be found in an inventory of the furniture and effects of Charles V, King of France, which were in his possession at his death on September 16th, 1380. The inventory contains nearly four thousand items and one item describes a sand-glass in the king's study at his chateau at St. Germain en Laye in the following terms.
"Item ung grant orloge de mer, de deux grans fiolles plains de sablon, en ung grant estuy de boys garny d'archal."
("Item a large sea clock, with two large phials filled with sand, in a large wooden brass-bound case.)
The interesting thing about this latter reference is that a sand-glass is described as a "sea clock," which naturally suggests that at this period, the sand-glass was commonly connected with the sea and may well have found its origins in maritime needs.
Indeed, in the new techniques of navigation that developed in the Mediterranean in the 11th and 12th centuries A.D., based upon the new invention of the magnetic compass and the chart, some form of time-keeper was essential. The chart showed the various bearings or "winds," the compass indicated the direction of the ship, and by means of the time-keeper the mariner could tell the distance traveled, since all experienced sailors were able to gauge the speed of their ships. "Once out of sight of land the measurement of time is a prerequisite to the measurement of distance."

By the beginning of the 14th century, this navigational procedure was so well known even to landsmen, that we find an Italian poet, Francesco da Barberino, writing between 1306 and 1313, and referring in simile to the careful mariner, says that as well as his chart and lodestone, he must not forget his time-keeper (arlogio).

There seems little doubt that the time-keepers in question were sand-glasses and were probably hour-glasses. A sun-dial would have been useless for the purpose as would an astrolabe, as the time had to be measured by night as well as by day and in all weathers. A water clock would have been quite impracticable. The mechanical clock was almost certainly not invented before the last quarter of the 13th century and it was not until the second half of the 16th century that the possibility of taking a spring-driven clock to sea began to be seriously considered. A sand-glass, on the other hand, is ideal for use at sea, and while the possibility cannot be entirely ruled out that the sand-glass was invented for some time measuring purpose on land, it seems more than likely that is was originally invented for the purpose of measuring the distance travelled by a ship in the open sea. For one thing, sand-glasses would not have been a great deal of use as time-keepers on land until about the middle of the 14th century, sice until then time was normally measured in unequal hours (i.e., hours whose length varied with the respective lengths of the day and night) while the sand-glass is essentially an instrument for measuring equal intervals of time.

If this theory is correct, the sand-glass was probably invented about A.D. 1100 (i.e., about the same time as the magnetic compass). The new techniques of navigation requiring, as they did, the use of a time-keeper, appear to have been developed first in Amalfi and Pisa and then in the great trading ports of Genoa and Venice. The invention of the magnetic compass is traditionally assigned to Amalfi and there is a strong probability that the sand-glass was also an Italian invention. Quite apart from he fact that the Italians were the foremost navigators of the period, the art of glass-blowing was by that time highly developed in Venice, and marble dust, which appears to ahve constituted the "sand" in these early instruments, was well known and easily procurable. The vast marble quarries in the hills behind Carrara (which is close to both Pisa and Genoa) provided then, and still provide today, a wealth of material which was widely used in the construction of buildings all over Italy, and marble dust must have been a familiar commodity.

There is little technical difficulty in making the glass ampoules of a sand-glass, but a good deal of trial and error must have been necessary before a suitable filling was found. Although the filling is frequently referred to as "sand", it rarely was quartz sand in fact, since much of this is too coarse to run through the narrow aperture between the two ampoules evenly and without clogging. Whatever sand or powder is used, it is essential that it be very fine, absolutely dry and free of grease and impurities; hence the nine boilings in wine of the old recipe referred to below, and the nine skimmings and dryings. It is also desirable that the angles made by the cones of the ampoules should be equal to the angle of repose of the "sand".

The earliest recipe that we have appears in a household treatise written between 1392 and 1394 by the Menagier de Paris, the Goodman of Paris, for the instruction of his young wife. There, intermingled with such things as recipes for making preserves, recipes for making glue, recipes for making ink and remedies for toothache, appears a recipe for making "sand" for sand-glasses. Translated from the French, this recipe reads as follows:

"Take the grease which comes from the sawdust of marble when those great tombs of black marble be sawn, then boil it well in wine like a piece of meat and skim it, and then set it out to dry in the sun; and boil, skim and dry nine times; and thus it will be good."

It is interesting to see that b the end of the 14th century, the sand-glass has become a familiar piece of household equipment, as it is today, and that the making of the "sand" was considered to be a routine affair for the housewife, and on a par with making jam or glue. As each ampoule of a sand-glass was always made separately at that time, and indeed, until several centuries later, there were no great difficulties in the he way of a housewife taking a sand-glass apart and reassembling it; and so long as she had another sand-glass running for the required period of time, she would have had no difficulty in measuring the amount of "sand" required to refill the empty one.

No further light is shed upon the constituents of sand-glass "sand" until 1644 when Richard Polter's Pathway to Perfect Sayling was published. Polter describes himself as "one of the late principal masters of the Royal Navy" and after saying at page 36 of his book that "because (running glasses) cannot be made without their imperfections, have need to be most carefully made, and by the precisest workman," goes on to say:

"A glasse whose sand is mettall and the mettall said by some will not rust, notwithstanding in my opinion it will rust somewhat, and be sometimes moyster than at other times, likewise the whole that the sand runneth thorough, will grow wider witt the force of the sand, the rather being violated by the surges of the sea: which imperfections considered, the glasse must needs deliyer the time, sometime shorter, and sometime longer, according to the weather, therefore a second error: yet this glasse is more tolerable than the rest for this delivery, and is to be used fefore all other, of which glasses there may be divers sorts, for the delivery of more and lesse at pleasure.

And because the running glasses with sand is more grosser, and that clockes and watches hath their more imperfections, then the former glasse, I will omit them, and leave the delivery of the time for this present."

Polter is evidently referring to either lead or tin dust, or to "Venice sand" which, according to Vivielle, had a great reputation in the 17th century and consisted of a misture of tin calcined with a little lead, and reduced to a fine powder.

Writing in Venice, in 1669, Domenico Martinelli says that marble dust, or river sand, or the powder which is used for

glass cutting can be used for sand-glasses, but the filling which he rates most highly is that made from lead or tin. He stresses that whatever filling is used, it must be dry and passed several times through a sieve. It must also, he says, be heavy, free from grease, and not too fine, yet the grains must not be so large that three of them could stop up the hole between the ampoules. In commenting upon Martinelli's directions, Jacques Ozanam, a French professor of mathematics writing in 1694, says that well-dried and pulverized eggshell makes a very suitable filling. It produces a dry, mobile white powder, which is not adversely affected by humidity. Ozanam goes on to say that where the ampoules are large, ordinary red sand or the sand from Etampes (near Paris) will do, provided it is sieved to make sure that none of the grains is too large.

Vivielle also quotes a recipe fro eggshell powder, which reads in translation as follows:

"You fill an earthenware pot with a quantity of eggshells, and having covered the pot well, put it in an oven or on the fire until the shells are well dried. Then you warm a mortar in which you pound the shells until the powder sticks to the pestle and the sides of the mortar, and then pass the powder through a fine cloth, or a coarser one, depending upon what you want your sand to be.

But if you want the sand to be brown or reddish, and not white, after having prepared the sand as we have said, mix with it as much red ochre reduced to powder, or plumbago, as may be necessary for a good colour, and patting the misture into a pot, leave it on the fire for two hours without covering it, so allowing the flame to get inside the pot, and then pass the powder through a cloth as before."

A further account comes from Christopher Weigel's Book of trades which was published in Regensburg in 1698, a translation of which reads as follows:

"The sand is either red, and when dug by the sand-clock makers is washed, dried or baked and roasted in a pan so that it becomes nicely red in colour and then is sieved through many different sieves, each one finer than the other until run through twenty times. Or if the sand is white, then it is burned from egg shells and prepared in the same way as related of the red sand. Tin and lead are also reduced into a sand . . . The clocks are put together in the following manner: the one glass is filled with sand, the small brass leaf placed thereon and a small hole pierced in it with aneedle or awl, the other glass is placed above and cemented together with pitch; then the clocks thus finished are all stood up together and the standard clock is turned over. When this one has run out the new ones are all laid down, again opened by good light and what has not run out is poured away, and after that they are again waxed shut, wound with thread and placed in the frames."

Weigel is giving us an account of the trade of sand-glass maker as practiced in Germany. he says that originally it was a free trade, but ultimately became a restricted trade in Nuremberg, where the following had to be made as masterpieces:

a)A small sand-glass with lead sand.

b)A sand-glass with four glasses of white sand, indicating respectively the four quarters of the hour.

c)A three-hour sand glass filled with white sand.

d)A sand-glass with two glasses, indicating respectively the half hour and the hour.

Weigel's book contains an illustration of the sand-glass maker at work.

When on holiday in France a little time ago, the writer bought at an antique shop in Avignon an eighteenth century French hour-glass. The hour-glass was not in working order, having lost its original "sand", and having been refilled with some sand off the seashore somewhere, which was quite unsuitable for the purpose. There was, however, adhering to the edge of the larger ampoule, some of the original white "sand." As the hour-glass had to be dismantled in any event, the writer thought it would be interesting to have this original "sand" analyzed to see what it consisted of and whether it conformed to any of the old recipes. Through the good offices of Dr. F.A.B. Ward of the Science Museum, the matter was referred to the Geological Museum where Dr. P.A. Sabine made an analysis with the assistance of Professor Tyler of Reading University. The results of the analysis were communicated by Dr. Sabine to the Society at a meeting held on February 27th, 1957. It will be seen that the "sand" consists almost certainly of finely ground egg-shell which has probably been sieved, since the degree of uniformity of the particle size is high, and that the shell has had most, but not all, of the membrane removed, probably by a scraping or rubbing process.

Grains of sand fell through a narrow aperture from one glass container to another to measure the passage of time. As glass making progressed it became possible to seal the hourglass to keep out the moisture that slowed the fall of the sand.

A practical and precise sand glass required the mastery of the glass maker’s art. Elaborate processes dried the sand before it was inserted in the glass. A medieval treatise prescribed in place of sand a fine-ground black-marble dust, boiled nine times in wine. At each boiling, the scum was skimmed off, and finally the dust was dried in the sun.

Some sand glasses were made quite large, like the sand glass Charlemagne ordered which was so large that it had to be turned only once in twelve hours. If they were small, they had to be turned frequently at the precise moment when the last grain had dropped. Some had a small dial attached with a pointer that could be advanced with each turn of the glass.

Columbus, on his ships, noted the passing time by a half-hour sand glass that was turned as it emptied to keep track of the seven "canonical" hours. By the sixteenth century the sand glass was already being used to measure short intervals in the kitchen or to help a preacher or a reverend (and his congregation) regulate the length of his sermon.

An English law of 1483 was said to require clocks to be placed over pulpits, since congregations could not otherwise see the "sermonglass." The House of Commons kept a two-minute glass to time the ringing of bells to announce divisions for voting. Stonemasons and other craftsmen used a glass to count their hours of work. Teachers brought their hourglass along to measure the duration of their lecture or the length of the students' prescribed study period. An Oxford don in Elizabethan times once threatened his idle pupils "that if they did not doe their exercise better he would bring an Hower-glasse two Howers long."

The unique use of the sand glass, into the sixteenth century, was in the measuring of a ship's speed. Knots were tied at seven-fathom intervals on a line tied to a log chip that would float astern. A sailor dropped the 'log line' off the end of the speeding ship and counted off the number of knots paid out while a small sand glass measured a half-minute. If five knots passed in the interval, the ship was making five nautical miles an hour. Throughout the nineteenth century, sailing vessels still "heaved the log" every hour to keep track of the speed.

On a large sailing vessel, the ship's company was divided into two shifts or 'watches' made up of eight half hours each. One half hour being called a 'glass'. The helmsman used a 30 minute hourglass and would sound the ship's bell a consecutive number of times for each 'glass' of the the current watch.

Strike the bell second mate, let us go below.
Look well to windward, you will see it's gone to blow.
Look at the glass you will find it has fell.
And I wish that you would hurry up
and strike, strike the bell...

---------- Forwarded message ----------
From: Manel Capdevila <mcapdevila@gmail.com>
Date: Sun, Nov 2, 2014 at 7:51 PM
Subject: Polvora poudre 1338 - rellotge de sorra sandglass
To: Manel Capdevila <mcapdevila@gmail.com>

2 resultats (0,38 segons)

Resultats de la cerca

Correspondance astronomique, géographique, hydrographique ...

books.google.es/books?id... - Tradueix aquesta pàgina

Franz Xaver Zach (Freiherr von) - 1826 - ?Llegits - ?Més edicions

On voit de-là, que l'invention de la poudre, est antérieure .à l'an 1338, et que dès cette invention on connaissait les bombardes, les machines à jetter des pierres, des mines souterraines pour faire sauter, etc. . . . ggàâfiaââflâfll ____.

Correspondance astronomique, geographique, hydrographique ...

books.google.es/books?id... - Tradueix aquesta pàgina

1826 - ?Llegits - ?Més edicions

On voit de-là, que l'invention de la poudre, est antérieure à l'an 1338, et que dès cette invention on connaissait les bombardes, les machines à jetter des pierres, des mines souterraines pour faire sauter, etc. . . . Àfl:2g:::::kû Engins, machine de ...

European journal of physics : journal of the European ...

books.google.es/books?...FAAAAIAAJ - Tradueix aquesta pàgina

1996 - ?Visualització de fragment - ?Més edicions

... A V: see Sastry G P 275 Marsden M A: see Leighton T (erratum) 92 Masoliver J and Weiss G H: Finite-velocity diffusion 190 Medina A: see Calvo Hernandez A 1 1 Mills A A, Day S and Parkes S: Mechanics of the sandglass 97 Ngwengwe A: ...

On Sun, Nov 2, 2014 at 7:21 PM, Manel Capdevila <mcapdevila@gmail.com> wrote:

Annual Report of the American Institute of the City of New ...

books.google.es/books?id... - Tradueix aquesta pàgina

American Institute of the City of New York - 1870 - ?Llegits - ?Més edicions

American Institute of the City of New York ... If we turn to India, we find them-thero, and they tell us the story of the beautiful Liliwati, daughter of one of their learned men, who, it was predicted, would die ... The clepsammia or sand-glass was invented at Alexandria about 150 B. C. ; it is the hour-glass of the present day.

The Journal of the British Archaeological Association

books.google.es/books?id... - Tradueix aquesta pàgina

British Archaeological Association - 1873 - ?Llegits - ?Més edicions

301) appeared a paper by the late Mr. Fairholt, “ On Pulpit Hour-Glasses ;” and in our Journal for 1856 (xii, p. 265) a description of the ... that sand-glasses “were called clepsammia, and were in use before the days of Jerome (AD. 331-420).

The Journal of the British Archaeological Association

books.google.es/books?id... - Tradueix aquesta pàgina

1873 - ?Visualització de fragment - ?Més edicions

301) appeared a paper by the late Mr. Fairholt, " On Pulpit Hour-Glasses ;" and in our Journal for 1856 (xii, p. 265) a description of the ... "were called clepsammia, and were in use before the days of Jerome (a.d. 331-420)."1 We have no record ...

On Sun, Nov 2, 2014 at 6:36 PM, Manel Capdevila <mcapdevila@gmail.com> wrote:

Pagina 677 ----Full text of "Old clocks and watches & their makers, being an ...

https://archive.org/.../oldclockswatches00brit/oldclockswatches00brit_djvu.t...

Full text of "Old clocks and watches & their makers, being an historical and ... To all friends and correspondents who have favoured me with information and ...

Pagina 677 ------Old clocks and watches & their makers, being an historical ...

archive.org › ... › Wellesley College LibraryTradueix aquesta pàgina

(1.5 M)Full Text ... Old clocks and watches & their makers, being an historical and descriptive account ... Subject: Clocks and watches; Clock and watch makers

Atti della Fondazione Giorgio Ronchi

books.google.es/books?id... - Tradueix aquesta pàgina

1989 - ?Visualització de fragment - ?Més edicions

... clocks (de eadem secta); 3) 1380, « grant horloge de mer, de deux grant fiolles plains de sablon », (inventory of Charles V); 4) 1380, « sand-glass » belonging to the Infant of Catalonia Juan (1350-1396), son of Pedro III of Catalonia.

History of the Hour: Clocks and Modern Temporal Orders - Pàgina 380

books.google.es/books?isbn... - Tradueix aquesta pàgina

Gerhard Dohrn-van Rossum - 1996 - ?Visualització prèvia - ?Més edicions

Clocks and Modern Temporal Orders Gerhard Dohrn-van Rossum ... (Hamburg, 1970), 2; Charles V: "Ung grant orloge de mer, de deux grans fiolles plains de sablon en un grant estuy de boys garny d'archal," J. Labarte (note 128), no. 2120.

History of the Hour: Clocks and Modern Temporal Orders

books.google.es/books?isbn... - Tradueix aquesta pàgina

Gerhard Dohrn-van Rossum - 1996 - ?Visualització prèvia - ?Més edicions

Dohrn-van Rossum evokes the many ways that the small moments of life have come to be reckoned with the passage of time."—Dava Sobel, Civilization "Dohrn-van Rossum paints a highly nuanced picture of time's conquest of modern life. ...

History of Astronomy: An Encyclopedia - Pàgina 528

books.google.es/books?isbn... - Tradueix aquesta pàgina

John Lankford - 1997 - ?Visualització prèvia - ?Més edicions

Charles Peterson Bibliography Jaki, S.L. Planets and Planetarians: A History of Theories of the Origin of Planetary Systems. ... The mechanical clock was more suited to keeping equal hours than to being constantly adjusted for temporal hours. The different equal hour systems that evolved varied according to when the hours ofthe day began and how the hours were counted: The astronomical, whole ...

Marking Modern Times: A History of Clocks, Watches, and ... - Pàgina 22

books.google.es/books?isbn... - Tradueix aquesta pàgina

Alexis McCrossen - 2013 - ?Visualització prèvia - ?Més edicions

A History of Clocks, Watches, and Other Timekeepers in American Life Alexis McCrossen ... Although other temporal orientations rooted in diurnal, seasonal, biological, religious, and historic measures persisted, clocks naturalized the hegemonic use of hours and minutes to measure time.50 Public clocks and personal timekeepers together operated within social and cultural settings in which Protestant ...

Time in the Medieval World - Pàgina 109

books.google.es/books?isbn... - Tradueix aquesta pàgina

Chris Humphrey, ?W. M. Ormrod - 2001 - ?Visualització prèvia

In turn the shift from the temporal-hours system to the equal-hours system can be explained in a way that does not assume the innate ... On the one hand, clocks have been seen by those working on the history of time-keeping as symbols of urbanity, bound up with the ... and towns men rule themselves by the clock'.9 On the other hand (and this is where the paradox lies), town governments and groups of ...

Medieval Science Technology and Medicine: An Encyclopedia: ...

books.google.es/books?isbn... - Tradueix aquesta pàgina

Thomas F. Glick, ?Steven Livesey, ?Faith Wallis - 2014 - ?Visualització prèvia - ?Més edicions

Chronicles increasingly give the times of events in terms of clock hours rather than prayer times, and city decrees regulated working hours and breaks according to the clock. ... History of the Hour: Clocks and Modern Temporal Orders.

A Republic in Time: Temporality and Social Imagination in ... - Pàgina 62

books.google.es/books?isbn... - Tradueix aquesta pàgina

Thomas M. Allen - 2008 - ?Visualització prèvia - ?Més edicions

If the commerce in clocks between London, Boston, and Texas signified a temporal movement toward the telos of empire, then the ... A clock marking the hours of work in an office would not possess the same social meaning as a clock employed in a Shaker community to ... relationship to the world and different possible routes through the vertical time of history—that is, different possible national futures.

Shaping the Day: A History of Timekeeping in England and ...

books.google.es/books?isbn... - Tradueix aquesta pàgina

Paul Glennie, ?Nigel Thrift - 2009 - ?Visualització prèvia - ?Més edicions

we focus on schools and temporal skills, on schools as timed and socializing environments, on school hours, on learning ... the positions of hands on a clock-dial: 'little hand' for hours, 'big hand' for minutes, perhaps another hand for seconds.

The Oxford Encyclopedia of Economic History - Pàgina 448

books.google.es/books?isbn... - Tradueix aquesta pàgina

Joel Mokyr - 2003 - ?Visualització prèvia

The public mechanical clock, which was technically incompatible with the making of hours of variable length, gradually began to ... In this device, a horizontal bar, the foliot, is attached to a vertical rod, the verge, from which project two pallets at right angles to each other. ... and probably by monks, because of their extreme concern with the temporal regimentation of daily life and because they were one of ...

Telling Time: Clocks, Diaries, and English Diurnal Form, ... - Pàgina 279

books.google.es/books?isbn... - Tradueix aquesta pàgina

Stuart Sherman - 1996 - ?Visualització prèvia - ?Més edicions

Gerhard Dohrn-van Rossum made these remarks following an unpublished lecture, "Public Clocks and Modern Hours," delivered at the University of Chicago, 20 February 1991. His book, History of the Hour: Clocks and Modern Temporal ...

Time, Memory, and Society - Pàgina 134

books.google.es/books?isbn... - Tradueix aquesta pàgina

Franco Ferrarotti - 1990 - ?Visualització prèvia - ?Més edicions

... "The Internal Clock, the Environment and Social Factors"; Schuller, "Serving Time: 60,000 Hours at Ford's"; Seifert, "History of Working Time in ... Theory of the cinema and time; the temporal organization of filmic statement; significance of film ...

On Sat, Sep 27, 2014 at 11:35 AM, Manel Capdevila <mcapdevila@gmail.com> wrote:

A description of the collection of ancient terracottas in ... - Pàgina 15

books.google.es/books?id... - Tradueix aquesta pàgina

Taylor Combe - 1810 - ?Llegits - ?Més edicions

A sarcophagus, formerly in the Villa Albani, the front of which represents that subject, is engraved in Winckelmann's Monumenti Antichi Inediti ; (2) and among the different persons who are bringing presents to Peleus and Thetis on their ...

A Description of the Collection of Ancient Terracottas in ...

books.google.es/books?id...yUC - Tradueix aquesta pàgina

British Museum - 1810 - ?Llegits - ?Més edicions

A sarcophagus, formerly in the Villa Albani, the front of which represents that subject, is engraved in Winckelmann's Monumenti Antichi Inediti ; (2) and among the different persons who are bringing presents to Peleus and Thetis on their ...

The British Museum: The Townley Gallery - Volum 1 - Pàgina 104

books.google.es/books?id... - Tradueix aquesta pàgina

Sir Henry Ellis - 1836 - ?Llegits - ?Més edicions

51, were copied from a piece of Greek sculpture which represented the nuptials of Peleus and Thetis. ... formerly in the Villa Albani, the front of which represents that subject, is engraved in Winckelmann's " Monumenti Antichi Inediti," tav. cxi.

Description of the Greek Papyri in the British Museum - Pàgina 26

books.google.es/books?id... - Tradueix aquesta pàgina

British Museum - 1810 - ?Llegits

... which represented the gods bringing bridal presents to Peleus and Thetis. It is certain, at least, that similar figures of the four seasons. ' See Nos. XIX. and LIV. ' See Part II. p. 40. ' See Winckelmann, Monumenti Antichi Inediti, tav. cxi. ' Ideo ...

Zeus a Study in Ancient Religion - Pàgina 207

books.google.es/books?id... - Tradueix aquesta pàgina

Arthur Bernard Cook - 1965 - ?Visualització prèvia - ?Més edicions

A procession of deities bringing gifts for the marriage of Peleus and Thetis is 1897 p. 289 ff. with fig., E. Reisch in the /ahresh. d. oust. ... 2 G. Winckelmann Monumenti antichi inediti Roma 1767 p. 151 ff. pi. 1 1 1, G. Zoega Li bassirilievi antichi ...

Winckelmann's Werke: Trattato preliminare; oder, ... - Pàgina 381

books.google.es/books?id... - Tradueix aquesta pàgina

Johann Joachim Winckelmann, ?Karl Gottfried Siebelis, ?Carl Ludwig Fernow - 1817 - ?Llegits - ?Més edicions

Johann Joachim Winckelmann, Karl Gottfried Siebelis Carl Ludwig Fernow, Heinrich Meyer, Johannes Karl Hartwig Schulze. Große Begräbniß- Urne, mit der Vermahlung des Peleus und der Thetis. II. 543. 569. 666. IU. ,76. 382. IV. 123.

Transactions of the Royal Society of Literature of the ...

books.google.es/books?id... - Tradueix aquesta pàgina

Royal Society of Literature of the United Kingdom - 1829 - ?Llegits - ?Més edicions

Ediz. di Roma; and Monumenti Antichi Inediti p. 166. ' Sepolcri Antichi, Tav. 81. ... 5 Recherches sur l'Origine des Arts de la Grece, tom. ii. p. 150. ' The story of Thetis and Peleus is well known. Thetis,. 100 J. MILLINGEN on the Portland Vase.

The So-called Peleus and Thetis Sarcophagus in the Villa ...

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Von Rohden-Winnefeld H. von Rohden-H. Winnefeld, Archi- tektonische romische Tonreliefs der Kaiser- zeit (1911) Winckelmann G. Winckelmann, Monumenti antichi inediti (1767) LIST OF ILLUSTRATIONS DAI = Deutsches Archaologisches ...

Allgemeine deutsche Bibliothek..: Anhang - Volum 7 - Pàgina 230

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1768 - ?Llegits - ?Més edicions

Peleus, Mon. (125) g) wek cher sich die Haare am Fluß Sperchionwäschet, ist aus der Dehnischen Gemme bekannt. r) ... Hier soll Achilles, fowohl als sein Schild träger und die Thetis, Ohrgehenke haben. ... 36 Winkelmann Monumenti antichi.

Bulletin of the National Association of Watch and Clock ...

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1951 - ?Visualització de fragment - ?Més edicions

In 1755 Johann Winckelmann, a teacher and student of archeology, came from Germany to Italy, where he became librarian of Cardinal ... on a scientific basis, and one of his principal works was published 1767/1768 under the title

Monumenti Antichi Inediti. ... pass from the time of the marriage of Peleus with Thetis to the time where is supposed to have been invented among the Greeks this type of clock.

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Winckelmann as appropriate for such history paintings. One of her few ..... Plate 110,. Monumenti antichi inediti, after marble relief in Palazzo Mattei. ... Figure 34: Glass urn depicting The Marriage of Peleus and Thetis (detail). 27 B.C.-A.D. 14.

Studiosus jovialis, seu Auxilia ad jocosè & honestè ... - Pàgina 127

books.google.es/books?id=K9IDAAAAQAAJ

Odilo Schreger - 1751 - ?Llegits - ?Més edicions

Horologium arenarium. ©ano * Ubr. Hoc horologium primus excogitavic Anaximander , infignis Philofophus an. ante Chrift. f 80. y 2. Horologium Solare. ©ormen'tlbr. Hoc primus invenit Anaximenes , Philofophus Miletô natus , Anaximaadri ...

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Vitruvius Pollio - 1913 - ?Visualització de fragment - ?Més edicions

HL Die Erfindung der Uhrsysteme, als deren primitivste luglich die Sanduhr, horologium arenarium, gelten darf, reicht ... wird dem Anaximenes aus Milet, Schüler des Anaximander, die erste Vervollkommnung der Uhrwerke zugeschrieben.

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Marcus Vitruvius Pollio, ?Jakob Prestel - 1959 - ?Visualització de fragment

Die Erfindung der Uhrsysteme, als deren primitivste lüglich die Sanduhr, horologium arenarium, gelten darf, reicht in ... und wird dem Anaximenes aus Milet, Schüler des Anaximander, die erste Vervollkommnung der Uhrwerke zugeschrieben.

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Per Arne Collinder - 1955 - ?Visualització de fragment - ?Més edicions

Cartographies of Travel and Navigation - Pàgina 310

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James R. Akerman - 2010 - ?Visualització prèvia - ?Més edicions

Taylor has been supplemented by Charles H. Cotter, A History of Nautical Astronomy (London: Hollis and Carter, 1968), and W. E. May, A History of Marine Navigation (Henley-on-Thames: G. T. Foulis and Co., 1973). J. B. Hewson, A History of ...

Oceanography: An Invitation to Marine Science - Pàgina 61

books.google.es/books?isbn... - Tradueix aquesta pàgina

Tom Garrison - 2012 - ?Visualització prèvia - ?Més edicions

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Adam Weintrit - 2013 - ?Visualització prèvia - ?Més edicions

Advances in Marine Navigation - Marine Navigation and Safety of Sea Transportation - Weintrit (ed.) ... and 2010, dedicated to lighthouses of Polish coast, their origins and modern history, as well as exploitation and lighthouse keepers' work.

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Including an Enlarged and Progressive View of the Nautical Regulations and Naval History, Both Civil and Military, of All Nations, ... The Science of Shipbuilding and Navigation probably known at a very early Period to the Chinese — Reasons ...

Setting Course: A History of Marine Navigation in Canada

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"[A historical study that] breaks down the history of marine navigation in Canada into three broad categories of technology: shipboard navigation, charting, and shore-based navigational aids"--P. v.

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Division on Engineering and Physical Sciences, ?Commission on Engineering and Technical Systems, ?Marine Board - 1994 - ?Visualització prèvia - ?Més edicions

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