

The Tears

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of the Helix  
or  
Amber as a Gem

with Illustrations

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THE TEARS OF THE HELIADES  
OR AMBER AS A GEM



THE  
TEARS OF THE HELIADES

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OR  
AMBER AS A GEM

BY  
W. ARNOLD BUFFUM  
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*THIRD AND REVISED EDITION*

LONDON  
SAMPSON LOW, MARSTON & COMPANY, LIMITED  
St. Dunstan's House  
FETTER LANE, FLEET STREET, E.C.  
1898

CHISWICK PRESS :—CHARLES WHITTINGHAM AND CO.  
TOOKS COURT, CHANCERY LANE, LONDON.

Recd. 12 Jan. 25. E.H.W.

## INTRODUCTION.

IT was my fortune, while pursuing some archæological studies in Italy, to assist at an excavation at Palestrina—the ancient Præneste—and the origin of this book was the accident of my being present when the operations disclosed, in addition to a mutilated *cista* of bronze and sundry objects in terra-cotta, several necklaces and *fibulae* of amber and silver and amber and gold.

The sight of these art-relics of a long vanished past, and the intrinsic beauty of the personal ornaments—the workmanship

of a like period to that of the amber objects preserved among the treasures of the Gold Ornament Room of the British Museum—reminded me that yellow amber has a curious and captivating history.

Since the time of this excavation I have succeeded in making a notable collection of amber specimens from different countries, and of art-works in this incomparable substance, comprising examples of various periods, which I hope soon to place on view at one of the public museums. Among these objects are jewel caskets, reliquarii, crucifixes, statuettes, candelabra, personal ornaments, chess-boards, drinking-cups, etc. Genuine old amber objects are greatly admired by every one, and much sought for by *cognoscenti*; but they are also

among the rarest art treasures known to collectors.

The only Book on amber, in English, that I know of, is a brochure of fifty pages, published in 1891; but a voluminous literature on this theme exists in German and French, and countless articles on the subject have appeared in British and American scientific journals, newspapers, and magazines. I purpose, nevertheless, to throw some additional light in these pages on the "amber-mystery"; to correct not a few false impressions and certain illusory notions concerning this curious substance. I have gathered my material from the most trustworthy sources, and have enumerated my authorities in the text and footnotes.



In the preparation of the work I was happily assisted, while on a yachting cruise in the Mediterranean in the year following the excavation at Palestrina, by a *rencontre* with a Sicilian peasant girl—an incident which lent the charm of actuality to my researches. A brief account of this may interest my readers.

On a balmy morning in February our good yacht came in sight of the snowy pyramid of Ætna, uprising from its fringe of green in silent majesty, dazzling-white, the multitudinous spires and domes of Aci Reale—a city set on lofty lava hills—glistening in the foreground. I wished to make the ascent of the mountain from this point, and we landed without difficulty in the bay of Trezza, on the identical

spot, it may be, chosen by Ulysses and his companions for disembarking from their hollow ship when, after weary wanderings over the wine-dark deep, they ventured, high of heart, on a visit to the Cyclops. This, at all events, I felt confident, was the Portus Ulyssis of Virgil :

“ Portus ab accessu ventorum immotus, et ingens  
Ipse ; sed horrificis juxta tonat Ætna ruinis—”<sup>1</sup>

belief that was confirmed by the sight of a cave, beyond the mead of golden asphodel, “on the border near to the sea,” as described by Homer,<sup>2</sup> and by the pre-

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<sup>1</sup> “ Æn.,” iii. 570.

<sup>2</sup> “ The Odyssey of Homer.” Done into English prose by S. H. Butcher, M.A., and A. Lang, M.A., ix. 157-189.

sence in the bay of the dark-brown rocks—the Cyclopum Scopuli of the ancients—which the monster hurled after the defiant Odysseus.

The havoc wrought by Ætna along the east coast of Sicily is manifest from Taormina to Catania. Here, at Trezza, volcanic tufa is scattered in all directions; the ground is a bed of cinders, and from the narrow, scoria-scorched beach where I stood, waving farewell to my friends and the good yacht, huge blocks of black lava jut far out into the sea, lending an aspect of rugged desolation to the scene. But beauty lingers in the lap of ruin, and decks with wild flowers, aglow with every colour, the hillside that fronts the dawn.

“Laurel, and cypress tall, and ivy dun,  
And vines of sumptuous fruitage, all are there :  
And a cold spring that pine-clad Ætna flings  
Down from the white snow’s midst, a draught for  
gods.”<sup>1</sup>

A carriage was not readily obtainable, so I climbed the road that leads from the hamlet of Trezza to Aci Reale ; an unsightly road, for, gray, dusty, and uneven, it runs mostly between high walls built of dreariest lava, the more annoying as one knows they hide from view all that is grateful to the northern eye : *e.g.*, vineyards of trellised and hanging vines and orchards, where the orange, the lemon, the pomegranate, and the mulberry vie in luxuriance

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<sup>1</sup> “Theocritus.” Translated into English verse by C. S. Calverley. Idyll XI.

with the almond, the olive, the date-palm,  
and the nespolo. Half-way up, however,  
a turn in the lane restores to view the  
mountain,

“ . . . in the broad glare  
Of the hot noon, without a shade,”

and the classic shore, with its turquoise  
and violet bays and patches of shining  
yellow beach, where Pindar wandered,  
watching the waves, and where, just beyond  
the legendary rocks, rose the bold basaltic  
cliff and feudal fortress of Aci Castello—  
the scene of many a sanguinary conflict and  
of one heroic, memorable defence. Far  
away on the southern horizon lay, faint and  
dim, the purple hill-range above Syracuse,  
and, while I gazed, a solitary fishing-boat  
with reddish-brown and lemon-coloured



BAY OF TREZZA—THE CYCLOPEAN ROCKS—ACI CASTELLO.

sails came into view, glorified by the sun into semblance of a moth-butterfly, skimming the seas with expanded wings.

It was a holiday—one of the numerous *giorni di festa* for which the island is famous—and as the bells at Aci rang out a joyous peal, a troop of gleeful children, with flowers and wreaths in their hands, came singing down the road on the way to some rural merry-making.

But who is this? The nymph Galatea, by all that's wonderful!

As I pause, the gates of one of the inclosed orchards are thrown wide, and from the shadowy depths of luxuriant green emerges one of those gaily-painted, two-wheeled *carrettini*, common in Southern Italy and Sicily, driven by a

lithe and comely maiden in the pretty gala costume of the well-to-do peasants of this part of the island. Around her throat hung a necklace of sparkling gems, partially hidden by a silken scarf or *manto*, and roseate blossoms of the almond tree, now in full bloom, bedecked her dusky hair. A fitting background to this radiant vision was the *dueña*, seated in the rear of the vehicle, with face of bronze, seamy and forbidding as the lava walls that guard the orchard's luscious and tempting fruit.

Summoning up my best Italian, I begged this nymph to drive me to the town, and to my request, "with a sweet modesty," she assented. Not, however, before I distinctly heard the remonstrating dragon



mutter between her teeth, *fa attenzione, è un forestiéro, un forestiéro*,"<sup>1</sup> in the same agreeable tone one hears when the equivalent of the words is uttered in more enlightened lands.

On the way up the rugged hill the maiden told me Ætna—or "Mongibello," as she termed it in the Saracenic-Sicilian dialect—had recently exhibited exceptional activity :

"Shot balls of fire and rolled forth molten rocks."

While she spoke, the gems in her necklace flashed in the sunlight, showing colour-shades ranging from faint blue to deepest azure, and from pale rose to the intense red

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<sup>1</sup> Foreigner, foreigner.

of the pigeon-blood ruby. The varied and lustrous hues, blended in lavish beauty, drew from me involuntary expressions of admiration, and I asked if the stones were found in Sicily.

“ Si, Signore,” responded the nymph, “ this necklace is of amber.”

“ Amber !” I exclaimed, “ amber ?”

“ Si, Signore,” she answered, “ *ambra di Sicilia.*”

“ Amber of Sicily ; impossible !” I said.

“ Amber, as everyone knows, is yellow :— these stones are red, green, orange, violet ; and here is a blue one, the colour of the sky :—*un pezzo di cielo caduto in terra !*”

“ Nevertheless,” replied Galatea, smiling at my incredulity, “ this is Sicilian amber ;

found here on the shores of the island, and genuine amber.”

“ But the colours, the colours ! ” I cried :  
“ Whence came these lovely and fluorescent hues ? ”

“ That,” said the maiden, with reverent gesture, “ *bisogna domandarlo al buon Dio*. But the colours are normal—these are pristine hues.”

“ They are hues, then, of the primeval world,” I said—“ the imprisoned colour-shades of an earlier and more exuberant clime—and it seems strange so peerless a gem should be unknown in other lands, among the glittering throng.”

“ Not for them only, as they are wont to deem, is beauty beautiful,” responded the nymph, quoting, with slight variations,

the Sicilian poet Theocritus. "Besides," she added, "you must know that amber, with colours like these, is scarce even in Sicily."

"How does that happen?" I inquired.

"*Chi lo sa?* Formerly it was abundant, but of late little is found."

"Then perhaps you will sell me this necklace?" I said, eager to possess so incomparable a treasure.

"No, no, I cannot part with it," replied Galatea.

"But I will pay a good price for it."

"*Non importa,*" she said, "I will not sell it: it is an heirloom in our family—a talisman that has brought us good luck. If the signore would like a necklace of this sort, he must buy it of the *negoziante* in Catania."

In a few minutes we arrived in the Piazza del Duomo of Aci Reale. Finding my efforts to purchase the magical necklace unavailing, I alighted at the albergo dell' Aurora, and thanking Galatea for her courtesy, and rewarding the *dueña*, I bade them *addio*.

*Ambra di Sicilia !* Yes, she had said it !  
Amber of Sicily—gem of the Sicilian sea !

\* \* \* \* \*

I made the ascent of Ætna and the *giro* of the island, and before I left Sicily, I had succeeded in collecting numerous specimens, which rivalled the gems in the necklace of Galatea in the soft splendour and beauty of their hues.

The coloured plate in the frontispiece to this work has been executed with care,

but it has been found impossible to reproduce the exquisite colour-tones of Sicilian amber, more vivacious than those of the opal. The plate, therefore, conveys only a faint notion of this curious and lovely gem.

W. A. B.

BRIGHTON,  
*December, 1897.*

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THE  
TEARS OF THE HELIADES;  
OR, AMBER AS A GEM.

CHAPTER I.

THE ORIGIN OF AMBER.

The Heliades' legend—Varieties—Ambra di Sicilia—Ornaments of other days—A fashionable gem—Was it known to the ancients?—Phœnician amber merchants — Tales for the credulous — The mythical Elektrides and the river Po.

As the most important gem known to the ancient civilized world, amber was for ages the principal factor in the intercourse of various and widely separated peoples, and

was consequently the means of promoting enterprise in trade, calling new roads and trade routes into being, exciting commercial rivalry and extending some of the arts of peace and culture to distant and savage lands : its occult powers—in these the first faint manifestations of electric phenomena are said to have been observed—caused it to 'occupy the minds of savants, while its sun-like and, therefore, sacred colour, inspired the imagination of poets with such mystic fancies of its origin as the legend of the Heliades, which symbolized amber by the tears of the Sun-daughters, shed on the banks of Eridanus

“O'er Phaëthôn untimely dead.”

The problem of the origin of amber excited the interest of all who knew that

lovely substance from the earliest ages, and perhaps there is no product of nature concerning which opinions have been formed so contradictory and conflicting.

Nicias, whom Pliny quotes ("Nat. Hist.," xxxvii. 11), believed that amber was of solar origin, generated directly by the rays of the sun : Sophocles and others that it was the tears of the Meleagrides, sisters of the hero Meleager, who, the fable runs, were transformed into birds. Moore's familiar lines will occur to every reader :

"Around thee shall glisten the loveliest amber  
That ever the sorrowing sea-bird has wept."

Theomenes was of opinion that amber had its origin in the Gardens of the Hesperides, and was gathered by the maidens

who guarded the golden apples of immortality. Demonstratus maintained that it was the product of the lynx, and calls it *lyncurion*: it was sometimes taken for the hyacinth or zircon, and for the petrified sperm or spawn of whales, dolphins, seals, elephants, and ants.

Mithridates, Sotacus, Ktesias, Pytheas, Timæus, Theopompus, Apollonius, and Aristotle, however, declare amber to be a tree resin, although they are not agreed as to the kind of tree that produced it or the localities where it was found. The resinous nature of amber, moreover, is generally acknowledged in the myths and legends of the Greeks as well as in the narratives of the Phœnicians, and the Greek legend of the Heliades sustains this view.

The Heliades' legend, of which both Hyginus and Ovid have given elaborate versions, recounts the adventures of Phaëthôn, the favourite child of the Sun-god Hêlios, and his death in a rash attempt to drive the horses of the chariot of the sun which his father, yielding to his entreaty, had intrusted to him for a day. Phaëthôn, disregarding the injunction not to whip the fiery animals, was seized with dizziness and terror on the height, and losing all control of the flashing steeds, approached the earth too near and set it on fire. At the earnest entreaty of the goddess Earth, who feared to be consumed, Jupiter launched a thunderbolt at Phaëthôn, who forthwith fell into the Eridanus. The naiads of the stream buried his body on the shore, whither it

had been washed by the foaming waves. His sisters, the Heliades—Aeglê, Dioxippê, Hêliê, Lampetiê, and the rest—accompanied by their mother, the beauteous Klyménê, a daughter of Oceanus, at last found the tomb of their brother. They remained beside it, weeping bitterly, and became rooted to the spot; and, as the penalty of their assisting Phaëthôn in yoking the steeds to the chariot, and encouraging his adventure, were changed into trees from whose branches tears continually fall. These tears, Ovid adds, are hardened by the heat of the sun and become amber, which the beaming river receives and sends to the Roman ladies for their adornment.

Milton refers to this beautiful myth in the lines :

“Him the thunderer hurled  
From the empyrean headlong to the gulf  
Of the half-parched Eridanus, where weep  
Even now the sister trees their amber tears  
O'er Phaëthôn, untimely dead.”

“The Greek myths, like the myths of other nations of the world,” says Professor Sayce,<sup>1</sup> “are the forgotten and misinterpreted records of the beliefs of primitive man, and of his earliest attempts to explain the phenomena of nature.”

The legend of the Heliades Sir G. W. Cox<sup>2</sup> regards as a solar myth which served a convenient purpose in accounting for

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<sup>1</sup> Prof. A. H. Sayce, in the “Contemporary Review,” December, 1878, “The Phœnicians in Greece.”

<sup>2</sup> “The Mythology of the Aryan Nations,” by Sir George W. Cox. New and revised edition. London, 1882, ii. 285-286.



some of the phenomena of the year. "If the sun destroyed the fruits and flowers which his genial warmth had called into life, it must be because some one who had not the skill and the strength of Hêlios was holding the reins of his chariot. Hence, in times of excessive heat or drought, the phrase ran that Phaëthôn, the mortal son of an undying father, was unable to guide the horses of Hêlios, while the thunder-storm, which ended the drought, dealt also the death-blow to Phaëthôn and plunged him into the sea. The tears of the Heliades, his sisters, answer to the down-pouring rain which follows the discharge of the lightning."

However this may be, the Heliades' legend, current among the ancient Greeks,

is a perfectly correct account of the derivation of amber from the resin of trees. To make it scientifically accurate, it is only necessary to add that amber is the resin of an extinct *pinus*, called by Professor Göppert *pinites succinifer*, which flourished in the lower Tertiary Period. This resin has become fossilized in the earth, and is a substance which it is exceedingly difficult to imitate or falsify successfully.<sup>1</sup>

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<sup>1</sup> Amber is very light, having a specific gravity of 1.08 to 1.10. The diamond is pure carbon; amber is 81 per cent. carbon. Chemical analysis shows that in 100 grammes of amber there are :

Carbon	.	.	.	.	81
Hydrogen	.	.	.	.	7.30
Oxygen	.	.	.	.	6.75

And traces of clay, alumina, and silica, amounting to about 5 grammes.

The popular idea of amber is founded solely on a knowledge of the yellow variety from the Baltic, which, it is generally believed, has supplied the markets of the world from time immemorial. Other sources have been little known, and the varieties they afford are seldom met with. But amber, "distilled by pines that were dead before the days of Adam," is widely distributed over the northern portion of the earth, and is found also in Roumania, on the Lower Danube, and in Sicily in stinted measure, but of colours proportionately rare.

To the Sicilian variety I propose to devote particular attention on my own part, and to invite the same on that of my readers. I have already indicated its

importance and related the manner of my making acquaintance with it.

Roumanian, German, and Sicilian amber are nearly related. They differ, however, in colour and "fire," just as diamonds differ in lustre and "water." But the peculiar, distinctive quality of Sicilian amber, that which distinguishes it from its congeners and gives it its indescribable charm and expression, is its *fluorescence*—"that property which some transparent bodies have of producing at their surface, or within their substance, light different in colour from the mass of the material, as when green crystals of fluor-spar afford blue reflections. This curious property is due not to the difference in the colour of a distinct surface layer, but to the

power which the substance has of modifying the light incident upon it." Thus, in my collection, specimens may be seen which show sapphire blue, pale rose, violet, and brilliant ruby hues—the actual colour of the pieces being straw-yellow and faint olive-green.

Roumanian amber is usually of a dark-brown hue, of a rich and subdued beauty, with shining gold and silver flecks and bluish and greenish tints. German amber is yellow in various shades, sometimes running into white or brown, but all the colours in the prismatic spectrum are met with in the Sicilian variety. From the sober gray of early dawn to the burning crimson that sets the clouds aflame at evening after sunset, there are few tints

the sunbeams paint through summer days  
that have not been transfused, as if by  
Ætna's fires, and blended in Trinacria's  
lustrous and pellucid sun-stone.

The ancient writers make no reference  
to Sicilian amber, and I have been unable  
to find any direct mention of it before A.D.  
1639.<sup>1</sup> Diodorus (Siculus), who was born  
on the island at Agyrium, now S. Filippo  
d'Agiro, near to places which furnish the  
substance in considerable quantities—where  
I myself have picked it up from the surface  
of the ground—makes no allusion to it.  
He declares the Greek legend about Phaë-  
thôn and the metamorphosis of the tears of  
the Heliades into amber as they dropped

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<sup>1</sup> Carrera, "Memorie Storiche di Catania, 1639."

into the Eridanus to be fable, and assures us that this glittering fossil, in his day a fashionable gem in great request, is only to be found on the shores of the island of Basilea<sup>1</sup> "beyond Gallia, opposite Scythia," whence, he says, it was carried to the neighbouring continent by the native inhabitants, and in this way reached the Mediterranean through Gaul.<sup>2</sup>

The absolute silence of the ancient writers supports the conclusion that the Sicilian variety was unknown to the

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<sup>1</sup> This name is taken from the writings of Pytheas of Massilia, who, in the fourth century B.C. made a voyage to the North in search, it is supposed, of the amber land. Basilea may refer to the Frisian island Ameland, or possibly to Jutland.

<sup>2</sup> Diodorus, v. 23.

ancients ; but Sir A. Wollaston Franks,<sup>1</sup> and certain Continental authorities, are inclined to the opinion that the amber employed in ornaments discovered in Italo-Greek and Etruscan tombs was derived from Sicily. The amber seen in these ornaments is almost always of a dark-red hue, wholly unlike the normal colour of Baltic amber and, at the same time, to be readily distinguished from the red amber found in Sicily at the present day. In this case, however, the colour affords no indication of the origin of the material. Amber, from whatever source it comes, after being cut and polished, is easily affected by atmospheric

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<sup>1</sup> Franks, "Cong. Int. Archæol. Prehist. Budapest," 1876, 433.



and other influences<sup>1</sup> which tend to darken its colour, impair its quality, and produce the well-known *patina* observed in old German amber beads and art objects of fifteenth and sixteenth century workmanship. These changes begin at the surface, and less than a century is sufficient to turn even golden-yellow amber to a dark, rust-coloured red. Whether the ornaments discovered in ancient tombs are of German or Italian amber cannot, therefore, be determined by their colour as it meets the eye, for that colour is simply the effect of age and external influences. Being deeply interested in the

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<sup>1</sup> Amber ornaments deposited in ancient tombs have, doubtless, been affected by chemical processes acting within the soil.

question, Was Sicilian amber known to the ancients? I have cut up several antique amber amulets, whorls, etc., and have found, after removing the exterior part, a kernel, showing the normal and unaffected hue of the substance. I have no hesitation in saying that some of these prehistoric amulets and whorls were unmistakably of the Sicilian variety.

Indeed, the opinion has gained ground in recent years, that Sicilian amber—not the amber of the Baltic—first attracted the attention of the ancient civilized world. Amber being a product of a former geological epoch, the deposits in Sicily must have existed in its soil for long ages. Is it to be supposed that in ancient times—in the golden days of

Assyria and primitive and heroic Greece—the destructive processes of denudation had not yet uncovered it? Is it possible that the mountain-torrents had not then washed it out of the primary strata in which it was deposited in the *miocene* age? Or can it be that the amber of Sicily was in use among the ancients while the place of its origin remained unknown to them?

Nicias, according to Pliny,<sup>1</sup> says that amber was called *sakal* in Egypt, and, as *sakal* is not an Egyptian word, it has long been supposed to be the name that was originally adopted with the amber which the Egyptians obtained from the *Sikeli* (the

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<sup>1</sup> Pliny, "Nat. Hist.," xxxvii. 11, 36.

Sicilians), a powerful and warlike race, established on the east coast of the island of Trinacria, before the dawn of history, in full control of the region which has since yielded thousands of pounds of "loveliest amber." The peoples of the Mediterranean countries were in commercial relations from the earliest times, though piracy, rapine and kidnapping, played, no doubt, an important part in early trade enterprises, as we may see by the thrilling account of an attack on the villages and towns of the Delta in the "Odyssey."

"By Egypt's silver flood our ships we moor ;  
Our spies commission'd straight the coast explore ;  
But, impotent of mind, with lawless will  
The country ravage, and the natives kill.  
The spreading clamour to their city flies,

And horse and foot in mingled tumult rise.

\* \* \* \*

Jove thunder'd on their side : our guilty head  
We turn'd to flight."

Raids of this sort, doubtless, were made on Sicily, and victorious Egyptian pirates, or, perhaps, honest traders or warriors, may have carried away with them Sicily's lovely amber under the name of *sakal*.

Sicily,<sup>1</sup> it is well known, has been rent by the most formidable convulsions ; and, even in comparatively recent years, earth-

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<sup>1</sup> In a former period Sicily was connected with Africa on the one hand and with Italy on the other, the land area being then lifted up more than two thousand feet, while the area of the Mediterranean Sea was very greatly reduced. Sicily, Malta, and Crete are said to be the higher portions of a continent now submerged.

quakes and volcanic eruptions have changed the aspect of whole districts. The effect of phenomena of this character on the productiveness of the deposits in the soil cannot, of course, be determined ; but it may safely be presumed that Sicily was not without amber in the olden time, and that the amber traders, those at any rate who furnished the Greeks, did obtain supplies from this source. But, as their object was to sell their wares at the highest prices, it is easy to see that they had an interest in keeping the secret of the existence of this costly sun-stone in Trinacria to themselves. That the Phœnicians knew how to guard their trade secrets is proved by the well-known story of the Phœnician ship-master who, when followed by a Roman on a certain

occasion, purposely steered his vessel upon a shoal, and preferred to wreck his own and his pursuer's ship to allowing the Roman to learn the secret of his route. For this action he was rewarded by the State.<sup>1</sup>

"The Phœnician amber merchants long before the time of Homer," says the eminent antiquarian Voss,<sup>2</sup> "related to the credulous that in the north-western part of Hesiod's

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<sup>1</sup> Strabo, iii., c. v., s. ii.

<sup>2</sup> I have translated this passage from the learned and interesting essay, "Der Bernstein in Ostpreussen," Berlin, 1868, by Dr. Wilhelm Runge, who informs me that it is taken from a brochure entitled, "Alte Weltkunde" (Ancient Geography) printed in Roman characters, comprising thirty-seven pages, and preceded by a map, handsomely engraved on copper, bearing the title, "Hesiod's World Table, by J. H. Voss, engraved by T. Goetz, Weimar, 1804." Voss had

disk of the earth, the river Eridanus, descending from the high Rhipæan mountains (the Alps), falls into the ocean, and at its mouth certain trees, under the influence of the hot sun gliding past, exude amber, called by them *elektron*, or sun-stone. But it was a part of the Phœnician State policy, from the earliest times to the fall of Carthage, to spread a veil over the western lands beyond Sicily by means of fables, pretended ignorance, violence and State treaties. Hence they gave the Greeks the following mysterious account of the very ancient trading track to Tartessos and the north-

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previously translated Homer, was the author of a "Commentary on Virgil's Poems," and the "Mythological Letters," and had made wide researches in ancient history and geography.



west of Europe, the source of tin and amber, which was reached by them at a much earlier period than the ivory coast in the west of Africa.

“‘ Passing behind Trinacria (Sicily) one comes to the mouth of the ocean which encircles the whole earth : one steers past Atlas on the left—the pillar of the vaulted sky—together with the gate of the Sun and the happy elysium, leaving to the right, on the Cimmerian strand, the portals of the nether world and the sources of the ocean in a silver rock sustaining the heavens : then, amidst incredible dangers, one follows the dark shore to the isles of tin, and to the stream Eridanus, in which the costly sun-stone, *elektron*, falls in drops from certain resinous trees, by reason of the glowing heat of Hêlios sailing back to Colchis.’

“For still greater security, the Phœnicians populated the entrance to the ocean with deterrent chimeras, and as enlighten-

ment on this point increased, the terrors on the other side (in accordance with the then prevailing notions) were redoubled. Must not the Phœnicians, who had founded the colony of Gadeira still earlier than Utica at the entrance to the terrible ocean, have smiled at the credulous strains of the Homers and Hesiods, if indeed their love of the useful allowed them to notice such trifles ?”

The amber of Sicily is found on the eastern and south-eastern coasts, and sparsely in almost all the adjacent districts, and it is met with in the middle of the island, near the foot of the Central Mountains. It is most frequently found in small pieces, but sometimes in pieces of the bulk of an orange, on the surface of the ground,

in the furrows of freshly ploughed fields, and in the stone-strewn *fiumari*, or beds of streams left dry. In the spring and autumn, after heavy rains, which turn the countless mountain rivulets into torrents, and wash the amber out of the clayey soil, it is borne by brooks and streamlets to the great rivers, the Simeto and the Salso : these carry it on to the sea, and the waves throw it upon the shore near the mouths of those rivers, not far from Catania and Licata. At Calascibetta and at Castrogiovanni—the Enna of the ancients, “the umbilicus of Sicily,” the scene of the worship of Demeter and the rape of Persephone—pieces of fluorescent amber have been discovered, according to the reports of Hoffmann and others, in a brownish-

gray, porous sandstone, mixed with lignite. These layers have been examined by Maravigna and Gemellaro, who recognized the rocks as belonging to Tertiary formations.

A stratum of marl and slate near Caltanissetta, containing amber, has also been determined by Notturmo to belong to the *miocene*. Amber is found, too, at Leonforte and at S. Filippo d'Agiro, where Diodorus was born ; in the territories of the two Petralia, near Monte Salvatore, and on the shores of Terranova, Scicli, Pozzallo, Spaccaforo, and in the Val di Noto, near Ragusa. The nodules have, almost invariably, well-rounded forms, the skin, generally the colour of iron-rust, being smooth and thin : this tends to prove that

for a long time they have been subjected to the action of water, and rolled about over sandy surfaces. The pieces differ greatly in value. Many of them are worthless, but the flawless ones, with rare and iridescent hues, though no bigger than a walnut, sometimes sell for forty or fifty pounds sterling each. Professor v. Lasaulx<sup>1</sup> says that blood-red pieces, and those with chrysolite-green hues and blue fluorescence, suitable for ornaments, sell for three or four thousand francs each. At that price Sicilian amber is dearer than diamonds. The peasants eagerly seek for the precious mineral after every storm, knowing well

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<sup>1</sup> "Sicilien." Ein geographisches Charakterbild. Von A. v. Lasaulx. Bonn, 1879.

the high price it commands ; but hitherto no organized or adequate attempts have been made to dig for it.<sup>1</sup> The widespread, isolated, and “nestwise” surface deposits, however, have greatly diminished in recent years ; in some dry seasons hardly any choice pieces are found on the island, and it would not be surprising were these deposits to cease, and the amber of Sicily

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<sup>1</sup> In the excavations undertaken a few years ago by the Prussian government in Samland, a district of East Prussia on the Baltic, amber-bearing layers were met with below the marl and greensand formations: *i.e.*, from sixty to eighty feet below the surface of the ground, and they occur in the shore declivities at much greater depths. It is believed that valuable amber-bearing layers exist in the soil of Sicily, which can be reached only by the miner's shaft.

to disappear like the gold of Ophir or the diamonds of Golconda.

Patrick Brydone mentions in his amusing letters from Sicily, published in 1770, that at the mouth of the Giarretta, formerly the Symæthus, which falls into the Mediterranean near the ruins of ancient Morgantium, great quantities of fine amber are thrown up, and find at Catania a ready sale at high prices, when carved into crosses, beads, figures of saints, etc. This statement is interesting, as it enables us to note the changes which a century has brought about—the amber found at the mouth of the Giarretta at the present day being limited to a few nodules only. Brydone and his companions were evidently much impressed with this curious substance.

Some of the pieces contained insects. They bought several amber figures, and were entertained by the ingenuity of an artist who had contrived to leave embedded in the material a large fly, with expanded wings, hovering just over the head of a saint, as the artist remarked, "to represent *Lo Spirito Santo* descending upon him."

Goethe mentions his having seen a collection of Sicilian amber towards the end of last century at Catania, where the Museo Biscari was rich in *objets d'art* in this substance. Sestini says amber was held in such esteem that a necklace of large beads was always among the presents given by parents to a daughter on her marriage.

Italy no longer produces amber in



marketable quantities, but small pieces are picked up in the Transpadane districts and the Emilia. In the olden time it was said to be found on the Padus (the Po), the chief river of Northern Italy, and near the mouths of this abounding stream, the "ocean wave of the Adriatic shore" encircled the Elektrides, or Amber Islands of the Greeks. It has been suggested that these may have been the actual Euganean Mountains which now form isolated groups in the plains of Padua. The constant deposit of sediment brought down by the river, which has its sources in the glaciers of the Alps, and, whirling in mad fury, frequently overflows its banks, has, it is thought, united these islands to one another and to the continent in the

lapse of time, and in this way buried the precious amber masses out of sight.

A great deal of unprofitable discussion has been carried on concerning the Elektrides, certain authors contending that they existed only in the imagination of the Greeks. Their presence, near the mouths of the Padus, is certified, however, by Theopompus, who says: "The Eridanus bears to the Elektrides the finest *elektron*, the petrified tears of the black poplar." The disappearance of the Amber Islands from the blue waters of the Adriatic, in modern times, would be satisfactorily accounted for by the fact that the unruly and oozy Po has created a vast delta along the Venetian coast, and silted up the harbours of Ravenna and ancient Hadria, or Hatria,


the Etruscan seaport which gave its name to the Adriatic and also to the *atrium*, or court of Roman houses. Ravenna, which Augustus made one of the principal stations of the Roman fleet, was formerly situated directly on the sea, but now lies six or seven miles inland, and Hatria, where Etruscan ships rode at anchor, is fifteen or sixteen miles from the Adriatic shore.

## CHAPTER II.

### THE REALM OF AMBER.

The Mother Region—Contributions of the waves—Popular errors—The strandhills of Samland—The amber stratum—Distribution of amber—The amber tree—A Northern Atlantis—Europe under water—The wonderful amber forest—*Inclusa* in amber.

AT the present day the yellow amber of commerce is almost wholly derived from East and West Prussia and Pomerania on the Baltic, which have furnished it from gray antiquity. These regions vary greatly in productiveness, however, for, although amber nodules are found along the entire Prussian coast-line from Stralsund to Memel, as they are found on the shores



of Mecklenburg, Holstein and Denmark, on some of the islands of the German Ocean, in Norway and Sweden, in Posen and Poland, and in Siberia so far as Kamtschatka, the prolific centre—the amber-*Bildungsherd* of the North—is the rectangular peninsula of Samland, in the province of East Prussia, where shafts are sunk and mining operations carried on by the “amber kings of Königsberg,” whose diving flotilla and various establishments on the coast give employment to amphibious peasants, the descendants of the ancient Cures and Szamates. Here, too, Messrs. Stantien and Becker have set up enormous steam-dredging machines, and various complicated contrivances, to sift from the sea-shallows the precious mineral

which also is cast up by the sea on these shores—brought on the wings of the storm from obscure recesses where it had long lain hidden from the eyes of men. These ejections of the sea take place with great regularity; the richest “finds” happen after the November and December storms. From what vast repository these contributions of the waves proceed, to what geological epoch amber belongs, and how it came to be buried in the places where it is now found, are problems which for a long time baffled the investigations of science.

Popular errors die hard. There are still people who think that amber is an original product of the sea, and there are persons who, while they acknowledge its resinous nature, are of opinion that it lies in enormous

masses at the bottom of the Baltic, and is distributed like rays, the waves bearing it to the shore according to the direction of the currents. This was a favourite notion of Dr. Berendt of Dantzic, one of the great names in amber literature. He set up the theory that, in a former geological period—at a time when Northern Germany was covered by the waters of the Tertiary sea—the amber forests grew upon islands, situated just north of the present coast-line of Prussia, where the resin was amassed, until, on the destruction of those islands, the accumulated amber masses were engulfed by the waves. Other theories have been advanced from time to time, only to disappear, and it is to the careful researches of Professor

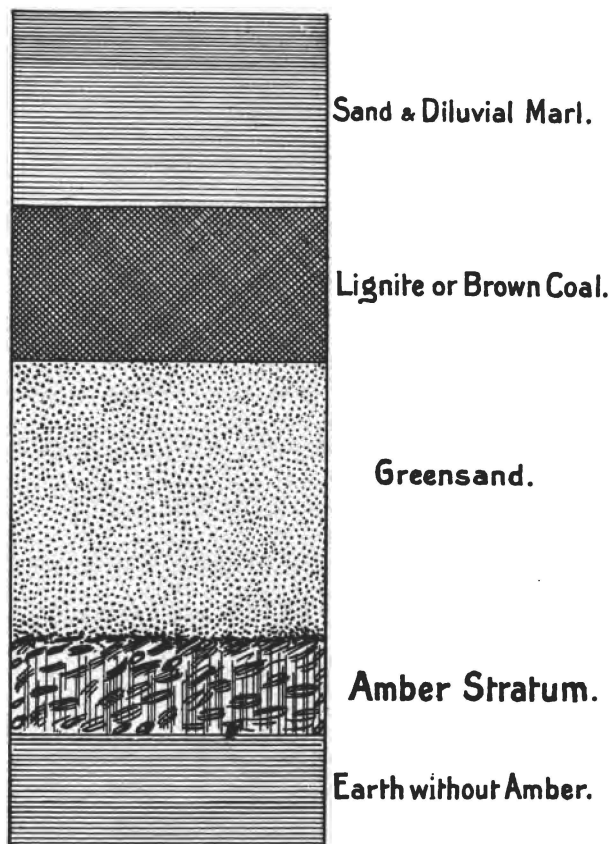
Zaddach of Königsberg into the structure of the Samland coast, that we owe almost all the knowledge of the subject we now possess.

Zaddach, the result of whose investigations I summarize here, found that the steep strandhills of Samland, which rise in some places to a height of 180 feet, and where amber digging has been carried on for two hundred years, show three different systems or groups of layers—the top one being a stratum of diluvial marl and sand; the middle one a bed of lignite, with light sands and gray clays; and the lower one a layer of greensand, 50 or 60 feet in thickness, which derives its colour from innumerable grains of green earth, or glauconite. All these strata contain



amber, the upper ones in isolated pieces, while the greensand layer, in its lower part, holds a stratum, 4 or 5 feet thick, of very dark earth, almost black when freshly dug, called "blue earth," or amber earth, in which amber nodules occur so abundantly that an area of 50 or 60 square rods yields several thousand pounds of the substance. This is the great amber mine of the world, and the only place in the North where the geological conditions of the mineral can be advantageously studied, as it is found nowhere else in the firm rocks in its *primary* place of deposit.

Zaddach's researches also threw some light on the amber cast up by the sea on the Samland coast, for he found that the amber-bearing "blue earth" stratum,



*Geological Section of the Amber Coast*

which rises to different heights above the sea-level and sinks, in many places, so far below it as to be inaccessible to the miner's shafts, also runs horizontally on a level with the sea, where it is exposed to the action of the waves. Further investigation has since shown that this exposed position of the amber-stratum extends for a distance of at least fifty miles. Here then is the source of the amber cast up by the sea. The waves constantly nibble the "blue earth," filching its golden treasure, and when lashed to fury by the storm, tear the nodules from their bed, bearing them towards the shore, mixed with seaweed and other *disjecta* of the Baltic. Then the *schöpfen* or "scooping" begins, a process in which the precious

"amber-weed," while still floating in the sea, is captured with long poles and nets and borne in triumph to the strand.<sup>1</sup>

The places hitherto mentioned are the only ones which yield amber in sufficient quantities for the purposes of commerce,

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<sup>1</sup> At the time of the formation and deposit of amber, Samland existed only at the bottom of the Tertiary sea, the waters of some quiet gulf or bay covering the now picturesque and interesting peninsula. Into this bay deposits of glaucous earth and amber were made, and brooks and rivers from the neighbouring Northern continent brought down additional material for building up the soil, until the sea was filled up and, so to say, forced to retreat.

That the greensand deposit of Samland is a marine deposit, is proved by the fossils which exist in it; among these are vertebral bodies of fishes and sharks' teeth such as occur in *eocene* layers, and these deposits, together with the amber contained in them, belong to the *miocene* or perhaps to the *eocene*.

but small pieces are picked up in Iceland, on the east coast of England, and on the western coast of France. In the United States the mineral has been seen on Judith river, Montana, at Harrisonville, New Jersey, and on Magothy River, Maryland. Single specimens of amber, and sometimes several pieces together, have been drawn out of inland lakes, ponds, and rivers, in Germany, by fishermen's nets, and now and then it is brought to the surface by the bubbling waters of springs. It has been observed in the brown coal of Austria and Alsace; Professor Heer discovered it in Heligoland,<sup>1</sup> and in small, dot-like grains, the size of a millet seed or a pea, in the coal-

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<sup>1</sup> "Flora Fossilis Arctica," pp. 7-15.

beds of Greenland.<sup>1</sup> Its presence there, he thinks, proves beyond doubt, that amber is a *miocene* formation.<sup>2</sup> Professor Heer says that amber is found in North Greenland in connection with fossil leaves in an excellent state of preservation, and that, as Sequoias—trees resembling the gigantic California Redwood—are frequently met with, it is to be supposed that they had a part in its production.

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<sup>1</sup> The author of these pages has some splendid specimens of this Greenland coal.

<sup>2</sup> Professor Heer has made extended researches into the fossil vegetation of Europe, and has examined collections of fossil plants obtained in Spitzbergen, Greenland, Iceland, and Samland, which he describes as *miocene*. Mr. J. Starkie Gardiner, Professor J. W. Dawson, and other botanical paleontologists, however, consider them *eocene*.

The so-called amber from Syria, India, and Madagascar, judging from the specimens I have seen, is not amber at all, but a resin nearly allied to copal, which is the product of leaf-bearing trees growing at the present day, while amber is the resin of acicular trees that flourished in a former geological epoch and no longer exist.

The amber tree belongs to the flora of the Tertiary period, at whose dawn Europe seems to have been almost in the condition of a great archipelago. Some of the fairest countries we know were at that time still covered by water: the sea spread over the south-east of England, a great part of France, Belgium, Holland, Holstein, Northern Germany, Bavaria,

Hungary, and Italy. A vast continent existed in the North, however, which, it is believed, embraced not only the present Norway and Sweden and a large part of Russia, but extended in the arctic zone beyond Spitzbergen, where it was connected with Greenland and North America,<sup>1</sup> while to southward and eastward it was joined with Iceland and the British Islands. Dry land over a portion of the British Channel united England with France.

“Where the Atlantic rolls, wide continents have bloomed.”

The southern boundary of this primeval

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<sup>1</sup> Professor W. Boyd Dawkins (“Early Man in Britain”) says that through the *eocene* and *miocene* ages a continuous tract of land must have existed



Scandinavian continent was greatly enlarged at the close of the Secondary period by deposits of the *cretaceous* sea—chalk, small grains of gray lime, glaucous marl, and far-reaching beds of greensand—and, through repeated liftings of the soil, a broad belt of land was formed which embraced the islands of Rugen and Bornholm, and extended over Jutland, the Danish

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between Britain and America, extending northward and westward by way of Iceland and Greenland, while to the north-east it was continuous with Norway and Spitzbergen and offered a means of free migration for plants and animals. Professor Heer places his Atlantis more to the south-west, but both scientists agree that the existence of such a continent is the only satisfactory explanation of the presence in Europe in the Tertiary period of plants and animals whose nearest allies belong to North America.

islands, and the whole space now occupied by the Baltic. This newly formed land was separated from Central Germany and the rest of Europe by a great sea-arm, sometimes called the North German Tertiary Sea, one of whose bays or gulfs covered East and West Prussia and Pomerania. On the borders of this northern Atlantis, where the sluggish waters of the Baltic now roll, a rich and abundant vegetation was developed, and here, in the midst of luxuriant forests extending into the Polar area, grew the trees which produced the yellow amber of commerce.

At the time of the formation of amber, the climate, even within the Arctic Circle, was sub-tropical or, at any rate, warm and equable, admitting the growth in the far

North of mighty forests of bald Cypress (*Taxodium*), the undoubted ancestors of the trées which lend such a weird charm to the marshy lands of Louisiana, Texas, and Mexico. In Spitzbergen (78° N. Lat.) flourished the American incense cedar (*Libocedrus decurrens*) and the deep-green Sequoia, analogous to the gigantic Redwood (*S. Sempervirens*). This remarkable tree, which is now restricted to a narrow district of California, grew in the *miocene* period all over Europe and the northern circumpolar area, together with its near relative, the bluish-green Glyptostrobus, a cypress now only met with in China and Japan. In Greenland grew the large-leaved and fragrant Magnolia, the date-plum tree, several species of oak, pine,

poplar, and walnut; salisburea, planera, and the elegant Thujopsis—now only indigenous to Eastern Asia—while the vine, the flowering tulip tree, the elm, and the mammoth tree flourished in Iceland. It will be seen, therefore, that in the amber forest plants grew side by side whose living representatives are now scattered far and wide through all climates from the tropics to far northern latitudes.

The amber forest, in which a wealth of species prevailed such as has never been known since, consisted largely of coniferous trees. Professor Göppert distinguished thirty species of pine in that forest; to these Menge has added one—the *Taxoxylum electrochyton*. This great variety of resinous trees leads to the con-

clusion that amber was produced by several species of conifers; the most common being a "Tree of Life," closely resembling the American *Thuja occidentalis*: ten twigs of which, Menge says, occur in amber to one leaf or blossom of any leaf-bearing tree, and five to one of any other acicular tree. Of leaf-bearing trees, preserved for us by the amber, may be mentioned several species of oak, willow and beech, a birch, an alder and a poplar, as well as leaves and blossoms of the camphor tree (*cinnamomum*), whose living congeners now grow in Eastern Asia, China, and Japan.

Professor Göppert has given to the amber pine the name of *pinites succinifer*; and has determined no less than 163

species of plants found in amber specimens, which he has classified into 64 genera and 24 families.

The *inclusa* in amber have great interest for us ; for although, as it has been pointed out, they furnish but an incomplete picture of the flora and fauna of the primeval amber forest, " only such small animals and parts of plants—small leaflets, scales of buds, pieces of twigs, etc.,—as could be quickly surrounded by the fluid resin having been preserved," they nevertheless enable us to recognize a few features characteristic of that early epoch. The amber fauna is peculiar in this respect, that here are animals that rarely occur as fossils elsewhere ; and many of these, which appear as mummies in the transparent

resin, represent extinct forms. As Bacon<sup>1</sup> says, "the Spider, Flye and Ant being tender, dissipable substances, falling into Amber, are therein buried, finding therein both a Death, and Tombe, preserving them better from Corruption than a Royall Monument." Among the spiders Zaddach calls attention to the remarkable genus *Archæa*, which differs from living species by the position of the eyes, by the extraordinarily large jaws, and by the head, which is very distinctly separated from the breast.

Some of the amber insects unite in themselves the characteristics of several families or orders now living, and present a form out of which, in the later development of

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<sup>1</sup> "The Historie of Life and Death," p. 283.

the animal world, two different forms proceeded. This is illustrated by a little creature which, by the structure of its antennæ, feet, and parts of the mouth, belongs to the *neuroptera*, while by the scaly covering of the forewings it reminds us of the butterflies. A feather, delineated by Berendt, proves that the amber forest contained birds, but of mammalia nothing has been found except a tuft of hair. Fishes and amphibious animals are also wanting. Frogs, lizards, and fishes, it is true, are shown in amber, but they have been introduced by artificial means. Bubbles of air and even drops of water occur, however. In Berendt's collection there was a spider, and in its translucent body the movable air bubble could be



seen to shift its position with every turn given to the piece. Goebel's story of a drop of water which increased in size with the waxing of the moon and decreased with its waning is a fable.

The amber resin was shed in very different stages of liquidity, according to Aycke, sometimes glutinous, leaving behind it long threads, occasionally attenuated to such a degree as to preserve the delicate meshes of the cobweb, as well as the insects in it, which frequently seem to be flying with extended wings. Sometimes it fell in drops from the boughs, yielding the often-recurring drop and icicle forms; sometimes it fell on leaves lying on the ground, whose forms it presents to us like an impression.

Many generations of trees lived and perished in the amber forest, and enormous quantities of the resin must have been amassed, though single pieces were constantly carried away by brooks and rivers into the Tertiary sea. How the accumulated amber masses were finally broken up, is uncertain. But this event, it is believed, was brought about not merely by the ordinary and oft-repeated incursions of the sea into the domain of the forest, but suddenly, by some portentous cataclysm, which in a comparatively short time tore loose a great part of the resin and threw it into the Samland gulf. It is not believed, however, that the amber forests perished altogether at this time. On the contrary, Zaddach thinks it is probable that the

production of amber belongs to several long periods in the formation of the earth, and that large masses of the resin remained buried in the soil of the higher districts until a later epoch, when the diluvial sea flooded the entire North, and with the ruins of the devastated country scattered the deposits far and wide. The submersion of the amber resin was followed by continued deposits of greensand, marl, and other substances brought down by brooks and rivers, piling layer upon layer until the sea was filled up and remained so. Samland was first laid dry and then the rest of Prussia and the eastern part of Pomerania, the dry land appearing like islets, which in time became connected.

## CHAPTER III.

### AMBER IN COMMERCE.

Amber from the earliest times—Overland trade—  
Why the ancients took an interest in the West and  
North of Europe—The first ocean voyage—The  
voyage of Pytheas.

AMBER, now largely relegated to the service of Smoke, where it is adored in a pipe, or peradventure banished to oriental lands, where, as odorous incense, it ascends continually in Buddhist temples or Moham-  
medan mosques for the delectation of devout worshippers, has shed its lustre on the charms of beauty and added splendour to the courts of kings. For a very long period it was the chief article of traffic

between the primitive races of Western and Northern Europe and the cultivated nations of Western Asia, as well as the countries bordering on the Mediterranean.

The beginning of the overland trade in amber is lost in the mists of pre-historic times, but as we know that some simple trade, limited to a few articles, was carried on as early as the Stone Age,<sup>1</sup> we may fairly presume that even the yellow amber of the Baltic found its way, at a remote period, to distant lands, Assyria and beyond, having passed, at first, from hand to hand and from tribe to tribe, by

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<sup>1</sup> Among the remains of the Stone Age in Europe, beautifully wrought jade axes have been discovered, jade being a material produced only in China and the farthest East.

way of barter, until it reached the shores of the Euxine, where the Scythians and Cimmerians had settlements, and whence it was distributed by caravans or Phœnician ships.

Amber ornaments are found in the pre-historic remains of Egypt, Greece, Italy, and other lands, and costly examples enrich the private cabinets and public museums of the world. Considering the delicate and fragile nature of the substance, it might be supposed that these primordial creations of art would have crumbled to dust and wholly disappeared long since ; but the amber ornaments now in the British Museum and in the Louvre, and those in my own collection, have escaped the ravages of time almost as completely as the terra-cotta vases,

the ivories, or even the bronze and silver bowls unearthed at Mykenæ and Cyprus.

Amber ornaments are found, too, in the tumuli of the Stone Age in Britain and in almost every country of Europe, and they appear in the remains of the Lake dwellers of Switzerland and France belonging to the same period. This general and extended use of amber shows how highly it was prized, and affords a fresh and striking proof of the early development of man's æsthetic sense, the source of all the arts and refinements of modern society. Ornaments, no doubt, were worn before clothes, and "the first purpose of Clothes," as Professor Teufelsdröckh long ago pointed out, "was not warmth or decency, but ornament—not Comfort, but Decoration."

It would seem, from a cuneiform inscription by a king of Nineveh on a broken obelisk, translated by the eminent Assyriologist, Professor J. Oppert, that commercial relations existed between Assyria and the north of Europe at a very early period. Professor Oppert<sup>1</sup> translates the inscription of this ancient monarch :

“In the sea of changeable winds (*i.e.*, the Persian Gulf)

his merchants fished for pearls ;

in the sea where the North star culminates (*i.e.*, the Baltic)

they fished for yellow amber.”

Doubts, it is true, have been thrown upon the correctness of this rendering. But when were scholars known to agree ?

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<sup>1</sup> “L'Ambre Jaune chez les Assyriens,” par J. Oppert.



Lenormant<sup>1</sup> points out the road, indicated by Herodotus, which led from ancient Olbia to the North, and was taken by the Greeks of the Milesian colonies established on the Euxine in the eighth century, when going in quest of the amber of the Baltic. "This road skirted the foot of the Carpathians, crossed Silesia and the Duchy of Posen, thus directly reaching Pomerania and thence Jutland, and it is marked along its whole extent by discoveries of Greek coins of the most ancient style. It is a road pointed out by nature itself, and which must have been taken from extremely remote times by several

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<sup>1</sup> M. François Lenormant, in "The Contemporary Review" for September, 1878.

migratory peoples. Of late years remarkable traces have been found, calculated to convince us that it had been frequented by numerous traders long before the time of the Milesians of Olbia. We are therefore led by probability to connect with the commerce that took this road those great deposits of bronze weapons and utensils found in the lakes of Switzerland, and to ascribe to it a decisive influence on the Bronze Age of the North."

Later, when Rome held the provinces on the Danube, amber was brought by this same route to the Roman fortress towns, where it passed out of the hands of its semi-barbarous owners into those of their masters. By a different and less known route amber was sent to the North

Sea by the Oder and the Elbe, then it reached the Rhine, and being conveyed up this stream and down the Rhone, it came to the hands of the traders at Massilia. A direct road from Liguria to the North Sea crossed the Alps by the Little St. Bernard, gaining the valley of the Aar, and from there the Rhine. Other roads led northward from ancient Hatria, near the mouth of the Po, and the valuable trade in amber over some of these roads continued in a flourishing condition, increasing in volume and importance long after the Phœnicians had discovered sea routes to the amber land of the Baltic.

Herodotus,<sup>1</sup> while he does not admit the

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<sup>1</sup> Herod., iii. 115.

existence of any river named Eridanus, emptying itself into the northern sea, whence amber is procured, says, "nevertheless, amber and tin do certainly come to us from the ends of the earth." Amber and tin, no doubt, were the commodities which first led the ancients to take an interest in the north and west of Europe, and it is interesting to note that civilization was promoted and extended by means of the traffic in this merchandise. Amber was required for ornament, and tin was in great request for the manufacture of bronze, which is an alloy of tin and copper. In the Bronze Age it is not probable that Sicily, Italy, and the Danube furnished sufficient amber to meet the demand, or that the tin mines of Tuscany, or those

of Spain and Brittany, from which the Etruscans and the Phœnicians obtained supplies, yielded the metal in quantities large enough for the purposes of commerce.

The Phœnicians, the great merchants of antiquity, a bold, seafaring race, who had the whole carrying trade of the Ægean and the Mediterranean in their hands, even "in those remote days when the Greeks were still waiting to receive the elements of their culture from the more civilized East"<sup>1</sup> must, therefore, have seized upon the opportunity for profitable trade, created by the demand for these important products. In searching

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<sup>1</sup> See Prof. A. H. Sayce, "The Phœnicians in Greece."—"Contemporary Review," December, 1878.

for them the adventurous mariners of Tyre and Sidon, having regard to the difficulties surrounding the overland trade, pushed their voyages beyond the Pillars that held up the vaulted sky, past the dread portals of the nether world, to brave the terrors of that unknown sea, where only their bright-winged fancies and their hopes of coveted wealth had gone before them. The date of this romantic and daring achievement is uncertain ; but there are abundant reasons for believing that more than a thousand years before our era the Phœnicians had ventured into the Atlantic, had visited Britain for tin, and the shores of Germany for amber, carrying with them some of the civilization and civilizing influences then existing on the borders of the Mediter-

raean.<sup>1</sup> These expeditions, so far as we know, were the first *ocean* voyages ever made by man. Milton's picture of a ship of Tarsus :

“ . . . bound for th' isles  
Of Javan or Gadire,  
With all her bravery on and tackle trim,  
Sails filled and streamers waving ;  
*An amber scent of odorous perfume*  
Her harbinger—”

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<sup>1</sup> See Sir John Lubbock, “Prehistoric Times,” 5th ed., p. 74. Sir John Lubbock finds strong objections to Professor Nilsson's opinion that the Bronze Age civilization in the North of Europe was due to the influence of Phœnician commerce. But he calls attention to Professor Nilsson's statements that the Phœnicians had settlements far up on the northern shores of Norway where, it is pointed out, Baal, the god of the Phœnicians, has left traces of his worship in many Scandinavian localities ; *i.e.*, the Baltic, the Great and Little Belt, Belteberga, Bale-

recalls one of these primeval maritime enterprises.

The profitable commercial relations established by the Phœnicians with various countries, incited the jealousy of other nations, and as early as the eighth century

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stranden, etc. "The festival of Baal, or Balder, according to Professor Nilsson, was celebrated on midsummer's night in Scania and far up into Norway almost to the Loffoden Islands, until within a recent period. A wood fire was made upon a hill or mountain, and the people of the neighbourhood gathered together in order, like Baal's prophets of old, to dance with shouting and singing. This Midsummer's Night fire has even retained, in some parts, the ancient name of 'Baldersbal' or 'Balder's fire.' L. v. Buch long ago suggested that this custom could not have originated in a country where the sun is never lost sight of at midsummer, and where, consequently, the smoke only, not the fire, is visible."



both the Greeks and the Etruscans had developed formidable naval power. In the progress of time the Republic of Massilia (Marseilles) became the centre of an important traffic in amber, and during the reign of Alexander the Great an expedition, with Pytheas, a noted astronomer, at its head, was fitted out and dispatched thence to the North in the hope that the sources of amber, tin, and costly furs might be discovered. Pytheas visited Britain and the oceanic coast of the Kelts, and thence sailed along the Scythian shore, afterwards called Germany, perhaps so far as the Weser or the Elbe. On his return he reported that at the distance of a day's journey from a shallow and often inundated tract of German coast lies the island

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of Abalus to which the waves drive amber, an ejection of the coagulated sea, and the commodity is bought by the neighbouring Teutons. This island, believed to be the Frisian island Ameland, Pliny afterwards called Basilea.

The voyage of Pytheas does not seem to have been fruitful in results. He did not succeed in reaching the amber land of the Baltic coast, or in wresting from the Phœnicians the secret of the route to those prolific shores.

## CHAPTER IV.

### AMBER IN LITERATURE.

Speculations—The stream Eridanus—Pausanias—Tacitus—Pliny—A lucky stone—The artists of the Renaissance—Hereditary instinct—The only Gem mentioned by Homer—Value of a Roman slave—Amber as a medicine—Contents of a Roman urn—The fragrance of a kiss—The Tree of Life—The Garden of Eden at the North Pole.

THE literature of the ancients abounds in speculations concerning amber, and around this “singular concretion” delightful myths, romances and poetical fancies cluster ; while concerning its nature, origin and habitat, the wildest and most improbable opinions, as I have already pointed out, have been, from time to time, entertained. But the

Greeks, at all events, as the myth of the Heliades proves, though they traced its origin to the Sun-god, knew that amber was the resin of trees. It is surprising to note, therefore, that in the Middle Ages, when the principal sources of supply and the methods in use for procuring the substance were accurately known, the most profound ignorance prevailed respecting its nature. The learned Agricola smiles at the theories of the ancients which so nearly approached the truth. How can amber originate from trees, he asks, when we see that it is cast up by the sea? There are no trees growing in the sea! He does not trouble himself to refute the notions of the ancient writers, but simply rejects them as false. Then he adds, referring to various

conflicting views concerning the amber tree, "all these opinions contradict one another : fortunately they are all wrong"—and finally comes to the conclusion that amber is *bitumen*.<sup>1</sup> Even in the time of Linnæus the nature of amber was still a debatable question ; we find the great naturalist gathering evidence of its vegetable origin.

The myth of the Heliades makes no reference to the locality of the Eridanus, the "beaming river" into which the sisters of

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<sup>1</sup> "Agricola ; *de natura fossilium* ;" cap. ix., pp. 479-480. The opinion of Agricola that amber is *bitumen* was adopted by almost all his contemporaries, and it was not until the beginning of this century that its true nature was established beyond controversy.

Phaëthôn let fall their amber tears, and no doubt, some uncertainty prevailed respecting the whereabouts of this wondrous stream. Herodotus does not credit the tales concerning it, told by Greek and Phœnician mariners, and thinks the name was "invented" by a poet. In modern times various attempts have been made to identify the Eridanus with a river in the north or west of Europe. The name has been applied to the Rhine, the Rhone, and the Vistula. Professor Rawlinson says, "the very name, Eridanus, lingers in the Rhodaune, the small stream which washes the west side of the town of Dantzic"; but Professor Paley agrees with Herodotus, and regards the stream as mythical.

The Eridanus, "the king of rivers," is

first mentioned by Hesiod;<sup>1</sup> and Pherecydes,<sup>2</sup> according to Hyginus,<sup>3</sup> and Æschylus, Euripides,<sup>4</sup> Philoxenus, Satyrus and Nicander, according to Pliny,<sup>5</sup> identified the Eridanus with the Padus—the Po—the swift-flowing, winding, and “deep-eddying” river of Northern Italy, whose name came from the pine trees (in Celtic, *padi*) upon its banks. This identification was generally accepted as conclusive by the contemporaries of those authors, and by the

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<sup>1</sup> “Theogonia,” 337.

<sup>2</sup> Of Athens, one of the most celebrated of the early Greek logographers, who lived in the former half of the fifth century B.C.

<sup>3</sup> “*Fabulæ*, cliv. Mythog. Lat.,” ed. Van Staveren, 1742, 266-267.

<sup>4</sup> Born at Salamis, 480 B.C.

<sup>5</sup> “Nat. Hist.,” xxxvii. 11.

Latins; but Pliny sneers at this "vain statement of the Greeks," because, forsooth, in his day amber was not found on the Padus. But unless and until it can be shown that amber never was found on the Padus, we may safely continue with Euripides to identify that river with "the ocean wave of the Adriatic shore and the waters of Eridanus, where, into the purple wave of their sire, the thrice-wretched virgins, for grief of Phaëthôn, let fall the amber-gleaming rays of their tears."<sup>1</sup> The fact that amber was not found on the Padus in Pliny's time does not justify the conclusion that it was not abundant there in the time of Phère-

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<sup>1</sup> "Hippolytus," 735-741.



cydes and Euripides. A great many errors were current among the Latins respecting this curious gem. It will be remembered that Diodorus of Sicily, who evidently took extraordinary pains to ascertain the home of amber, positively states it is to be found only on the island of Basilea,<sup>1</sup> "opposite Scythia, beyond Gallia." But, as I have shown, amber is found in Sicily, on the surface of the ground, near the place where Diodorus was born, and it was probably gathered in that neighbourhood by the Phœnicians, though, of course, it is quite possible that in the time of Diodorus the supply had temporarily ceased.

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<sup>1</sup> Diodorus.

In his account of the various objects of antiquity and works of art seen by him during his travels in Greece, Pausanias<sup>1</sup>—whose work, by the way, it is said, directed Dr. Schliemann to Mykenæ—mentions a statuette of the Emperor Augustus, placed in one of the round niches of the Forum Romanum of Trajan at Olympia, which was carved out of amber from the sands of the Eridanus (Po), where, he says, the substance was very rare.

Perhaps one of the most interesting passages in ancient literature is the account given by Tacitus<sup>2</sup> of the amber gatherers, on the shores of the tideless

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<sup>1</sup> "Periegesis Hel.," b. v. c. 12, § 7.

<sup>2</sup> "Germania," 45.

Baltic, where the Romans, with some reason, believed the boundaries of Nature to be fixed. His narration, which recalls the long midsummer twilight of high northern latitudes, and the surprising sunrise and cloud effects which may still be observed in that wild region, gives a picturesque account of the *Æstyan* tribes and an intelligible description of the amber diggings. But some of his statements must be taken with a grain of salt. It was not "Roman luxury" that originally gave amber a name or brought it into request; and it is difficult to believe that the savages of the Baltic coast, though they offered amber nodules for sale in rude heaps without any form or polish, did not know the full value of their wares.

But, however low the estimation in which this "singular concretion" was held by the barbarians who gathered it in the distant North, it was highly prized at Rome; and Pliny<sup>1</sup> tells us that "the price of a figurine in amber, however small, exceeded that of a living, healthy slave." Pliny also relates that the Emperor Nero bestowed the appellation *amber* on his beloved Poppæa's hair: from this it has been inferred that this fair creature was a blonde, with golden locks. He mentions, too, the demand for amber at the beginning of Nero's reign. This was so great that to obtain a supply for the gladiatorial exhibitions, a Roman knight

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<sup>1</sup> "Nat. Hist.," xxxvii. 12.

was sent to the North by the commercial road, and brought back to Rome an enormous quantity, including a lump weighing thirteen pounds. According to Solinus ("Polyhist.," ch. xx.), this knight returned with thirteen thousand pounds of amber, which a German king sent as a present to the emperor. This glittering gem the circus adorned with lavish splendour; and the gladiators, who defiled before the emperor with the greeting, "*Ave Cæsar, morituri te salutant,*" wore amber on the breast as an amulet or charm to insure them victory.

Pliny<sup>1</sup> calls attention to the falsehoods and frivolities of the Greeks, and especially

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<sup>1</sup> "Nat. Hist.," xxxvii. 2.

to their marvellous tales concerning amber; but, in the same passage, he allows himself to give currency to wild and erroneous statements. He declares that any colour may be given to amber; that it is sometimes stained with alkanet root and kid suet. Subsequent writers have incorporated these futile fictions in their works, sometimes giving Pliny credit for them, sometimes contenting themselves with prefacing their misstatements by, "it is said." Imitations of amber, doubtless, existed in Pliny's time as they do now, although it is hardly to be supposed that anything so perfect was then known as the method of amalgamating the hitherto useless scraps and filings of yellow amber into a solid mass that has been discovered in recent

years. In this way a material is now produced which, under the name of *ambroid* or *amberoid*, though greatly inferior to the genuine article, is extensively employed, owing to its comparative cheapness, in the manufacture of smokers' articles, etc. Everything is imitated. Pearls, diamonds, rubies, and sapphires are successfully falsified, and not a little caution is requisite in the purchase of these gems as well as of amber. *Caveat emptor* is still a maxim for buyers.

The Greeks called amber ἤλεκτρον, *elektron*, a name they probably adopted with the substance from the Phoenicians, as they adopted from the same source the names of other articles of luxury, the letters

of the alphabet, and their early culture.<sup>1</sup> From *elektron*, in which the earliest manifestations of the electric phenomena were observed, is derived our word "electricity." The Romans named it *succinum*, from *succus* (juice), and also styled it *lapis ardens*; for the same reason the Germans termed it *Bernstein*, both names signifying a stone that burns; and Tacitus<sup>2</sup> states that the Æstyans, who gathered the fossil resin on the Baltic coast, called it *gless*, whence comes "glass."

Fashion, which "shifts like the sands,

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<sup>1</sup> *El ek* in Arabic, and perhaps in Phœnician, signifies "the resin." Scholars derive *elektron* from one of the Homeric names of the Sun-god, *Elektôr*, and this is referred by Professor Curtius to a root, *ark*, "to shine."

<sup>2</sup> "Germania," 45.



the sport of every wind," was for once constant, and amber maintained a high value from the time when the ancient Egyptians engraved on it the images of their deities. Among the Romans it held its place as an object of luxury, notwithstanding the importation of large quantities of precious stones from the East. In the Homeric age the fair Greeks seem to have found amber peculiarly becoming to their complexions, but the resources of the Greek dames were limited, while the Roman ladies had diamonds, rubies, and sapphires, gems unknown in the Mediterranean countries until after the invasion of India by Alexander the Great.<sup>1</sup>

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<sup>1</sup> Many articles in constant use are of recent intro-

Amber is believed to have formed one of the four aromas employed in the Tabernacle, according to the prescription of Moses. The ancients employed it as a medicine, and it is still prescribed by physicians in France, Germany, and Italy, and several chemists in Paris keep it constantly in stock. It has been worn by ladies and children from time imme-

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duction. Even the fork, the emblem *par excellence* of modern refinement, was not employed in Europe until the seventeenth century, although it had long been in use amongst the Fijians, and, in fact, belongs to the Second Stone Age, the remote period to which we are also indebted for most of our cereals, for that refreshing beverage beer, and for that most delicious bivalve, the oyster "on the half shell," which has descended to us in a direct line from the *Kjökkenmoddings*, or shell-mounds of the Danish coast.

morial as an amulet, sometimes carved into *amphoræ*, and has been pronounced of service, either taken internally or worn round the neck.<sup>1</sup> It has always been regarded as a "lucky stone," protecting the wearer against the influence of the "evil eye"; and there are scholars who see in this supposititious quality the root of *elektron*, the Greek name for amber, the

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<sup>1</sup> Callistratus gave the name of *Chryselektron* to amber of a clear golden colour, which, worn round the neck, cured ague; ground up with honey and rose oil it was a specific for deafness, and with attic honey for dimness of sight. Dioscorides thought highly of amber as a medicine, and Auri-faber, in his "*Historia Succini*," has furnished numerous receipts for its use. "I am not ashamed to say that I have tried it," he says, "and it has not been in vain."

verb ἀλέξω, *alexo*, signifying "to ward off, to protect."

With the artists of the Revival amber was a favourite material, and the National Museums at Florence, Naples, Palermo, and Vienna, the Grüne Gewölbe at Dresden, the Industrial Museum at Berlin, the Louvre and the Musée Cluny in Paris, contain Renaissance amber objects. The South Kensington Museum has a few objects of seventeenth century workmanship, and my own collection is rich in masterpieces. In these treasures we possess some of the finest examples of art as applied to industry.

It has, I know, been suggested that our regard for amber is due to hereditary instinct; that it is a survival of an ancient



AMBER JEWEL CASKET.

superstition which held this substance to be of celestial origin—Sun-stuff! This view has been ably maintained by Dr. F. A. Paley in an article entitled “Gold Worship in its Relation to Sun Worship,”<sup>1</sup> in which he shows that amber and gold were superstitiously valued for their yellow colour, *because they were of the same colour and possibly of the same divine material as the sun.*

Sun-worship, no doubt, was widespread if not universal in ancient times. The Phœnicians brought it with them from “the immemorial East,” when (*circa* B.C. 3000) they came to the Mediterranean, and their temples built to Baal were

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<sup>1</sup> See “Contemporary Review,” August, 1884.

temples of the sun. The Greeks and Romans had the same worship. It would be strange, therefore, if amber, which is more sun-like than any gem distilled in Nature's great alembic, should have failed to excite the admiration of sun-worshipping man. When he saw that it was instinct with life, that—as the philosopher Thales of Miletus declared 600 years before our era—"it had a soul," these "clots of sunshine" must have had for him an irresistible attraction, accompanied, it may be, by a superstitious regard. The likeness of amber to the sun was, at any rate, clearly familiar to the Greeks, for Homer<sup>1</sup> describes the necklace Eurimachus gives to Penelope as,

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<sup>1</sup> "Odyssey," xviii. 296.

"Golden, set with amber, like the radiant sun!"

Amber is the only gem Homer mentions in his minute descriptions of the jewellery and art-wares of ancient times; and it is not difficult to believe that this magic stone was prized by the *grandes dames* of the court of Agamemnon and by the ladies of Argos and Mykenæ and tower-engirded Thebes, as a jewel to adorn their shoulders and bedeck their hair withal. Amber is named three times in the "Odyssey,"<sup>1</sup> and concerning the triple-gemmed earrings of Juno ("Il.," xiv. 183):

"Fair beaming pendants tremble in her ears,  
Each seems illumined with a triple star;"

and ("Od.," xviii. 298):

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<sup>1</sup> "Odyssey," iv. 73; xv. 460; xviii. 296.



"Earrings bright

With triple stars that cast a trembling light ;"

there is every reason to believe that the bard was here also referring to amber. Homer<sup>1</sup> speaks of amber as employed with gold and silver and stainless ivory in the decoration of the palace of Menelaus, whose marvellous splendour dazzled all beholders. The testimony he bears to the preciousness of amber ornaments in his day is amply confirmed by the objects which Dr. Schliemann recovered from the royal tombs of Mykenæ. In his interesting narrative,<sup>2</sup> Schliemann mentions

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<sup>1</sup> "Odyssey," iv. 73.

<sup>2</sup> "Mykenæ. A narrative of Researches and Discoveries at Mykenæ and Tiryns," by Dr. Henry Schliemann. London, 1878, pp. 214, 245.

finding in the Acropolis of Mykenæ an enormous quantity of amber beads, which "had, no doubt, been strung on thread in the form of necklaces;" and he says: "their presence in the tombs among such large treasures of golden ornaments, seems to prove that amber was considered a magnificent ornament in the time of the Mykenæan kings."

Sir Thomas Browne in his "Urn Burial" mentions, on the authority of Vigeneri, an elephant of amber as among the contents of a Roman urn belonging to Cardinal Farnese. I have looked into "Vigeneri," otherwise M. Blaise de Vigenère, an eminent French *savant*, who lived from 1523 to 1596, and spent several years in Rome, where his name got Italianized.

His account of the contents of this Roman urn is so like the catalogue of a conjurer's bag, that I have taken pains to translate just what he says. It will be observed that, besides the elephant, Vigenère mentions four other objects sculptured in amber: *i.e.*, a Cupid, a Venus, a sleeping Cupid, and a figure of Silence—as part of the contents of the funereal vessel. His account is highly entertaining and may be found, in good, old-fashioned French, in “Annotations sur Tite Live,” p. 868, as follows:

“In the year 1565 there was found in a little garden of the Church of St. Blasius at the foot of St. Peter's *ad vincula* in Rome a funereal urn or vase, containing the following objects, most of which I saw

in the cabinet of Cardinal Farnese in the following year : a Faustina of cassidonium (calcedony) with pedestal of the same : a Roman boundary stone : a nude goddess of agate : another smaller one, with bases of the same : a Mercury also of agate : a Cupid of yellow amber : a Venus and a sleeping Cupid of the same material, and a figure of Silence, holding a finger from his chin to his nose : a large head of Jupiter with bust of agate : another smaller one and still another, with a base, all of agate : a small Jupiter, a Venus, two nude goddesses and a Mars of cassidonium ; a Jupiter with bust of lapis lazuli : a very fine Domitian ; another smaller one ; a Trajan ; a figure of Silence of agate : two figurines of crystal : two heads ; an ape ;

a head of Alexander the Great; one of Socrates; two others unknown—all of cassidonium: a head engraved on crystal, the upper part forming a shield: a mask of jasper: a larger one; two smaller ones, like children's, and a tiger sucking his foot—all of cassidonium: a lion of jet: an eagle on a ball of agate: a small elephant of amber: a little dog of cassidonium gnawing a bone: a vase; five smaller ones and a glass of agate; a spoon of cassidonium: a branch of white coral: two big apples of crystal: another smaller one: a club of Hercules; a bough of a tree; a grasshopper (*une cigale*);<sup>1</sup> a finger of natural

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<sup>1</sup> It has been averred that the ancients did not reproduce the grasshopper as an object by itself in sculpture, and that Vigenère mistook a scarabæus—

size ; a vase with a cover ; a cup ; three glasses ; two spoons ; a little basket ; six hazel-nuts and a large ring with a Victory engraved on it—all of rock crystal. What a curious fancy to bury all this with one ! ”

Curious indeed ! But the ancients re-

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the sacred beetle of the Egyptians and Etruscans—for one of these animals. The grasshopper, or an insect so closely resembling a grasshopper as to render it impossible to detect the difference in art objects, namely the *cicada*, may be observed, however, on early Greek coins, notably those of Metapontum and Akragas, and is delineated on antique gems (*intagli*), on sundry Greek vases, and on a Pompeian wall, where it appears as an accessory in a *genre* picture ; and both the grasshopper *πάπρος*, and *cicada*, *τέρις*, are frequently mentioned in ancient literature. The poets, indeed, never tired of singing the praises of “ the clear-sounding *cicada*, whose meat and drink is the life-giving dew.”—(Hesiod. “ Scutum Herculis,” 393, 395.) But, as an object by itself, this animal—whether



garded the matter from another standpoint, and buried with their dead the things dear to them in life—their ornaments, weapons, implements, gauds, etc. : in this way many rare and precious objects are preserved which otherwise would have been wholly lost.

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grasshopper or *cicada*—is certainly extremely rare. There is one in rock crystal in Berlin, and Dr. A. S. Murray, Keeper of Greek and Roman Antiquities in the British Museum, has called my attention to the existence, in his department, of one in bronze, said to have been found in Rhodes, and to another in terra-cotta. The golden *cicadae* mentioned by Thucydides (i. 6) and Aristophanes (*Knights*, 1331) as having been employed by the Athenians and Ionians as hairclasps, were, according to Helbig ("Das Homerische Epos," pp. 242-246), simply metal spirals like those found in Italo-Greek tombs, called *cicada* from a fancied resemblance between metallic spiral rings and the body rings of the animal.

Juvenal describes his wealthy patron as drinking at his banquets from a bowl embossed with beryls and reliefs in amber; and Heliodorus styles the *fibula* on the mantle of Theagenes a "Pallas carved out of amber."

Lampridius mentions coins of amber, with the head of Alexander the Great, as being in circulation in Rome during the reign of Marcus Aurelius. There is some confusion here, probably, between amber and *electrum*, an alloy of silver and gold.

Martial<sup>1</sup> has some charming epigrams, upon a viper, upon an ant, and upon a bee imprisoned in amber, and he repeatedly compares the delicious fragrance

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<sup>1</sup> Martial, iii. 65 ; v. 37 ; xi. 8.



of the substance with the fragrance of a kiss. He refers also to the custom among Roman ladies of carrying balls of amber to cool their hands. These balls, when warmed, gave out an agreeable odour. He satirically alludes, moreover, to the rage in Rome for amber-coloured hair, and intimates that aristocratic dames were quickly changed from brunettes to blondes by the employment of some powerful alkali, or by donning the auburn locks of fair Teuton captives, who were frequently shorn of their gleaming, golden tresses with savage cruelty.

“From caustic lather flames Batavia’s hair :  
With captive locks thou may’st seem doubly fair.”

Milton has made use of the amber-shade in some of his choicest imagery. He sings :

“Sabrina fair,  
Listen where thou art sitting  
Under the glassy, cool, translucent wave,  
In twisted braids of lilies knitting  
The loose train of thy amber-dropping hair.”

Shakespeare mentions amber in “Love’s Labour’s Lost” and in “Taming of the Shrew.” When Petruchio promises to take Katherine on a visit to her father, he says, she shall go furnished

“With scarfs and fans and double change of bravery,  
With amber bracelets, beads and all this knavery.”

Several passages in the Bible have been supposed to refer to amber, and the Biblical Gan-Eden, or Garden of Eden,—the cradle of the human race, the primitive abode of man,—has been described as situated in the amber land,

“. . . the land of the pine trees—”

the Baltic being the River Pison, and the Tree of Life the amber tree, the fairest and most important in the world.

This startling theory was advanced nearly a century ago, in 1799, by Dr. Johann Gottfried Hasse,<sup>1</sup> a scholar of Königsberg; and since his day the researches of Heer, Saporta, Hooker, Asa Gray, Wallace, and other prominent palæontologists have shown that the circumpolar area—the lost *miocene* continent in the North—was the mother region that gave birth to a great variety of plants and animals from which all the life

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<sup>1</sup> “Preussen’s Ansprüche als Bernsteinland das Paradies der Alten und Urland der Menschheit gewesen zu sein.” Von Dr. Johann Gottfried Hasse, Consistorialrath und Professor zu Königsberg. Königsberg, 1799.

forms now existent in lower latitudes have proceeded.

Buffon, in "Epoques de la Nature," had already, it is true, cited numerous facts to sustain the proposition that life must have appeared first in the northern circumpolar area of the globe, and that for long ages it was active and reproductive only there. He contends that the earth was originally a fluid, incandescent mass, and that, the cooling of the globe having been a gradual process, the circumpolar area was the first in which the heat became sufficiently moderate for life to appear upon it. The fact that the bones and skeletons of elephants, and other animals indigenous to the torrid zone, are found in great numbers in Siberia and other northern countries

shows that for a very long period the Polar Regions had the same temperature as the Tropics now possess. M. le Marquis de Saporta,<sup>1</sup> starting from this thesis, says : “ We are inclined to remove the probable cradle of primitive humanity to the circum-polar regions of the North : from there only could it have radiated as from a centre, to spread into the several continents at once, and to give rise to successive emigrations towards the South. This theory best agrees with the presumed march of the human races. . . . It is equally in accord with the most authentic and most recent geological data, and it is applicable to

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<sup>1</sup> “Un Essai de Synthèse Paléoethnique,” par M. le Marquis G. de Saporta. “Revue des Deux Mondes.” Livraison du 1<sup>er</sup> Mai, 1883.

the plants and animals which accompanied man, and have continued to be most closely associated with him in the temperate regions, which afterwards became the seat of his civilizing power."

• When the North Pole shall have finally been reached, and its fossil remains thoroughly explored, additional evidence in support of this theory may come into view, and the original and ingenious proposition of Buffon, if not the conjectures of Dr. Johann Gottfried Hasse, be sustained. Sir Clements Markham, of the Royal Geographical Society, who has himself gathered the small yellow poppies, gentians, forget-me-nots, etc., characteristic of the flora of the Arctic Regions, although doubtful with regard to the discovery of new

plants at the Pole, thinks that fossils will be found there in abundance, supplying fresh and wondrous material for students of natural history and palæontology. In the meantime the great lone land of the North presents an ample field for the roaming instincts of speculation and imagination ; but, when the secrets entombed in rock and ice come to be unveiled, the Baltic as well as the Hindu Kush, will, doubtless, have to give place to a more northern clime as the primal home of "the Tree of Life."

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