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The Black Sea, the Flood and the Ancient Myths

SLAVENA
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This book we dedicate to our inspiration Natalya.

The authors

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PREFACE

It is with pleasure that I write a preface to the English version of this book, "The Black Sea, the Flood and Ancient Myths." It was originally written in Bulgarian by the distinguished father and son team of oceanographers, Petko and Dimitar Dimitrovi, and it is a major contribution to our understanding of both human evolution and the recent geologic past. Its importance is emphasized by the authors' insight into the mythology surrounding the Great Flood and the elegant convergence of the myth with scientific facts and observations which, as a totality, has provided these two eminent scientists with an insight into one of the greatest events of catastrophic proportions to befall mankind.

The authors have provided a careful analysis of the mythology, archeological evidence and geological evidence, offering a compelling case for the existence of an early lake, its influence on the associated settlements that existed on the current shelf of the Black Sea, and the subsequent flooding of the Black Sea through the Bosphorous. This marine flooding is a fact and the sequence of events is well accepted. However, as with all advances in scientific knowledge, there are those who do not accept the proposition of THE FLOOD as promulgated in this dissertation. In any scientific endeavor, there are always some facts that can be disputed or challenged. However, it is the totality, the meshing of scientific evidence with mythology, that leads to the insight required for resolving problems raised by past events. Continued scientific study of the region will provide further evidence that the interpretations enunciated in this book are valid. This is the way of science, and it is clear to me that this book will serve as a guide and inspiration for many investigators to come.

Non-technical readers will not be overwhelmed by the science contained in this book. It is concise and readable, and it is a wonderful story of scientific investigation illuminating the mysteries of the past.

Richard L. Thomas

Introduction

Is it possible that the Black Sea was the site of the Biblical Flood? It is true that today this hypothesis is questionable but have we really gone through all the pages of the newest history of the earth and world civilization?

Until recently, the interpretation of the Biblical events has been the exclusive domain of theologians. If other scientists discussed the subject and undermined postulates, they were accused of sacrilege. Modern Biblical archaeology argues that it has answered the questions concerning the timing and site of the Flood.

Our knowledge of the world as acquired from either the Bible or from the Sumerian Epic, is confined to the regions of the rivers Tigris, Euphrates and Nile. In the Sumerian Epic, the hero Gilgamesh walked through the "Sea of Death" in search of eternal life. Where was this sea? The Dead Sea, the Red Sea, the Mediterranean Sea, the Black Sea and the Caspian Sea are each a potential site of the Flood.

Explorations in Mesopotamia and the Red Sea, the tablets with the Sumerian Epic in Nineveh, the manuscripts of the Bible and a number of other findings gave sound grounds to recognize the Tigris-Euphrates area as the place of the Flood. The interpreters of the Bible and the theologians engaged in archaeological explorations had no idea about the magnitude of natural disasters. The recent contributions of geologists to the explanation of these events have led to a significant turn in the interpretation of the records about the Flood and to a revision of the existing concepts. It was proved that the civilizations of the ancient world, Mesopotamia, Egypt, Crete and Greece, India and China, originated from a single point. This uniform origin is confirmed by the structure of their rituals. The results from the comparison between the different ancient languages are also compelling evidence.

The widely accepted view that the oldest traces of writing date to approximately 3,000 BC seems to be rejected because of the proof of the existence of antediluvian writing. Harald Haarmann[1], argues that the oldest writing in the world was found in the Balkan Peninsula. He dates the Tartaria tablets as being from 5,300 BC.

Almost all scientists who have studied the Bible and the Gilgamesh epic are unanimous in evaluating those writings as a valuable source of information. However, none of the works indicates the location of the Flood. The real story of the beginning has been lost in time and space. This gives us a reason to look for new facts which will shed more light on the missing pages of world history.

The critical analysis of ancient myths and the new geological and archaeological facts about the Black Sea basin are about to break the dogma and add a new meaning to the Biblical myths.

Significant discoveries by Bulgarian archaeologists including the Neolithic[2] necropolis of Varna and Durankulak (where the oldest processed gold in the world was found) gave rise to a number of questions, the most interesting of which is the question about the importance of the "Varna" culture in human history. The definition of Varna culture as an "unrealized civilization" is not relevant to the new facts about the existence of the ancient Neolithic culture throughout the Black Sea coast and shelf.

William Ryan and Walter Pitman's book "Noah's Flood" and the BBC film "Noah's Flood" caused a scientific sensation at the end of 2000. The book is a brilliant combination of scientific arguments from nearly all fields of science united in a single geographical center – the Black Sea. The following statement by the famous deep-sea explorer, Dr. Robert Ballard, illustrates the enormous interest in the arguments exposed by the American scientists:

Noah's Flood" is a fascinating scientific-detective story. It must be read! Undoubtedly, this book will provoke a number of expeditions for finding evidence which will prove or disregard the hypothesis."

Dr. Ballard has already tried his luck as a discoverer working in the Black Sea in the region of Sinop, Turkey in 1999 and 2000. The results of this expedition are well-known today. In 2001 and 2002 Ballard and his team, together with Bulgarian scientists, continued to search for new sites

in the western Black Sea. The main purpose of the exploration was to seek for artifacts along the old shorelines – remains of ancient settlements.

Our book was planned 20 years ago, when persuasive geological evidence that the Flood did occur, was presented. It lays the foundations of an interdisciplinary science – geo-archaeology. The book is written based on numerous facts gathered by the authors during many years of expeditions and explorations. The newest ideas on the geo-historical development of the Black Sea basin are presented.

The text and the figures of this book are prepared with the assistance of the staff members from the Marine Geology and Archaeology Department – Delcho Solakov, Veselin Peichev, Preslav Peev and Nedialka Chonkova and the artist - Bono Shkodrov. We also received strong support from Dr. Todor Dimov – the head of the excavations at the ancient settlement and necropolis in Durankulak.

We would like to express our gratitude for their invaluable help and support.

Chapter 1

The Black Sea – What Do We Know About It?

The Black Sea lies at latitude 40° 55' 5'' to 46° 32'5'' north and at longitude 27° 27' to 41° 42' east in the moderate climatic zone. To the north, the Krechenski strait connects the Black Sea with the Sea of Azov which is regarded as a bay.To the south, the Bosporus and the Dardanelles Straits connect it with the Marmara Sea and the Aegean Sea (fig.1). The total area of the Black Sea is approximately 423,000 km^2, and together with the Sea of Azov the area reaches to 460,000 km^2. The greatest length is 1,149 km and the greatest width 611 km. The maximum depth of the basin is 2,245 m, and the average depth is 1,271 m. The abyssal bottom occupies about 37% of the total Black Sea area, the continental slope 34% and the shelf 27%. The area of the Exclusive Economic Zone of the Republic of Bulgaria in the Black Sea is about 33,800 km^2. The total volume of water is 537,000 km^3 of which the waters of the oxygen zone occupy only 10%, the other 90% being taken up by deep oxygen-free waters.

The Black Sea is an inland sea with all the typical features of the ocean water areas – significant depth, extensive alluvial inflow and inflow of the world ocean waters. This greatly influences the pattern of present natural processes in the basin.

The water masses of the Black Sea are generated from continental inflow, precipitation, the Marmara Sea and the Sea of Azov waters. The largest inflow is from the Danube river– 70% of the total continental inflow. The water exchange with the Marmara Sea is extremely important for the hydro-biogeochemical regime of the Black Sea. It is a well-known fact that the Black Sea level is about 35-50 m higher than the level of the world ocean and the Mediterranean Sea and that the water surface of the Bosporus slopes towards the Marmara Sea. The balance of water exchange between the Black Sea and the Marmara Sea through the Bosporus is a key factor that defines the vertical distribution of the salinity and density of the water masses. The modern structure of the Bosporus currents is

two-layered. The surface Bosporus current exports waters with salinity of 17-18‰ from the Black Sea to the Marmara Sea. The thickness of the layer varies, depending on the season, from 20 to 40 m. Under this boundary passes a bottom Bosporus current that imports Marmara Sea waters with 38‰ salinity into the Black Sea. It results from the different water density of the two seas. The velocity of the surface current under normal meteorological conditions reaches up to 1,5m/s, while the bottom current velocity is 0, 75 m/s. Fig. 2 shows a scheme of water exchange between the Black Sea and the Marmara Sea. About 340 km^3 of water annually flows into the Marmara Sea from the Black Sea through the Bosporus, while about 180 km^3 of Marmara Sea waters flow into the Black Sea. This means that if the Bosporus sill had been blocked, the Black Sea level would have risen 0, 5 m annually. The volume of the Mediterranean Sea waters today is 3, 7.10^6 km^3, and the evaporation surpasses the volume of precipitation by $3.10^3 km^3$ per year. These calculations show that if the Straits of Gibraltar had been blocked, the Mediterranean Sea would have been dry for up to 1,000 years. Only for the formation of the Messinian evaporites[3] 5, 5 million years ago, the Mediterranean Sea must have dried up about 40 times.

The deep Black Sea trough came into being as a result of comparatively fast negative tectonic movements. This process went through different stages and it was most intensive at the end of the Oligocene[4], 25 million years ago. Later, during the Pliocene[5] and in the beginning of the Pleistocene[6], the activation of the tectonic movements caused deepening and reformation. After its creation, the deep trough gradually filled in with sediments up to 14 km thick, according to seismic data. These sediments have covered the age range from the Paleozoic era[7] to the present day. The geological history of the Black Sea was particularly dynamic during the last two million years. During the period of continental glaciations, the Black Sea became a landlocked freshwater lake, whereas during the interglacials, it restored its connection with the world ocean through the Bosporus.

The Black Sea climate is exceedingly specific and it is formed by the

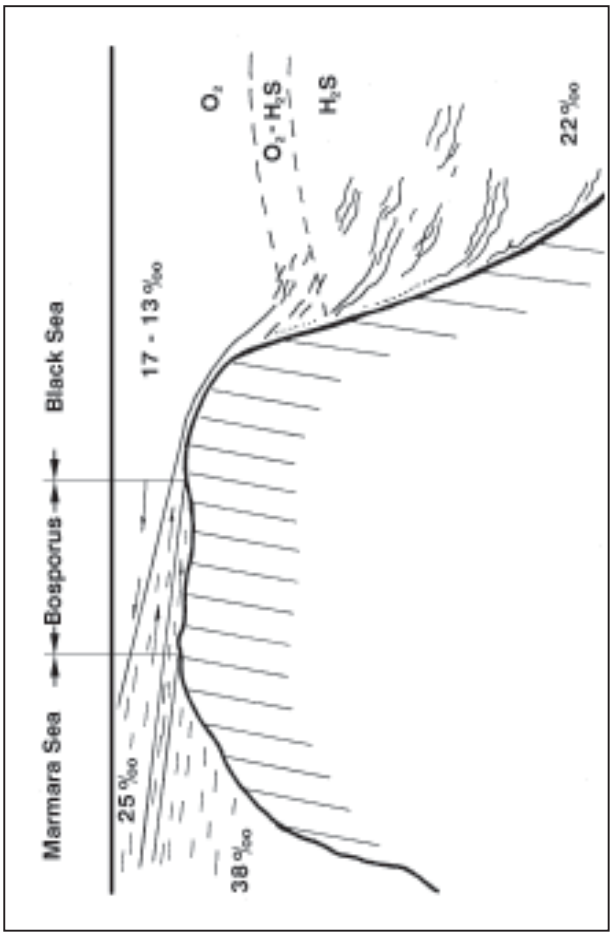


Fig.2. A principle schema of the water exchange between the Black Sea and the Marmara Sea

impact of three major components: European-continental influence from the North, Mediterranean from the South and its own Black Sea influence. On the basis of the components stated above, the Black Sea is referred to as a moderate-humid climatic zone.

The total water area of the Black Sea basin amounts to 1,875 million km^2, the rocks being the main source of terrigenous material[8] that is imported into the Black Sea. About 27, 4 million m^3 per year of silt enters the sea from the abrasion of the shores. The rivers Dniester, Dnieper, Bug and Danube are the most important sources of terrigenous material. Annually, these rivers deliver about 88,100,000 t solid material, most of which silicates; the carbonates are 25,000,000 t.

The Danube River has the largest solid material inflow – 83,000,000 t. The pattern of contemporary circulation of water masses is as follows: the enormous volumes of silts from the above mentioned rivers, mainly the Danube River, spread along the length of the western shelf, thus causing high rates of sedimentation. In terms of alternating regressions and transgressions in the basin during the last two million years there occurred a periodic change of the areas with manifestation of different hydrodynamic factors. In some cases their movement is offshore; in others it is onshore. It has been already determined that the shelf was dried up several times during the glacial regressions and the sea level was lower than the contemporary one, reaching depths of 90-120-170 m. At regression or transgression the underwater slope is processed by the wave motion under surf zone conditions, and then it is drowned at transgression or re-emerges as a sub-aerial environment at regression.

In the coastal (inland) area of the shelf (fig. 3), at low water depths, where the waves are transformed, (i.e. they are deformed and broken, a process of re-distribution of the wave energy) high water turbulence[9] occurs. Here the hydrodynamic regime is most active and depends on the wave motion and the arising currents which might be parallel or vertical to the shore (energetic, gradient, and compensatory). Differentiation, suspension and combination of sediment material take place in the surf zone as a result of the wave motion and, depending on its intensity, direction

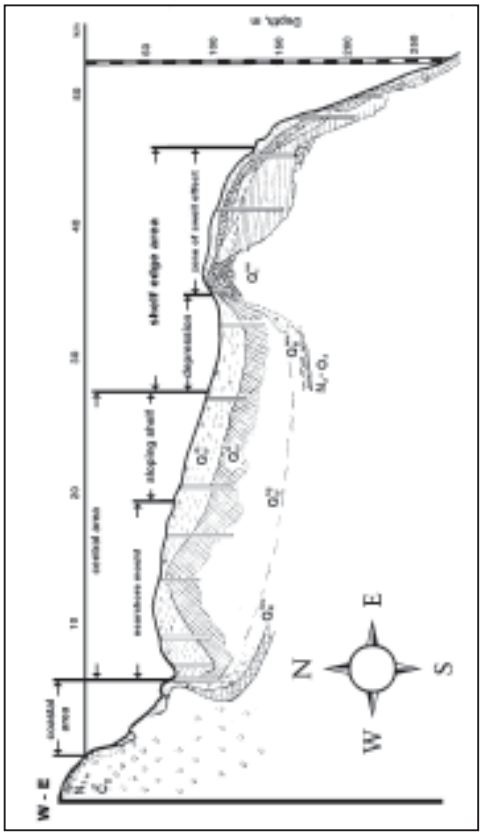


Fig.3. Schematic geological cross-section of the shelf and the major elements of the relief
Q1 -QIV – quaternary deposits
N2 – Pliocene
C2 – Upper Cretaceous volcanogenic-sediment rocks

and structure. This process is extremely complex under natural conditions, especially in the uppermost part of the underwater slope, where the final

breaking of the waves occurs.

In the central area of the shelf (fig. 3), where the direct energetic impact of wave motion on the bottom is minimal, drift currents are key relief-forming factors. The normal direction of the main stream of the currents is north-south, which determines the transportation of terrigenous material from the Danube River and its deposition in the central accumulative shelf plain. The so-called compensatory currents at the bottom are typical. They are directed opposite to the surface current and often cause accelerated sedimentation. They are genetically related to the coastal zone; however they spread to bigger depths, especially at a time of extreme storms.

High rates of sedimentation and considerable thickness of the Holocene[10] sediments are typical for the coastal and central part of the shelf. Alongside the shore, crossed the old deltas of the rivers forming broad alluvial plains. They deposited continental alluvial and lake-swamp sediments (stripe-like ooze).

In the shelf periphery (fig. 3), in the area of the old shorelines, at 80-100-120 m, the sediment formation is insignificantly influenced by the wave motion. The most important factors for this process are the turbulence and bottom currents, resulting from the so-called internal waves. Due to their great length (ranging within hundreds of meters), the internal waves are deformed in the edge area of the shelf. The several cm/sec velocity of the movement of these waves is sufficient to keep the aleurites[11] and pelites[12] in suspension and to provide for their transportation to deepwater areas. This mechanism is one of the possible explanations for the deviations from normal mechanical differentiation of the shelf periphery.

According to existing data the deviations can result from the presence of older deposits, relics from the old shorelines. The instrumental measurements of the currents and the visual survey carried out by the manned submersible PC-8 in the areas of erosion or zero sedimentation indicate a velocity from 50 to 80 cm/s. This shows that the sediment material is transported and deposited out of this zone.

The hydrogenous transfer of sediment material (isobaths) dominates over the gravitational transfer (offshore). This is typically characteristic of the shelf dynamics of tideless seas. The hydrogenous forms of the relief are oriented in the direction of the main stream of the major Black Sea current.

The transition from the shelf to the continental slope is an area with manifestation of intensive hydrodynamic processes, determined by additional hydrodynamic and hydro-chemical factors. The hydrodynamic transfer of sediment material, which is carried out in the form of the so-called contour currents, is typical for this zone. These currents create natural furrows, through which the organogenetic-mineral material flows in the direction of maximum velocity of the seafloor currents.

Seafloor forms, oriented towards the axis of the main Black Sea current, still occur in the zone of the outer terrace (105-110 m).

A process of mass transfer of sediment material by dragging and saltation in the direction of the isobaths is observed down the slope (below 110 m). The quantity of the suspended sediment material is significant, that is why the water-bottom boundary is difficult to observe in the lights of the submersible.

It is known that the continental slope is furrowed by an alluvial fan system, which is characterized by specific hydrodynamic regime (fig. 4). In 1983, when exploring the Rezovska underwater valley to a depth of 970 m, in the seafloor layer the currents were measured with an RCM-4 instrument. The results showed that in the valley axes the current velocity ranges from 1-2 to 10 cm/sec. Drilling determined that contemporary and Holocene sediments were missing in frequent places in the axes and the slopes of the valleys, especially where the slope of the bottom is steeper. Similar data was observed when exploring the Varna canyon to depths of 500 m by the manned submersible “Argus” in 1985. Active slides of Holocene sediments (sapropels[13] and coccolith silts) along the surface of the underlying dense Neoeuxine[14] silts are observed in the axis of the valley (fig. 5). When the submersible even slightly touched the bottom, a suspended flow was formed, which spread down the slope as a smokescreen. It is obvious that the gravitational slides and turbidity currents[15] are common phenomena in this zone.

The gravitational microforms created as a result of the movement of friable deposits down the slope are widely spread on the continental slope. They are seen as a number of forms of fractures and slides. There are occurrences of long synclinal tracks, along which turbidity currents move. Brecciaing[16] processes are developed in large scale at the foot of the continental slope and abyssal bottom. Signs of turbidity currents are observed along the surface of the bottom.

Active hydrodynamic processes play an important role in the origin, transportation and deposition of sediments on the shelf. On the continental slope and abyssal bottom they are determined by turbidity currents, gravitational sliding and brecciaing.

The presence of a deepwater hydrogen sulfide layer at depths of 130-200 m is a typical characteristic of the Black Sea. Therefore, the upwelling phenomenon is especially significant for explaining changes in chemical and biogeochemical processes.

Upwelling is the vertical motion of water by which hydrogen sulfide water of higher salinity and rich in biogenic components moves toward the surface of the ocean. Upwelling results when winds blowing nearly parallel to a continental coastline transport the light surface water away from the coast. Subsurface water of greater density and lower temperature replaces the surface water and exerts a considerable influence on the weather of coastal regions.

North-east winds (35-40% of the annual direction) are predominant in the Black Sea with south-west and western accounting for 25-30%. The upwelling occurs under the impact of the south-west winds. According to our observations, it is particularly intensive in the water area of the western Black Sea and significantly stimulates biogenic and terrigenous sedimentation.

The hydrogen sulfide contamination is an extraordinary phenomenon, which distinguishes the Black Sea from other seas and oceans. The oxygen zone occupies the upper layer to depths of 120-150 m. The thickness of this layer varies in different regions of the sea depending on currents, meteorological environment, etc.

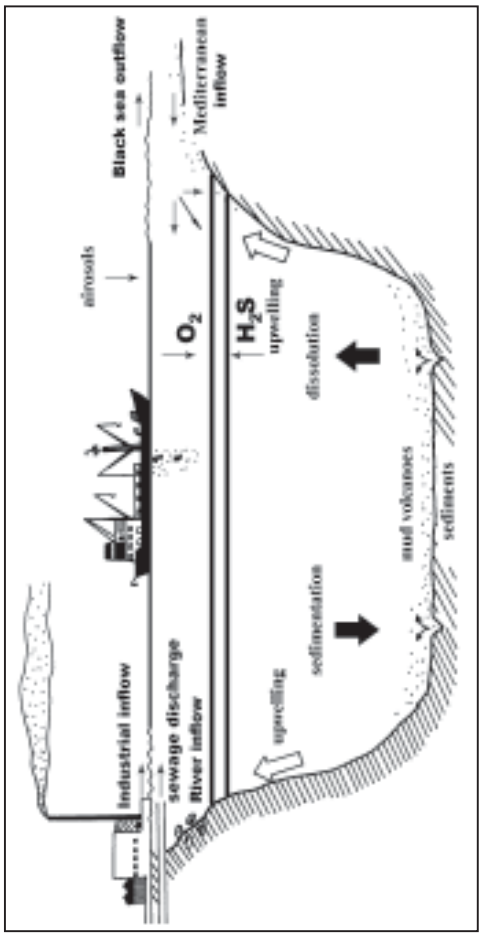


Fig. 6. Natural and anthropogenic factors for the formation of the contemporary Black Sea regime

The so-called intermediate or redox layer (fig. 6) – a layer of mutual existence of hydrogen sulfide and oxygen - is located under the oxygen zone. Intensive processes of chemical and biological oxidation of compounds from the hydrogen sulfide zone, created as a result of bacterial anaerobic decomposition, take place in the redox layer.

In relation to the concept of a "disastrous" rise of the hydrogen sulfide level, it can be said that the location of the upper boundary changes over quite a large range. In the central part of the Sea, it has created an irregular protuberance, which reaches to 80-100 m from the surface, while the continental slope is significantly deeper – 150-170 m.

Oceanographic factors forming contemporary sedimentation, water and the gas-geochemical regime of the Black Sea give reasons to carry out underwater archaeological explorations in search of artifacts, proving the existence of pre-deluge civilization. The shelf periphery in the area of the old shorelines (fig. 3) with insignificant or totally missing sediments appears to be most promising for finding remains of ancient settlements. Also, sites in the coastal area of the shelf at a depth of 20 m, where traces of settlements and harbors from the Neolithic period, antiquity and medieval ages occur, should be explored. It is possible to discover remains of wooden ships on the continental slope, in the hydrogen sulfide zone. This will be of great importance for the history of ancient trade, shipbuilding and navigation.

Chapter 2

Geocatastrophic Events in the Black Sea

The modern geological history of the earth is characterized by alternation of striking geocatastrophic events. Continental glaciations and interglacial epochs and the related transgressions and regressions of the world ocean and landlocked seas have created the appearance of the planet. During the last 1, 7 million years there have been four glaciations on the Earth – Gunz[17], Mindel[18], Riss[19] and Wurm[20] - with their respective interglacial epochs. These processes were most complicated in the East Mediterranean region which covers the Mediterranean, the Black Sea and the Caspian Sea (fig. 1)

What was the succession of events in the Black Sea according to the newest data? At the Pliocene-Pleistocene boundary regression took place in the Black Sea, simultaneously with the Late-Calabrian regression in the Mediterranean under glacial Gunz conditions approximately 1, 7 million years ago. The Black Sea level reached to 170 m below the contemporary sea level (fig. 7). This data was discovered in 1982 when we were dragging the bottom with the research ship Explorer 2. Shore boulders[21] and gravel pieces, smooth and highly lithified with Pliocene and Lower Pleistocene (Gurian) fauna[22], were extracted from the continental slope at a depth of 170 m.

Later, the Lower Pleistocene (Chaudian) shoreline, which was formed during the Gunz-Mindel interglacial, was exposed on the periphery of the modern shelf at depths of 80-100 m. Pebble-gravel deposits, often lithified (fig. 8 a, b, c) fix the shoreline all over the periphery of the whole Black Sea basin. The saline Chaudian basin occupied the water area of the Black Sea and the Marmara Sea, as well as the eastern part of the Agean Sea. The discovery of Upper Pliocene and Lower Pleistocene deposits on the shelf and the continental slope of the Black Sea created a sensation among scientists because, up to then, it had been thought that these deposits formed the high 90-100 m terraces along the coast. The Lower Pleistocene, which spanned from 1, 7 million to 440,000 years

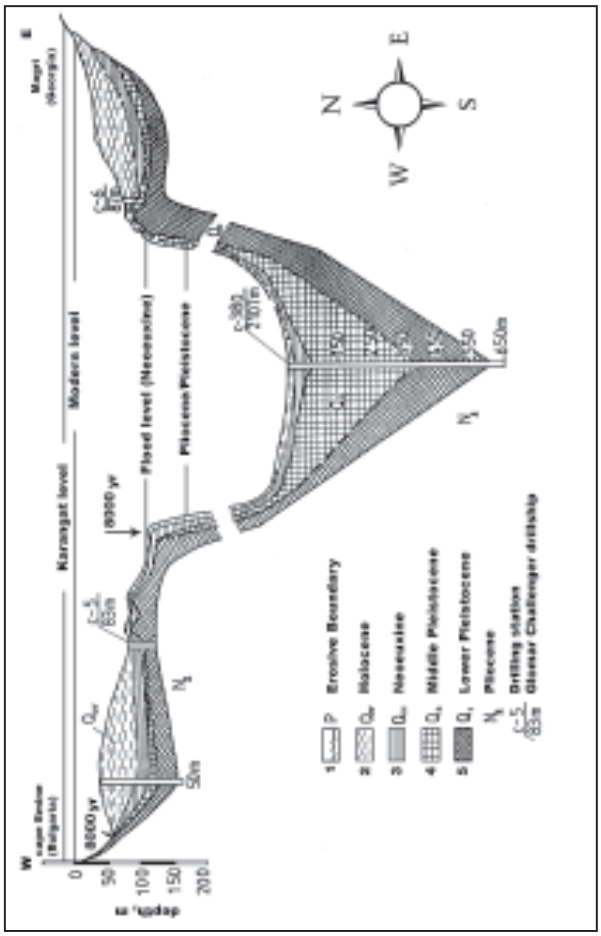


Fig. 7. Schematic geological cross-section and the old shorelines of the Black Sea

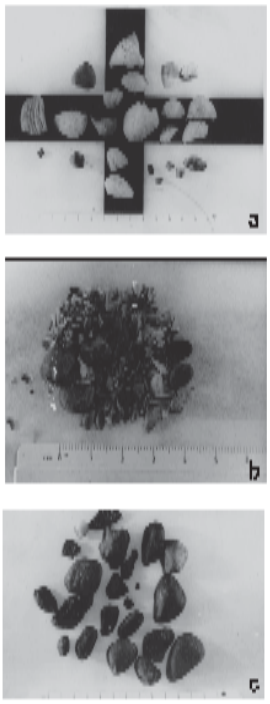


Fig. 8. Shore sediments with an Lower Pleistocene age
a - Fragments of shells
b – Gravel grains and shells
c – Softened gravel grains

ended with deep regression during the Mindel glacial. Freshwater to brackish, the basin was characterized by preserved fossil fauna[23] (fig. 9a, 9b, 9c, 9d).

The Middle-Pleistocene shorelines (old euxine, uzunlar, paleo-Tyrrhenian) are situated along the present shelf at depths of 50-60 m. Littoral flat deposits, created during the Ris glacial are exposed on the shelf. The typical sea basin transformed to a low salinity basin at that time. The Middle Pleistocene deposits were exposed to intensive erosion and occurred infrequently. They were created in the period from 440,000 to 120,000 years.

The Upper Pleistocene shorelines reflect the contrasting character of climatic and geological events during Ris-Wurm interglacial and Wurm glacial. The Karangatian (Tirrenian) transgression[24] left permanent signs along the present Black Sea and the Mediterranean Sea. Along the Bulgarian coast two terraces are preserved, respectively at 12 and 25 m, reflecting the two phases of the Karangatian transgression. The Karangatian deposits in the Varna Lake are dated as being from 90,000-120,000 years, which is very close to the international dating of the Upper Pleistocene. The Karangatian

basin was larger than the contemporary one; its water flowed in the mouths of the rivers and formed limans. Probably, during the Karangatian period organogenetic-mineral sediments (sapropels) were formed in the deepwater areas. Hydrogen sulfide contamination existed in that period. Post-Karangatian regression took place during the Wurm glaciation.

Apparently, during the regression phases of the Black Sea and the Caspian Sea, a one-way water flow in the Marmara Sea and the Mediterranean Sea occurred. It could have happened only at low sea level of the world ocean and the Mediterranean Sea during the continental glaciations. This inflow lasted until the interglacial transgression of the world ocean.

Fig. 9a. Lower Pleistocene fauna (genus Dreissena)

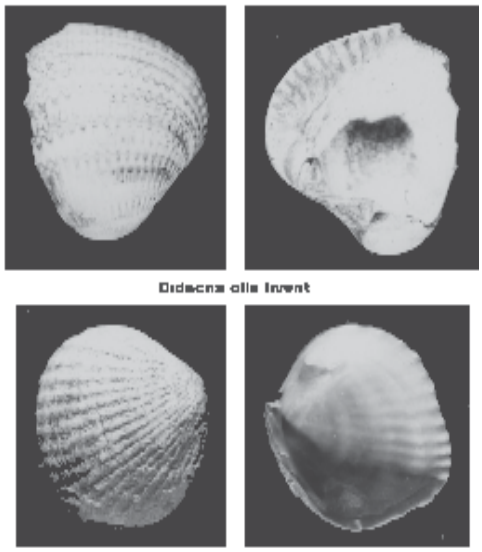


Fig. 9b. Lower Pleistocene fauna (genus Didacna)

During the last 2 million years, the connection between the Mediterranean Sea and the world ocean (Atlantic Ocean) through the Straits of Gibraltar has not been interrupted. When transgressions reached their maximum, the one-way inflow stopped and the opposite process occurred – invasion of Mediterranean waters through the Dardanelles, the Marmara Sea and the Bosporus into the Black Sea.

The most persuasive proof of the existence of humans is dated to the last glacial – Wurm. An ice shield covered almost half of the earth surface. Naturally, centers of life originated round rivers where they flowed into seas and lakes and climatic and living conditions were most favorable.

A small glacial optimum started in the territory of the Eastern Europe about 12,500 years ago. Temperatures decreased, rains were rare, evaporation exceeded the volume of the incoming water and the Black Sea level started to drop off.

The deep Neoeuxine regression of the Black Sea (-90m -120m) is

related to the consequences of the Wurm glaciation in the northern hemisphere, while at the same time the level of the Mediterranean Sea was -30 m and determined by the global post glacial transgression (fig.10). As a resultof the deep regression, the connection with the Mediterranean Sea was interrupted. The Black Sea finally was transformed into a freshwater basin. The studies of porous water, extracted from deepwater Neoeuxine sediments, prove the lake character of the sea. The shores of the Neoeuxine basin are characterized by a series of littoral accumulative bars (fig. 11a, 11b), created by beach, coastal sand-gravel and shell accumulations. The outer (sea) boundary of the Neoeuxine basin is limited to 120 m by the so-called peripheral terrace, while the inner boundary (from the coast) reaches up to 90 m (fig. 7). Radiocarbon dating of Neoeuxine shells gives an age from 9,000 to 11,000 years. In their book "Noah's Flood", Pitman and Ryan (1999) use dating of shells from Cardium edule, Mytilus galloprovincialis and Monodacna caspia, which prove the penetration of Mediterranean species about 7,600 years ago. Analogous littoral species are traced along the periphery of the entire Black Sea shelf. Deepening of river valleys is one of the most reliable criteria for estimating the dimensions of the regression cycles. According to seismic-acoustic profiling data, the depth of the erosion cutoff of the valleys of the Don, Inguri, Pshada, Suko, Rioni and Kamchia rivers along the shelf periphery exceeds 100 m. Probably, the depth of the Late Pleistocene cutoff was 120 m.

There are a few differences concerning the boundaries of the Neoeuxine basin. The American scientists William Ryan, Walter Pitman and Robert Ballard assume that the Neoeuxine shoreline is located to a depth of 155 m. This could be an error, assuming that the Lower Pleistocene shoreline is the Flood shoreline. Our long explorations, including taking out drill columns, indicate that the level of the Neoeuxine basin has never been lower than 120 m below the contemporary sea level. Probably, the American scientists are mistaken, assuming that the Lower Pleistocene shoreline is the Flood shoreline.

The Neoeuxine Lake is especially interesting from a paleo-ecological point of view because at that time its shores were inhabited by a highly

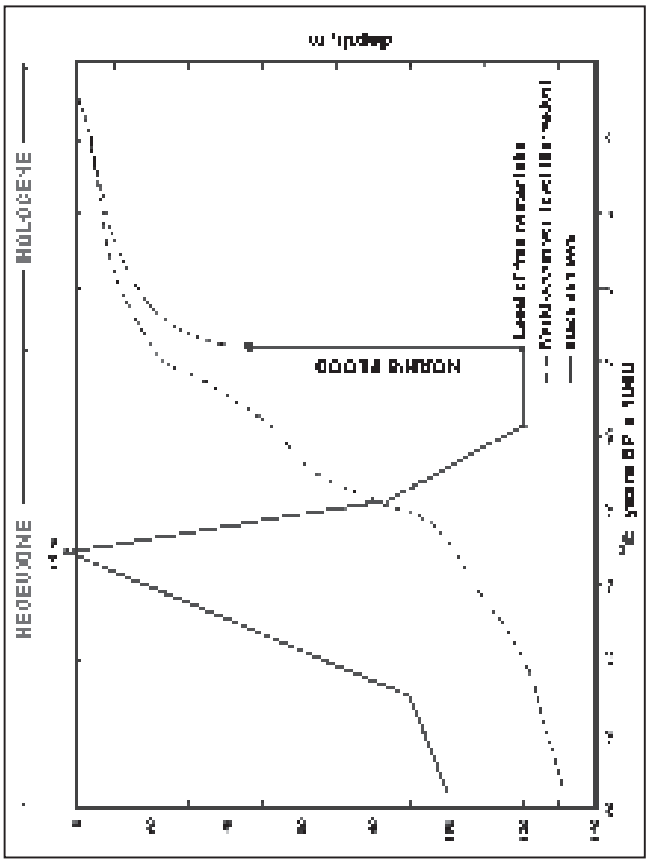


Fig.10. The curve of the changes in the level of the World Ocean and the Black Sea during the last 18,000 years.

developed civilization.

The catastrophe for the Neoeuxine Lake occurred approximately 7,600 years ago when the sea level rise of the Mediterranean breached the Bosporus Strait. These events might have been stimulated by frequent earthquakes, which sometimes were disastrous. At the time of the catastrophe, the Mediterranean Sea level was 30 m lower than the contemporary level, and the Black Sea level 120 m lower. Thus, the Mediterranean Sea level was about 80 m higher (fig. 10). The consequences on the natural environment and the ancient civilization that inhabited the coast were fatal. The waves breaking on the coast eroded ancient accumulative forms (fig. 11a, 11b) and took them out of the wave influence zone. The Black Sea level increased at 12 cm per day and its water swallowed more and more land. This process continued until the Black Sea level became equal to the level of the Mediterranean Sea and the world ocean. The level of the two basins stabilized to contemporary depths of 35-40 m, after that the rise in the Black Sea level was determined by the world ocean level.

Besides the ancient shorelines, the deepwater organogenetic-mineral sediments, named sapropels, are another important indication of the catastrophe. Sediments in which the content of organic matter exceeds 5% are regarded as real sapropels. Most explorers describe sapropels as "black silt" mainly because of the rapid contrast with the underlying and covering sediments. Main components of the sapropels are various plankton organisms - Dinoflagellate cysts[25], diatomic[26] and coccolithophorid[27] algae and peridinium[28]. There are frequent occurrences of mass accumulations of fish skeletons. The freshwater Neoeuxine basin, also known as "the Black Sea Lake" was characterized by high biological productivity. However, it was not typical for the sediments of that time. The reason is that organic substances under the conditions of aerobic environment are decomposed and partially dissolved, whereas in an anaerobic environment they are preserved. The lower boundary or the so- called underlay is extremely vague. The sediments of the freshwater Neoeuxine basin are represented by terrigenous grey-whitish silts.

Studies on porous waters, contained in the sediments from that period,

prove that this was a freshwater basin. The spore-pollen analysis of the sediments from Neoeuxine time indicates that they were formed under conditions of dry and cold climate at the end of Wurm glaciation, while the spore-pollen diagrams of the sapropels testify to a warm and humid climate. The so-called "typical" sediments are located above the erosion boundary of the Black Sea sediments. They are micro-layer brown-grey dense sediments with caoutchouc-like appearance (fig. 12a, 12b, 12c). The thickness varies over a wide range – from 10-15 cm to 1m. Sometimes sediments are layered with finely dispersed ooze, 5-6 cm thick, which indicates a temporary change in sedimentary conditions. In the lower part

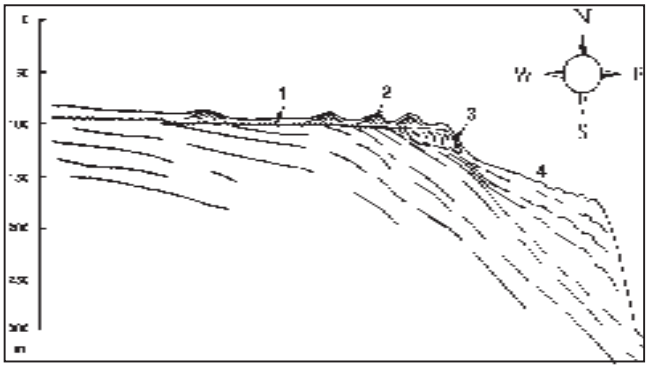


Fig.11a. General schema of the ancient shoreline of the shelf
1 – erosion surface 2 – Neoeuxine bulges
3 – Chaudian shore bulges 4 – peripheral shelf terrace

is located the so-called marking layer, which fixes the first occurrence of coccolithophorid algae in the Black Sea. Nonstructural, strongly watered sapropel sediment, 30-70 cm in thickness, is located over the typical sapropels. The 2-layer structure of sapropels confirms the change in conditions of sedimentation and gradual down-top reduction of organic mat-

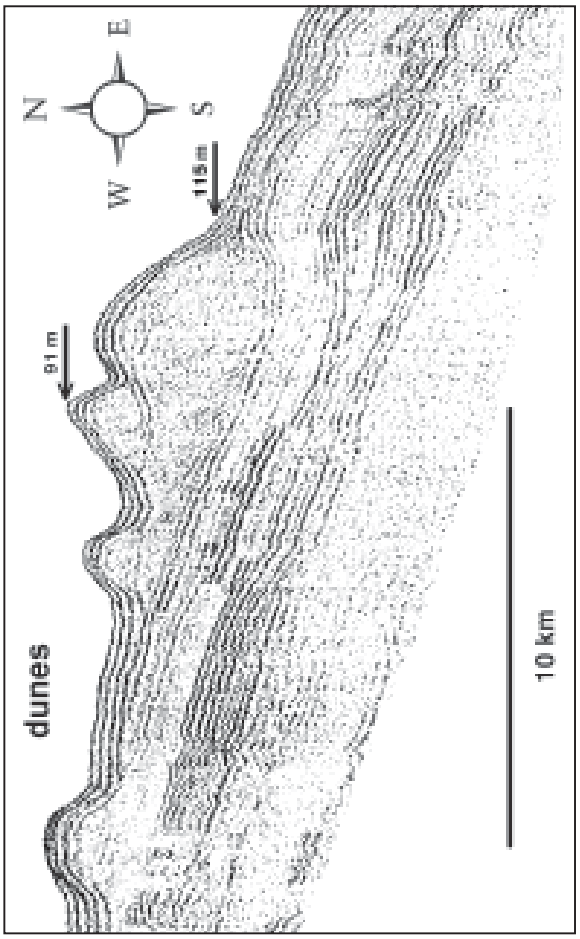


Fig.11b. Fragment of seismic-acoustic record in the region of the old shorelines (profile Emine cape)

ter. The organic matter in sediments is a complex combination of plant and animal products. Sapropels are unevenly distributed. Due to sliding processes, they are often not represented along the continental slope and along the slopes and axes of the submarine valleys (fig.5). They are better preserved in level locations, where the thickness reaches 45-60 cm. The thickness of sapropels is most significant at the foot of the continental slope – 2 m. Sapropel breccias are observed in the abyssal bottom, around the throats of mud volcanoes.

On the basis of the conclusion that the lower part of the sapropels should identify the beginning of the catastrophe, 25 absolute datings using the radiocarbon method were conducted. They determined an age from 6,800 to 9,630 years, which is close to the age specified in Pitman and Ryan's book "Noah's Flood" -7,600 years (fig. 12g).

When treating the catastrophe as a geological event, we should have in mind that it was an ecological catastrophe. The incursion of saline ocean waters (38‰), rich in biogenic components, into the freshwater Black Sea caused vast blooms of the plankton biomass, which later died and were deposited on the bottom. The long lasting belief that hydrogen sulfide was the reason for large concentrations of organic matter in the sediments, turned out to be unproven.

This is also confirmed by the observations in present upwelling zones in the oceans, where enormous concentrations of organic matter are generated as a result of the blooms.

The creation of the sapropels was a unique catastrophic event. Huge volumes of dead plankton, together with organic matter from the land, were deposited on the seafloor. At the same time, the incoming saline water "suffocated" the basin with the poisonous gas hydrogen sulfide, which was liberated from the decaying organic matter. The sea surface was really an apocalyptical scene – thundering brown-red waters and the stench of hydrogen sulfide with dead bodies and the remains of animals washed ashore. Earthquakes, thunder, lightning and rain completed the view of a burning hell. Undoubtedly, the memories for that event agitated many generations and were "sealed" in verbal and written legends, art symbols and

objects.

So, let us summarize. The following evidence supports our story for the catastrophe in the Black Sea, 7,600 years ago: a strong erosion of the old shorelines of the basin and their quick drowning; a formation of deepwater organogenetic-mineral sediments (sapropels); a formation of poisonous hydrogen sulfide gas and mass dying of living organisms in the Black Sea.

The analysis of the archaeological evidence on the shore, where artifacts indicating the existence of ancient Neolithic culture are found, gives a reason to assume that the center of this culture was located on the pre-Flood shores. The remains of the civilization "X" lie untouched in the region of the old shorelines. They could give new proof of the Flood.

Chapter 3

Hydrogen Sulfide – the Curse of God

Hydrogen sulfide in the Black Sea was discovered more than 120 years ago. Academician Andrusov could hardly know that his expedition would become a trip of extraordinary discovery when he met the dead hydrogen sulfide zone and extracted the first sediments with the odor of rotten eggs. He thought that it was formed as a result of the decay of organic compounds which had deposited on the bottom and liberated sulfur compounds.

The process of anaerobic decomposition of organic matter of sulfate-reducing bacteria is generally accepted as a major source of hydrogen sulfide in the Black Sea today. The organic matter, which is fixed on the sea bottom in the form of organogenetic-mineral sediments (sapropels), is a product of the mass dying of plankton biomass as a result of the Flood. A surplus of organic matter creates favorable preconditions for the development of bacterial sulfate-reduction. Other important sources of hydrogen sulfide, sometimes underestimated, are the geological sources – fractures and mud volcanoes, as well as the destroyed gas-hydrate deposits, which contain the solid phase of H_2S.

As a result of the intrusion of saline Mediterranean waters into the freshwater Black Sea, large amounts of iron, sulfur and sulfur compounds were dissolved. At the same time vast volumes of river water penetrated into the sea, which resulted in a major difference in the density of freshwater surfaces and saline deep waters – the so-called halocline, which blocked the vertical mixing of water masses. Normally, the upper boundary of the hydrogen sulfide zone starts immediately under the halocline, thus deterring the exchange of oxygen from the upper layers.

A question comes to one's mind. Did hydrogen sulfide contamination exist in the freshwater lake basin before the Flood? Figure 13 is a schema, which shows that the contamination occurred as a consequence of the catastrophe in the Black Sea.

The Neoeuxine sea-lake was a freshwater, well-aerated basin that was formed during the Wurm glaciation. Low content of organic matter, with

minimum processes of bacterial sulfate reduction, is typical for the sediments of that time. The only suppliers of hydrogen sulfide were the geological sources – mud volcanoes. As a chemically active component H_2S, is liberated from the volcanoes and is absorbed by the iron coming from the land and is fixed on the sea bottom in the form of undissolved iron sulfides. An interesting fact is that together with iron sulfides, gas hydrates were also formed in the sediments from the glacial period.

The geochemical and hydrodynamic regime of the freshwater lake did not allow creation of free hydrogen sulfide. After the flood, fundamental changes in the geochemical and hydrodynamic regime occurred, thus stimulating the formation of free hydrogen sulfide.

Immediately after the flood, the hydrogen sulfide encompassed the entire water mass from the bottom to the surface of the sea. Eventually, the hydrodynamic and geochemical regime was stabilized and an oxygen or biotic surface zone was created.

The hydrogen sulfide zone begins from -130 to – 140 m downward, a large part of the basin (90%) being unpopulated as shown on fig. 6. The redox layer is located from -130 to -140 m to -180 to -200; the abiotic hydrogen sulfide is located beneath (to maximum depth).

Here are some parts of the logbook concerning the dives in the hydrogen sulfide zone in the summer of 1998 carried out by the PC-8 submersible:

"Locked in the steel sphere, lying before the illuminator of the submersible, we are trying to get a visual perspective of the hydrogen sulfide zone boundary. After dipping in transparent blue-green waters, painted in amazing colors, we reach to a stunning spectacle – huge umbrellas of jellyfish, arranged horizontally in a single line as if positioned to breathe fresh air. Now we understand why there wasn't a sign of jellyfish on the surface. The depth is about 20 m – this is the thermocline zone[29]. Swiftly, with a rate of 1m/sec, we dip in the unfathomed deep. Little by little the rays disappear; the water becomes dark green, and the white powder looks like light snow. Occasionally, curious fish flap friendly to us and pass by. Under depth of 50 m, our "earthy" feelings fade away with the final glimmers of the daylight; bit-by-bit we are engulfed by gray-green water mass,

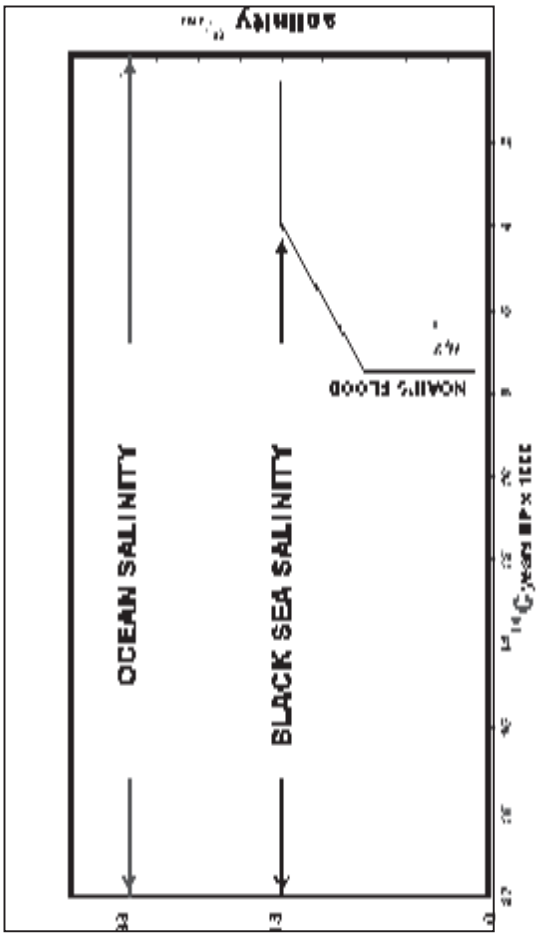


Fig.13. The connection between the catastrophic event (the Flood) and the formation of hydrogen sulfide

illuminated by floodlight. "It is snowing" harder and only the graceful aerodynamic shapes of the sharks remind us of the hydrospace world. Beneath 100 m the colors become denser and only small plankton crabs are still accompanying us. To a depth of 138 they also leave us. The dead zone (the term is "anaerobic") is indeed a dead zone. No oxygen – no life. We have the feeling that outside it stinks of carrion. Even the floodlight hardly penetrates in the brown-green water among which the turbidity particles look as if motionless. The experience is really unforgettable.

Some medieval philosophers believed that under a depth of 500 m there was no life in the oceans and called the substance they supposed to exist there – phlogiston[30]. This definition is very suitable for the slough that surrounds us. We go on through the "phlogiston" which becomes even thicker towards the bottom. When reaching to depths of 380 m, we can scarcely see the bottom silhouette."

Hydrogen sulfide concentrations of 0, 3 mg/l, under which practically no oxygen exists, are regarded as the upper borders of the anaerobic zone. The concentration of H_2S increases, reaching to 8-10 mg/l to depths of 1,500 m, then becomes stable but the maximum concentration in the water does not exceed 10-12 mg/l. The approximate vertical profile of the H_2S concentration (fig. 14) shows that the quantity of H_2S gradually decreases from the bottom to the surface. This testifies to diffusion of hydrogen sulfide liberating from sediments and mud volcanoes. In the bottom sediments, the contents of H_2S vary from 12-16 and reach 160 mg/l. The dissolved gas-like phase of H_2S in the Black Sea reaches 0, 24 g/t to depths of 300 m and 2, 2 g/t – to depths of 2,000 m. Even at these low concentration rates, the total quantity that is created annually amounts to 10^7 -10^8 t. It should be taken into consideration that in seawater H_2S is not only in dissolved gas-like phase but also in the form of sulfides and hydrosulfides. 9-12 g hydrogen sulfide and its compounds such as thiosulfates and colloidal molecular sulfur are also contained in each tonne of water.

Under conditions of anaerobic bacterial decomposition of organic matter, except for the hydrogen sulfide, other gases such as methane, nitrogen and carbon dioxide, are also generated from the bottom sediments. Studies

show that water contains 0, 2 mg/l methane and 0, 5 mg/l ethylene and ethane. Most probably, the ethane and ethylene come into the water as a result of the destruction of oil-gas deposits and gas-hydrates in the sea sediments. The methane is usually created by anaerobic bacterial decomposition simultaneously with the hydrogen sulfide.

The formation of methane is most active in rich organic matter sediments like sapropels. There are also frequent occurrences of methane sources along fractures as a result of the destruction of gas deposits in the earth's womb. In this case, a part of the methane is dissolved when passing through the waters. The role of the methane will be discussed later when explaining some unusual phenomena.

The above clarifies the process of the generation of a number of natural gasses in the Black Sea as a result of its natural evolution. Under conditions of bacterial hydrogen sulfide contamination and as a consequence of the transformation and conservation of organic matter in the form of sediment, some typical biotechnological products like sapropels are created. The rates of generation of various products in the anaerobic zone indicate that the Black Sea is a natural biotechnological reactor.

Is the hydrogen sulfide zone in the Black Sea rising? Recently, much has been written and talked about this issue. In some cases, it is all about pseudo-scientific apocalyptical speculations. In other instances, data from single measurements are used to make general conclusions that by 2020 hydrogen sulfide will be at the surface of the Sea. Well-reasoned forecasts that give a realistic picture of this process are comparatively rare.

It has already been emphasized that the hydrogen sulfide formation is a step-by-step process, which is limited by some oceanographic factors – density stratification, currents, internal waves, etc. The observations on the content of hydrogen sulfide in the Black Sea during the last 50 years indicate a relative stability in its concentration and vertical distribution. As far as the dynamics of the hydrogen sulfide is regarded, there is equilibrium – on one hand, its production in deep water and sediments, on the other hand, its chemical and biological oxidation with oxygen derived from the surface biological zone and air/sea interaction. The average amounts, de-

Depth, m	H_2S, mg/l
150	0.19
175	0.40
200	0.83
225	1.14
300	2.34
400	4.64
500	5.02
1000	8.48
1500	9.56
2000	9.60

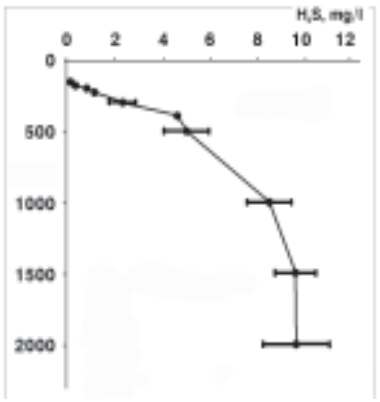


Fig.14. Average vertical profile of the hydrogen sulfide concentration in the Black Sea

termined in 1891, are not very different from the contemporary amounts.

The analysis of the rate of hydrogen sulfide oxidation and the ratio of chemical to biological oxidation is important for estimating the efficiency of the energy and bio-producing processes. It should be taken into consideration that the energy liberated from the oxidation of hydrogen sulfide is greater than the energy liberated from the oxidation of an equivalent quantity of organic matter. In chemical oxidation, this energy is lost in the form of heat. At the same time, in biological oxidation, the energy is used by sulfur bacteria in the process of chemosynthesis. It becomes clear that in the process of bacterial hydrogen sulfide creation, new quantities of hydrogen sulfide are created and they are oxidized incessantly.

Explorations made by the Russian research ship "Vitiaz" in 1988, showed that 70% of the sulfur, manganese and iron compounds generated in the anaerobic zone are oxidized in the redox layer and only about 30% of the oxygen is used for the oxidation of organic matter. In the centers of the eastern and western cyclonic cycles, different stages of rising deep

waters were observed. The waters are cooled on the surface and then flow back to the bottom which results in the creation of a cooled intermediate layer. Some scientists argue that the reason for the hydrogen sulfide rise is the contamination and the triple increase in the Black Sea biomass as a result from blooms, mass dying of jellyfish, as well as from the influx of fecal waters, etc. These phenomena are widespread and cause bottom hypoxia – "suffocation" – of organisms in the north-western shelf due to a huge accumulation of plankton biomass and other organic matter that generate hydrogen sulfide and absorb oxygen when decaying. Similar phenomena frequently occur in Varna Lake and Varna Bay. During long periods of calm weather in the summer, mass dying of fish and other organisms occur. The organic contamination has a slighter influence on deepwater processes. Using a mathematical method, Russian scientists estimate that hydrogen sulfide will be located only 10 m below the surface of the sea by 2020. However, the upper boundary of H_2S was determined to be at a depth of 300 m at the beginning of measurements in 1891. In the spring of 1984, it reached 90 m, i.e. from 1981 to 1984 hydrogen sulfide rose 2 to 3 m per annum. Such calculations, made without considering the complex oceanographic factors and oxidation and H_2S production processes, can be misleading in their estimations. Moreover, referring to the 1981 measurement it is incorrect because at that time hydrogen sulfide was found at 183 m, and was in amounts that allowed for the presence of oxygen.

The studies of the famous Russian scientist, N. Knipovich, carried out in the summer of 1925, indicated that the boundary of the hydrogen sulfide was about 100 m. However, referring to a particular measurement and using it to create general patterns is not correct. The explorations conducted by the Bulgarian scientist, A. Rojdestvenski, in the period of 1981-1985 specified that the upper boundary of hydrogen sulfide in the Bulgarian water area was located below 150 m. In most cases, standard horizons of the ocean are used to determine the boundary, which also leads to significant errors.

The location of the hydrogen sulfide border at shallow depths, especially in the summer-spring period, is due to the rise of deepwater. The

specific character of the Black Sea hydro-meteorological regime has a significant impact on the deepwater exchange. During extended periods of southern, south-western and western winds, especially in summer, the warm water mass moves off-shore from the coast. This water mass is replaced by rising cold deep waters, rich in biogenic elements, which are utilized by planktonic organisms, causing blooms and the so-called red tide happens. Similar phenomenon of rising deep waters has been already described as upwelling (fig.6). When the wind blows from the sea towards the shore, the surface water mass is pushed to the shore and deep waters rise in the central part of the basin. Under such conditions of water exchange, the upper boundary of hydrogen sulfide temporarily rises to its full oxidation.

Upwelling was observed by the authors in August 1986 in the region of Kaliakra Cape during oceanographic explorations carried out by the research ship "Researcher". On 28th of August, the temperature of the water was 26æ% C and we were swimming hours and hours regardless of the strong south-western wind that had forced us to hide in the bay for three days. When on the 30th of August we decided to refresh again in the sea, we were unpleasantly surprised by the freezing water. We measured the temperature and hardly believed to what we saw: -7 to -8 æ% C. All iron objects on the deck had become black. Oxygen was absent from the surface to the bottom.

The hydrogen sulfide zone in the Black Sea is in a relatively stable balance. It is determined by the existing oceanographic factors, the processes of chemical and bacterial oxidation. Its creation and development is a natural process.

Will the Black Sea blow up? The topic attracted world media attention in the early 80's following the disclosure of Russion Navy's reports on the strange phenomena in the Sea during the September 1927 earthquake in the Crimea.

The assumption of the hydrogen sulfide nature of the blown gases in the sea near Sevastopol in 1927 is a product of the far-fetched idea of a hydrogen sulfide catastrophe. The hydrogen sulfide "hysteria" started with an article by the journalist, A. Spiridonov, "When the Black Sea will blow up?" published in the Russian newspaper "Literaturnaia Gazetta", 14th of June 1984. The simplest and the most sensational explanation for the odor of rotten eggs was presented to the audience – the hydrogen sulfide was burning. Such respectful scientific organizations as the Institute of South Seas Biology in Sevastopol and the Moscow Institute of Energetic "Krjijanovski" were also involved in the omelet of rotten eggs to bring more authenticity to the situation.

What actually happened during the earthquake on the 11th of September 1927, known also as the Crimean Earthquake? The earthquake was with magnitude of about 8 to 9 on Richter scale. Here is what the secret report of the Russian naval authorities' state: "A blaze of fire in the sea before Evpatoria was noticed at 2.48 p.m. Later, at 3.31 p.m. a fire wall – 500 m high and 1, 5 miles wide was observed before Sevastopol. A similar phenomenon was seen from the Lukula observation post. The first tremor occurred on the 11th of September, 1927, at 10.15 p.m." These events were registered impartially by the people on duty at the observation posts. Their interpretation 60 years after the earthquake caused a lot of emotions.

At first sight, the explanation that hydrogen sulfide was burning seems logical. It was claimed that dissolved hydrogen sulfide is found in deep waters; it comes out to the surface during earthquakes and starts burning. Simple and logical! The major arguments relate to the odor of rotten eggs. It seems that nobody thought of looking up in the chemistry reference book to read that H_2S ignites at 300æ% C and creates explosive mixtures at concentrations in the atmosphere from 4 to 45%. The 0, 1% content of hydrogen sulfide in the air causes heavy poisonings but fortunately it didn't happen to the witnesses of the described events. It is known from the chemical kinetics that the oxidation of sulfides to thiosulfates is a reaction of the 1st order and occurs instantaneously. It means that the hydrogen sulfide gas would have been oxidized (thus becoming harmless) before reaching the surface. By the way, the water solutions of sulfides and thiosulfates also have an odor of rotten eggs.

We need no more arguments to ignore the hypothesis of hydrogen sul-

fide ignition. In this case, what did the witnesses see? Here is the opinion of the famous Russian geologist S. I. Popov, also a witness of the event: "It was an explosion of methane, thrown from fractures to the bottom when underwater mud volcanoes at the time of the earthquake." Unfortunately, Popov's opinion had been hidden from the public for many years. There is one more fact that is also very typical of the character of the event. In the Sevastopol region, in 1926 and 1927, the Expedition for Underwater Works with Special Allocation (EPRON) carried out rescue operations pulling out Russian naval ships sunk during the Civil War. The Japanese divers, who participated in this expedition, suddenly interrupted their work. The chief of the rescue operations, S. N. Unkovski, said that the activities were stopped because the visibility rapidly decreased as a result of the intensive liberation of gas from the seafloor. Later, the detailed study of gas eruptions on the Black Sea floor allowed the scientists to develop the concept of geodynamic sites for notifying earthquakes.

Today, it is determined that the mud volcanism is widely spread on the Black Sea floor and that the liberating gasses contain mainly methane, carbon dioxide and hydrogen sulfide. In the near future, it is quite possible to prove that hydrogen sulfide, liberating from the throats of mud volcanoes on the bottom, plays an important role in the hydrogen sulfide contamination of the Black Sea (fig.15a, 15 b).

A number of sources of methane are observed on the Black Sea bottom. They also migrate along faults of the Earth's womb. (fig.16). It is normal that large volumes of natural gas are liberated during earthquakes because the faults along which it leaks out are "dissolved". Also, because of the overpressure which significantly exceeds the hydrostatic pressure, the natural gas flies out over the sea surface in the form of "gas geysers". When its content in the air reaches 3, 5 -7%, it explodes at ignition, and frequently it ignites spontaneously at higher concentrations. There is also a possibility for an eruption of methane as a consequence of the destruction of gas hydrate deposits. However, in both cases, ignition of methane gas occurs. The methane contains sulfur compounds too and this is the reason for the specific smell.

This is a brief explanation of the so called "hydrogen sulfide bomb". Once again, we would like to remind the admirers of sensations to try to think of more serious "scientific" arguments.

The naive, primitive description of the "hydrogen sulfide bomb" and the hydrogen sulfide problem, as well as ill-founded writings on ecological

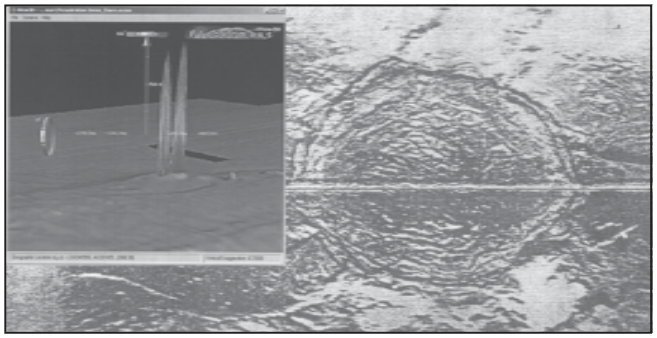


Fig.15b. Mud volcano on the Black Sea seafloor (sonar picture)

technologies referring to prestigious scientists and institutions cannot be regarded as reliable. Unfortunately, the "hydrogen sulfide bomb" has been presented as an ecological argument until quite recently. That's why the discussion on "Blue Bourn" turned into ecological odyssey.

"Blue Bourn" provided for the construction of pipelines across the Black Sea floor between the Russian harbor Djubga and the Turkish harbor Samsun. Transporting gas and oil through pipelines is significantly safer than transporting by tankers. It is widely used around the world. The bottom of the world ocean is crossed by hundreds of miles of pipelines with minimum failures.

Ill informed ecologists wordily explained to the public that the pipeline would break and that leaking gas would interact with hydrogen sulfide and a gigantic explosion would happen. These ridiculous arguments were entirely disregarded by the specialists. Now, when the two pipelines on the

bottom are a reality, the commentary is unnecessary.

The Black Sea is a natural laboratory which hides enormous reserves of energy resources. The numbers cited are really impressive. However, the fact that hydrogen sulfide and other gases are found in a dispersed state should also be taken into consideration. The content of hydrogen sulfide varies from 1, 9 to 12 mg per liter of seawater to depths of 300 to 2,000 m respectively. Bulgarian researchers are familiar with the idea of utilizing hydrogen sulfide as an energy resource. It is very attractive mainly from an ecological point of view as it is related to zero-waste technology. However, most solutions are based on the fact that the hydrogen sulfide is in the form of dissolved gas. Only 10-20% of its total amount is free H_2S, while the remainder consists of compounds that are dissolved in the sea water and do not burn. The same applies to ammonia (free gas) and ammonia compounds. According to our calculations, (reported to the National Conference on Utilizing Sea Resources, 1984, Varna) 20,000,000 m^3 seawater are necessary for the production of 1,000 m^3 hydrogen sulfide. Technologies, published up to now, state that: "several hundred pumps, which are used in the cooling system of a Thermal Power Station, are sufficient to decrease the upper boundary of hydrogen sulfide." It is true that such a project existed. A society named "Ecoenergetics" was created in Sevastopol in 1989 to investigate utilizing the hydrogen sulfide resources of the Black Sea. It was thought that 7-8 mg H_2S per liter were contained at depths of 150-200 m. It was planned that 2,500 km^3 waters would be pumped from the sea for the extraction of hydrogen sulfide. For the realization of this project (to pump water and produce sulfur, hydrogen sulfide, heavy water and some metals and then bring the water back into the sea), plans were produced to build 20 thermal stations with a power of 25 million kilo Vats along the Caucasus coast. We can only imagine the consequences of such a large-scale project on the Black Sea environment. Deep waters, from which hydrogen sulfide would be extracted, contain biogenic components in much higher concentrations. Under these new conditions, these concentrations will cause constant blooms, i.e. the technology is not ecological. Besides, the current hydrological structure of the

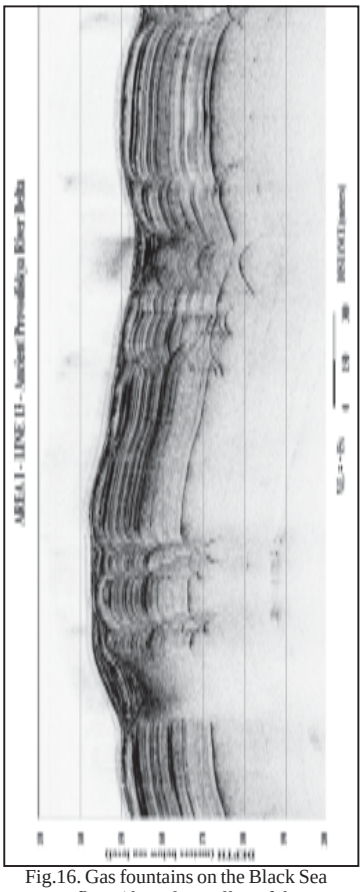


Fig.16. Gas fountains on the Black Sea seafloor (the paleo-valley of the Provadijska River)

sea will be damaged which may have a number of unpredictable consequences. Undoubtedly, all "laboratory" projects carried out without a profound knowledge of the contradictory specifics of the Black Sea are doomed to failure. What are the ways to utilize hydrogen sulfide as an energy resource? The myth about producing hydrogen sulfide from seawater for energy purposes was widely promoted by a research team led by the Russian academician, R.B. Ahmedov. The initial enthusiasm was replaced by a pessimistic realism after the first calculations of hydrogen sulfide concentrations and the amounts that can be obtained per unit volume of seawater. The situation is reminiscent of the optimism of German scientists during the 1930's, when they were inspired by the idea of extracting gold from the ocean water. The experimental technological installation showed the complete failure of this concept.

The quantity of hydrogen sulfide gas, extracted from 1m^3 sea water amounts to about

0,24 g/tone at a depth of 300 m and 2,2 g/t at a depth of 2,000 m. Actually, the total quantity of hydrogen sulfide in the Black Sea basin amounts to tens of billions t. No less impressive is the amount of annual production. Of course, the studies and researches on hydrogen sulfide utilization should continue but too much optimism can lead to disappointment. The technology for extracting sapropels from the sea bottom and en-route production of hydrogen sulfide and methane seems to be more acceptable. The sapropels from the Black Sea bottom that we have already determined as a product of the flood are important potential raw material for the future. They can be used as natural ecological fertilizer, for re-cultivation of dirty and hydro-isolated materials, filters for cleaning polluted waters, pharmaceuticals, and mud cures. The largest part of hydrogen sulfide comes through the Earth's womb diffuses through sapropels where the concentrations are significant and then spreads in the seawater. Many drillings along the Black Sea coast, from which pressure waters rich in hydrogen sulfide come out, support this thesis.

Chapter 4

The Black Sea Coast and Shelf – a Center of Flourishing Pre-Flood Civilizations

The geological proof of the Flood convincingly testifies to an event that was extreme in magnitude with catastrophic consequences. A significant part of the land was submerged by surging waves. The old shorelines that were the center of a flourishing Pre-Flood civilization were drowned by the sea. Our archeological museums are very proud of the remains of this civilization that have been found along the whole Black Sea coast. Indisputably, the Varna necropolis is the most important and sensational discovery of Bulgarian archaeologists.

The necropolis was discovered in 1972 during building operations in the Varna industrial zone. The interesting story of this discovery has been told by the late Ivan Ivanov who led the excavations. As well as carrying out the excavations very professionally, he made a lot of effort to have the unique Eneolithic treasure placed in the Varna Archaeological Museum. We would like to emphasize the exceptional contribution of Ivan Ivanov to the preservation of the cultural and historical heritage of North-Eastern Bulgaria and particularly of Varna. Returning to our story, the excavator operator, Rajcho Marinov, noticed an object hanging on the cogs of the litter-bin and he went to clean it. Then he saw other unearthed items. He understood he had come upon archaeological findings. He delivered the items to the curator of the Dulgopol Museum, Dimitar Zlatarov, who, in turn, notified the Varna archaeologists. They were on the site on the 3rd of November 1972. The initial euphoria provoked by the discovery of the oldest processed gold coming from a civilization more ancient than the Mesopotamia and Egypt civilizations, was followed by days and days of hard work – excavation operations, classifications, analyses, etc. The Varna necropolis gave new valuable artifacts for the most ancient civilization. An area of 7,500 m^2 was explored and 294 graves with rich and various inventories were found. The great number of golden items, over 3,000 with a total weight of 6 kg, puzzled the scientists. More gold than the total

amount of gold found around the world from this period was discovered in only one grave. Copper, flint, stone tools, and jewelry of metal, bones, minerals and shells of the Mediterranean mollusks Dentalium and Spondilus – about 22, 000 items - were also found.

Thirty years ago, the young scientists could hardly imagine the importance of the Varna necropolis. It is irrefutable proof that an ancient civilization, older than the Egyptian and Mesopotamian civilizations, existed on the Bulgarian lands. The Varna necropolis is not the only finding of the kind. One of the most devoted advocates of the hypothesis that Bulgarian lands, particularly the Black Sea coast, were the center of the earliest civilization in human history is Prof. Dr. Henrieta Todorova. She studies the ancient history of North Eastern Bulgaria and led the archaeological excavations in the regions of Shabla, Durankulak, and Devnia. The results of her research are presented in a number of publications including "The Stone-Copper Age in Bulgaria" "Durankulak" and "New Stone Age in Bulgaria".

Here is what Prof. Todorova said in an interview under the headline "The Black Sea is the earliest center of civilization in human history":

"Many people are reluctant to believe that but it is true. It is obvious from the social structure in 5,000 BC which is adequate to the scientific requirements for the creation of a civilization: social differentiation of the population in rich and poor, monumental architecture, royal domination, differentiated production and trade relations. Historians discovered that these elements had first appeared on the Black Sea coast during the last quarter of the 5th millennium, i.e. earlier than in Mesopotamia, earlier than anything that has been known to people as the first civilization. It happened that after 1975-1976, in the opposite of the accepted concepts for early and most early, we, the Bulgarians represented something even earlier. Of course, there were reproaches that we were just telling stories. However, the excavations carried out in several very important sites offered an opportunity to trace the creation and development of this ancient civilization".

This culture, called "Varna culture", testifies to the existence of a typical marine civilization that is genetically related to the sea. On the one hand, centers of ore-production and metallurgy of gold and copper were located along the coast (around the present mines of Meden Rid, Rossen, Surneshko Kladenche and Varna). On the other hand crafts flourished around large administrative centers. The constant trade relations within the Black Sea region and with the Mediterranean region were of great importance for the development of the society together with the processing of gold and copper. In the Varna necropolis were found more than 12,000 shells of Dentalium type and hundreds of Spondylus. Most probably it is the oldest pre-coin forms of Eneolithic society. The old shoreline, now underwater, and the shores of the Varna lakes were probably centers of production of copper and stone tools, as well as golden jewelry.

The main trade routes to the northern Black Sea and other Black Sea harbors passed through the region. This is evidenced by the 443 copper tools found in Karbuna, on the Middle Dniester River bank and the finding of metal on the Volga River bank near Saratov. There are similar finds from Velke Rashkovitze in Slovakia. Analogous copper tools and golden anthropomorphous amulets are found in Varna and other places in Bulgaria. These numerous facts and findings give a sound basis for ascertaining that a significant part of the Balkan Peninsula and the Black Sea region was encompassed by identical material and intellectual cultures (fig. 17).

Recently, a historian from Varna, well known as an intense opponent of the Flood occurring in the Black Sea, made a sensational announcement. In his book "The Jews and Judaism – the beginning of the human civilization 7,000 years ago" he struck public opinion with the claim that the Jews created the first human civilization. Also he talks about a golden treasure dated to 4, 3000 BC. It was exported from Bulgaria 30 years ago and later on ransomed by the well-known businessman Michael Chorni. Today, as the author claims, the treasure is in a bank safe in Sofia. Probably, it is a finding of the type from the Varna Eneolithic necropolis. Of course, the pro-Jewish interpretation is at his expense. The point is that more and more new facts about the Varna pre-Flood civilization are being collected.

Unfortunately, the exploration of the spiritual culture during the Eneolithic

Fig.17. Schema of the spread of Hamandjia culture in Dobroudja
(6,000-5,000 BC, author T. Dimov)

period, as well as during the other prehistoric epochs, is difficult due to lack of writing, which would have given most of the information necessary to elucidate the basic cult-religious and everyday life characteristics of the society. Practically, all researchers are unanimous that between the Varna and Durankulak necropolis exist common features that give information about the common intellectual culture in this period and of course, about the level of the material culture, social and economic development.

For more than 30 years the questions concerning the age of the Durankulak (fig. 18a, 18b, 18c, 18d, 18e) and the Varna (fig. 19) necropolis have been disturbing our researchers. The data derived by the relative method indicates as age of 4,600-4,200 BC, while the conventional dating refers the finds to 3,500-3,200 BC. The Durankulak necropolis is dated to 5,270 BC by absolute dating. We think that the dating of the Varna necropolis (fig. 19) is significantly underestimated. According to our opinion, the age of the findings in Varna should be dated to 5,000-6,000 BC.

The age of the drowned settlements so far discovered in Varna Lake coincides with the age of the Varna necropolis. These settlements indicate a considerable concentration of population along the shores of that time – probably they were crowded around large administrative, cultural and trade centers that are supposed to be located along the old shores. The large numbers of finds of gold, copper, flint, ceramics, rock tools and others, the method of processing, shape and other features suggest the existence of a well-organized community, much more advanced than the primitive society, which was on the brink of creating a state formation known as a slavery society.

In the spirit of the theory about the World Flood in the Black Sea, the presence of the Varna and Durankulak necropolis is an important prerequisite for creating an overall concept of the existence of a highly developed civilization until the Flood.

Many years of research on the old drowned Black Sea coast and the deepwater sapropel sediments, which resulted from a geological catastrophe, allowed us to obtain reliable information about the absolute dating of the event. The contours of the old shorelines and a comparison with the

contemporary ones (fig.1) show that they are located 50-70 km east of the Varna and Durankulak necropolis.

It is obvious that the remains of most of the territory of the civilization existing at that time are found in the shelf buried under a thick layer of ooze. The population was concentrated mainly along the coasts of seas and oceans. This location provided the means of living, transport, trade relations and economic prosperity.

The main question is about the age of the event that had catastrophic consequences on the coast and the destiny of the existing civilization. The more than 100 absolute datings, made on sediments by the radiocarbon method (^{14}C), indicate that the Flood occurred about 7,600 years ago. Most reliable are the analyses of the lower part of the sapropel sediments. The organogenetic plankton sediments – sapropels lay over the carbonate sediments that were created under freshwater sea-lake conditions. Dating of the layer of contact between the two types of sediments that actually fixes the beginning of the Flood, gives an age of 8,000-7,600. To a large extent, it coincides with the dating of the prehistoric civilization that inhabited the coast – 5,270 BC. Close to these values is the ^{14}C dating of mollusks Mytilus galloprovincialis and Mondacna caspia, which penetrated into the Black Sea after the flood and are aged 8,000-6,800 years. The ^{14}C dating of the shells Dreissena rostriformis distincta, located on the shelf that was the arena of dramatic events resulting from the flood, varies from 11,000 to 9,000 years. Probably, the latest data is overvalued due to erosion of sediments on the shelf. This gives a sound reason to regard the dating on the lower part of the sapropels (8,000 –to 7,600 years) as the more probable date of the beginning of the flood.

We have already talked about the scale of the event called the Flood and its consequences on the coast and civilization of that time. The idyllic picture of waves lapping gently against the shore and the undisturbed everyday life was destroyed. God vented his anger on the coast. Ocean waters intruded through the Bosporus sill. The Black Sea level rose 10-15 cm and the shore advanced 1 km towards the land in 24 hours. The intruding waves swept away everything on their way. The old shores were entirely drowned in a month and the survivors searched for safety inland.

The Flood continued and the Black Sea level and Mediterranean Sea level became equal. Then the Black Sea slowly modified to the land until acquiring its present outline.

Unfortunately, archaeological underwater explorations have been carried out mainly in the coastal part of the shelf where usually, Roman and Byzantine antiquities, are discovered.

The contemporary shelf (as already mentioned, see Chapter 1) is divided in three areas, (fig. 3) which are differentiated according to the character of relief and the rates of contemporary sedimentation: coastal, central and peripheral. The coastal area is located adjacent to the shore to depths of 20-50 m. Underwater archaeological researches on civilizations of Roman and Byzantine times are carried out in this area. It is possible that new methods will allow specialists to decipher more ancient civilizations in the future. The central area of the shelf is distinguished by extremely high rates of sedimentation- the thickness of the sediments reaches 30-40 m. It makes the underwater work of archaeologists very difficult. The outer or peripheral part of the shelf, where the ancient Black Sea shorelines are fixed, is very favorable for underwater archaeological activities. Here, the thickness of the sediments is 10-15 cm but in some locations they are entirely missing and sand stones are exposed. The seismic-acoustic records of the peripheral shelf area fix 2-3 bars which are actually drowned dune formations or coastal bars (fig. 11). After diagnosing the old shorelines at the end of the 1980's, it was assumed that our predecessors used to live right here. At that time we were also looking for remains of old settlements in the region of the old Black Sea shoreline. Recently, Dr. Robert Ballard has announced a discovery of a possible Neolithic settlement at a depth of 90 m in the region of the Turkish harbor Sinop (fig. 20a, 20b)

Nearly eight millenniums have passed since the Flood. In other words 200 generations completed their life course at an average life expectancy of 40-50 years. Before the Flood, Neolithic people inhabited not only today's coast but also that part of the bottom (called the shelf) which was

land at that time. It was lowland, cut by a number of rivers flowing into the Black Sea Lake of the time. The favorable climatic conditions were not the only factor influencing the cultural boom. The region was rich in mineral resources, especially in copper ores which was a raw material used for making copper tools and golden jewelry. The analysis of the metals indicates that they have a local origin.

Located away from the big climatic changes, the Black Sea Lake was an oasis of prosperity. Favorable climate, fertile valleys, rivers and lakes teeming with fish were an important prerequisite for the development of human civilization, i.e., man was not only searching for food but also domesticating animals and cultivating plants. Looking at the remains of Neolithic settlements and tombs along the present coast, we couldn't help admiring the skills and talents of ancient builders.

The map of the most important Neolithic and Eneolithic settlements (fig. 17) shows a significant concentration of population across the Bulgarian lands.

The collapse of the doctrines of the place of the Biblical Flood seems to be predetermined by the Bible itself. It is impossible that a misconception, being perpetuated by the Judaic clerics for thousands of years, will dominate forever. The occurrence of the Flood in the Black Sea is a fact.

Chapter 5

Names of the Black Sea

Little or even nothing is known about the names of the Black Sea prior to the Flood. Eight thousand years ago it was a freshwater lake and its shores were far from the present shores. Today the old pre-Flood shores of the sea are located underwater at depths from 90 to 120 m at the present edge of the shelf. Beaches, dunes, bars, analogous to the present ones can be seen here. Most of them are covered by thin 10-15 cm ooze but at some locations with strong currents, beach sands lay bare on the bottom. The territory of today's Azov Sea and the contemporary shelf were fertile plains through which the beds of the rivers passed flowing into the Black Sea of that time. We can only assume that it was called not the Black but the White Sea or the Sea of Prosperity. This is proved by the climate and character of the lake-sea. The favorable natural conditions and the high biological productivity were the natural factors influencing the concentration of significant human population along the coast and the origins of an advanced civilization.

The nearby ore deposits were a favorable precondition for the development of ore- production, metallurgy and handicrafts. The first labor tools, everyday items and copper and golden jewelry were made.

The first piece of information about the name of the Black Sea after the Flood is found in the Sumerian Gilgamesh Epic. The story of Gilgamesh, retold in the Pierre Grimal's book "Stories from Babylon and Persia", gives indirect proof of the place of the Flood. This story unambiguously confirms that the Flood occurred in the Black Sea:

"Gilgamesh had heard that an old man, living at the mouth of all rivers, at the ends of the world, was the only mortal on whom the gods had granted an eternal life. Gilgamesh decided to find the man, called Utnapishtim in order to learn the secret of eternal life. Without taking any advice he undertook this most perilous journey of all."

After a long and tiresome journey, accompanied by a number of dangers, Gilgamesh came to an inn by the ocean shore; the inn was kept by

Siduri. Here is their conversation:

"Who are you?" asked Siduri, "making such a noise before my door? What is your name, where do you come from and what do you want?"

"Hostess," said Gilgamesh, "I am a powerful king. I run the city of Uruk and my name is Gilgamesh. I come here as a friend not as an enemy and I beg you for help."

Siduri looked carefully at the stranger and saw his worn-out face. She understood that he had come from far away and that he was telling the truth. So she consented to open the door and welcomed him in a large saloon. How marvelous Siduri's inn was! It was an enormous shadowy hall with shining tiles and gently walking servant maids. They offered him cold water and he drank a long time, then he ate fruits and meat and restored his strength. She approached him and started asking questions again.

"I understand that you come from far away. I don't know the city of Uruk which is on the other side of the Mount Mashu, in the country where the Sun goes. But I know your name. Aren't you the one who killed Humbaba the Terrible and the Bull of Heaven?"

When he heard about his feats, Gilgamesh wept because he recalled his friend Enkidu with whom he had realized all those deeds. The remembrances of Enkidu made him feel his sorrow again.

"Yes," replied Gilgamesh," I did these things and I did them with the best friend in the world, Enkidu but he is dead now. I watched over his body in my palace and I saw how life was leaving him. I saw the features of his face distorting with pain and since then I have been roaming around the world to find the secret of eternal life."

"Gilgamesh," said Siduri, " no mortal human being can learn that secret. When gods created people and gave them the Earth, they granted Death on them too. This is their destiny, this is the price they pay for the happiness to be alive. So live, enjoy your life, make every day, every hour a feast. Look at the fruits of this vine, pick up the grapes, squeeze out the juice and taste it. Wear embroidered clothes that catch the eye, bathe in fresh water. Have children, rejoice at them running, and teach them to

shoot with bow and hit the game with arrows. They will be your immortality, Gilgamesh. And you have to learn how to leave that happiness when the time comes."

However Siduri couldn't dissuade Gilgamesh. He kept on asking about the location of Utnapishtim. At the end she agreed to show him the way.

"The old man Utnapishtim," said Siduri, " lives on an unreachable island. The island is surrounded by the ocean and you cannot cross it. But I'll tell you how to do it. Right now the Utnapishtim's ferryman is here and if he wishes, he will take you to the island."

Gilgamesh went to look for the ferryman (who was called Urshanabi) and found him in the woods, where he was collecting herbs for Utnapishtim. When Gilgamesh told of his request, the ferryman willingly agreed to take Gilgamesh with him but he warned him, "The waters we are to cross are the Waters of Death. Should any mortal touch the waters, that man will instantly die."

They traveled for a month and a half until reaching the Waters of Death.

A question comes to one's mind - where was Siduri's inn? With more imagination, we could assume that "the hotel" of Siduri was located somewhere along the coasts of the Dardanelles or the Bosporus. The route of Gilgamesh according to the legend is shown on the map (fig. 21). "The Sea of Death" that they had to cross, looked a lot like the Black Sea after the Flood. The hydrogen sulfide had poisoned even the surface waters. Many years passed before the sea acquired its contemporary hydrological structure.

But let's go on with the Gilgamesh's mission when he discovered the Sumerian Noah-Utnapishtim on an island, which we suppose, was located in the Black Sea.

Filled with curiosity, he made his way to the wharf. When he saw Utnapishtim on the shore, Gilgamesh understood that his trip was over. He greeted the old man and told him about the purpose of his visit.

"Young man" said the old man, "what you are looking for is not here. Death is the condition under which the gods agreed to give life. When people sign an agreement – a period of execution and a price should be

determined. Birds come into the world, live and die; the hatred between people rises and then abates; the leaves of the trees bloom from buds and wither in the autumn. The life that you received and you want to keep doesn't belong to you. You must devote it to the others who in turn will come in the world to know the light of the sun and the happiness to breathe the wind in the forest."

"This is true," said Gilgamesh, "but in the end, you have escaped from Death! And I don't think you are different from me. You have the courage to throw into a fight, eyes to see with, and arms to fight with. Tell me the secret that made you immortal!"

"Listen, Gilgamesh, how I have reached eternity. Many years ago, when I was still young, the counsel of the gods held a secret meeting; they all resolved to destroy the world in a great flood. All the gods were under oath not to reveal this secret to any living thing, but Ea (one of the gods that created humanity) came to my house and told the secret to the walls of the house, thus not violating his oath to the rest of the gods. He advised the walls of my house to build a great boat, its length as great as its breadth, to cover the boat, and to bring all living creatures into the boat. I got straight to work and finished the great boat by the new year. Then I loaded the boat with gold, silver, and all the living things of the earth, and I launched the boat. The black clouds arrived, with thunder god Adad rumbling within them; the earth split like an earthenware pot, and all the light turned to darkness. The Flood lasted for seven days and seven nights, and finally light returned to the earth. I opened a window and the entire earth had been turned into a flat ocean; all humans had been turned to stone. I fell on my knees and wept. My boat lodged firmly on the mountain peak just below the surface of the ocean and remained there for seven days. On the seventh day I sent out all the living things in every direction and sacrificed a sheep on that very spot."

"The gods smelt the odor of the sacrifice and began to gather around me. Enlil, who had originally proposed to destroy all humans, then arrived furious that one of the humans survived. He accused Ea of treachery, but Ea convinced Enlil to be merciful. Enlil then seized me and my wife and blessed us to be immortal."

"So now, Gilgamesh you know why I am the only immortal of all humans."

Gilgamesh understood that the old man had no secret because the gods had blessed him with immortality without his doing anything to deserve it.

Certainly, the Gilgamesh Epic provokes our imagination. The Sumerian Noah-Utnapishtim must have settled on a small island in the Black Sea after surviving the Flood. Therefore, if the official version of the site of the flood is rejected, the place where Noah's boat arrived should not be Mount Ararat but an island in the Black Sea. If we assume that the Black Sea level was 40 m below the contemporary sea level, it is possible that Noah's Ark has been covered by a thick layer of sediments. Our assumptions are close to science fiction, so let us return to more realistic matters.

It is obvious that the memories and legends about the "Sea of Death" have left a fatal, dismal mark on the name of the Black Sea. This mark was strong enough to remain for the next millenniums.

After the mythical trip of Gilgamesh, the Phoenicians were the first to penetrate the Black Sea. They are thought to originate from Abraham's family. It happened about 2,000 BC. The oldest anchor which testifies to the ancient shipping in the Black Sea is 3,500 years old. It was discovered by Bulgarian archaeologists during underwater explorations near Kalikara Cape in 1975. The anchor belonged to a Cretan ship, sunk near the Bulgarian coast in the 16th -15th century BC, i.e. several centuries before the Argonauts' trip.

The most ancient, native inhabitants of the Black Sea coasts are the Cimmerians[31]. There is no data if they had survived the Flood and stayed here but probably they gave the name –Black Sea. Maybe, the Cimmerians were replaced by the Thracians. The Scythians[32], who drove away the Cimmerians at the end of 8th century BC, called the sea Axsaena – an old Iranian word, which means "dark colored". The Greek name of the Black Sea – Pontus Axeinus, means "inhospitable". According to the Eratosthenes' writings (3rd century BC), the sea was inaccessible for the ancient Greeks because of the mighty storms and the barbarous Scythian

tribes that offered the ancient sailors to gods as a sacrifice and were also cannibals.

After the establishment of the first Greek colonies along the coast, according to Strabo[33] (63 BC- 24 AD), the Black Sea was called Pontus Euxinus, i.e. "hospitable sea". Apparently, the Greek sailors became acquainted with the sea and probably coped with the attacks of the Thracian pirates. In some ancient annals the Black Sea is named also "the Scythian Sea". Herodotus called the Azov Sea Meotida (the mother of the Black Sea), which probably originates from the ancient Scythian name Temernida (translation from Scythian – the mother of the sea).

One of the most prominent ancient Greek myths is devoted to the quest of the Golden Fleece by the Argo ship. After a voyage of incredible perils, the Argonauts led by Jason, reached Colchis, the country in which the Golden Fleece was held by King Aeëtes. With the help of Medea, the daughter of the king, Jason stole the Golden Fleece. Carrying the fleece and accompanied by Medea, Jason and his crew managed to escape from Aeëtes.

The Argo trip was carried out about the 13-14th century BC and it was described by Homer in the 8th century BC. The same story is told by Apollonius of Rhodes in his work "Argonautica" but much later (295 – 215 BC). The heroic feats of the Argonauts are technically the first literary reference describing the pirates in the Black Sea (fig. 22).

In 1985, the Englishman, Tim Severin, built a copy of the Argo ship and organized the Jason Voyage. His crew rowed and sailed from Greece, through the Dardanelles and across the Black Sea. The Bulgarian sailor, Teodor Troev, who participated in this expedition, published a very interesting book "On the Tracks of the Argonauts". This experiment proved that the Argonauts' trip was a real possibility.

The names of the Black Sea - Pontic Sea, Pontus Euxinus – which the sea was given during the Greek colonization are most popular. The Arabian writers named the Black Sea "Neytas" (Severe Sea). It was also known as the Byzantine Sea and the Slav Sea.

The Russian annals say it was called Surojko Sea – named from the seaport Suroj, in the Middle Ages. The Turkish called it Bahri-Saiat, and now they call it Kara Denis. In his book "History of World Trade", Noel states that according to Marco Polo's map, the Black Sea was called Mer Grecnor, i.e. Greek Sea, in the middle of the 13th century.

More than 1,500 maps of the world ocean are known. The Black Sea is marked on about 300 of them. The maps and portolans were made by Genoese and Venetian merchants and seamen (fig.23). Many geographical objects and the outlines of the shorelines were incorrect but nevertheless they were of great importance at the time.

The present name –Black Sea – is famous among almost all the peoples during the Middle Ages and it has not been changed since then. There are a lot of theories on its origin but probably it came from a tragic event concerning the very beginning of human history which was preserved and retold in the ancient myths.

Chaptar 6

The Black Sea – a Key to the Mystery of the World Flood

In their book "Noah's Flood" the American geologists, Bill Ryan and Walter Pitman, discuss a well known and yet debatable topic – the World Flood. I am very grateful to them for noting my contribution to the study of the Flood in the Black Sea. Indeed, when I received the thesis of their hypothesis in 1993, I instinctively accepted the presented scientific version because actually it was mine too. I supported them by sending all my articles referring to the matter and I assured them that they were on the right track. Our correspondence turned out to be a very useful scientific communication and in the course of time new ideas came into being.

I remember when I presented a dissertation on the old Black Sea shorelines at the Moscow Institute of Oceanology, in 1979, the chairman of the commission, the late Pantelejmon L. Bezrukov, interrupted me: "You don't make an analogy between the Black Sea flood and the Bible Flood, do you?" And I replied: "Everything is possible". He intentionally directed me to the subject about the connection between the geocatastrophic events in the Black Sea and the flood described in the Bible and the Sumerian epic. I enthusiastically embraced the idea that anyway attracted me –the old Black Sea shorelines located at depths of 90-120 m might be the key to the mystery of the Flood. Later on, when my professional interest focused on the origin of the deepwater sediments in the Black Sea, my conviction that a catastrophic event caused their formation became firmer. The drowning of the old shores and the creation of the geocatastrophic deepwater sapropel sediments were found to result from one and the same event – the Flood.

In 1984, I was invited to participate in an international expedition with the Soviet research ship "Vitiaz". The task of the expedition was very enticing – of the search for Atlantis. The dives with the manned submersible Argus in the peaks and slopes of the underwater mountains Vercelli (Tyrrhenian Sea), Ampere and Josephine (the Atlantic Ocean) gave me the opportunity to get familiar with the old shorelines of the ocean. The surf niches, cut in the body of the old underwater volcanoes and the boulder-gravel beaches, are silent witnesses to the waves surging around the islands that were swallowed by the severe storm.

Almost all the shorelines formed during the Wurm glaciation are located at depths 130-140 m below the present sea level and are 17-18,000 years old. We are convinced that the level of the Mediterranean Sea and the Atlantic Ocean during the last 8-10,000 years rapidly outstripped the level of the Black Sea due to the different climatic conditions (fig.10).

Unfortunately, failures chased us during the trip and Atlantis became even more mysterious and unreachable.

At that time I remembered about my Black Sea old shorelines, unseen by a human yet. I told my Russian friend, Prof. Viacheslav Iastrebov, (who was then a director of the Moscow Institute of Oceanology) about my idea to explore with the submersible Argus the old Black Sea shorelines where I believed people had lived before the Flood. Iastrebov, a famous undersea explorer, a constructor of a number of manned and unmanned underwater apparatus, today an academician in the Russian Academy of Science, liked the idea very much: "OK, Petia, you convinced me. The ship Rift and the Argus will be at your disposal in Varna." These were his words and he kept his promise.

In July1985, the research ship Rift with the snow-white submersible Argus on board gently swayed over the old shorelines, hidden under 100 m of water, 30 miles east of Varna.

The old shorelines of the Black Sea, overflowed and dried throughout the millenniums, are silent observers of the inexorable course of geological history and human civilization.

The last glaciation on earth – the Wurm – lasted for several tens of thousand years. It started about 80-70,000 years ago and ended about 11-10, 000 years ago. The rise in the World ocean level started simultaneously with the melting of glaciers. At that time the Black Sea was almost a freshwater lake not connected with the ocean. This stage of the development of the basin is known as Neoeuxine transgression (or the predeluge Black Sea). The outlines of the contemporary and Neoeuxine ba-

sin are shown on fig. 24. It is well seen that the present shelf was land in the past. The level of the Neoeuxine basin was about 90-120 m lower than the present level (fig. 25), which means that the Neoeuxine shore was located on the present edge of the shelf. The large shelf plain was cut by rivers that ran into the basin.

The absolute dating of the Neoeuxine shores (located 90-120 m below the present level) indicates an age of 9-10,000 years, whereas the synchronous in time of formation deepwater sapropel sediments are 7-8,000 years old. The reason is that the deepwater sapropel ooze is deposited in a calm environment, while the shelf ooze was subject to partial erosion as a result of the Flood.

It seems that the catastrophe occurred in the interval between 7, 5 – 8,000 years from today, and the result was significant erosion of the sediments on the shelf.

Here is a short paragraph from the log-book I kept during the dives conducted by the manned submersible craft Argus in July 1985: "Tired of peering through the illuminator and mostly of the monotonous plain surface of the bottom, annoyed by the invisible cold, which penetrated through the steel walls, depressed by the narrowness, we noticed a protuberance 10 m away from us. We were on the shelf, in the region of the old beaches, located at depths of 90-120 m (as shown on fig.25). This is the zone of life; the visibility is very good – 15-20 m. The curious Black Sea sharks, attracted by light, often halt in front of the illuminators and watched us with palpable interest. They even posed in front of the screen (fig. 26). We made our way to the protuberance, which my imagination of a geologist envisaged as a mirror rock piece, dragged by a river without reaching the canyon from where it would have rolled into the seafloor. We approached the object that had roused our interest but the sharks seemed to be trying to distract our attention. The apparatus softly "perched" and we listlessly discussed if it was worthy to waste efforts and energy for coming to know the object. Probably, the cold and fatigue made us apathetic. We decided to act according to the instructions. We directed the front engine towards the protuberance and started the propellers to blow the layer of ooze that

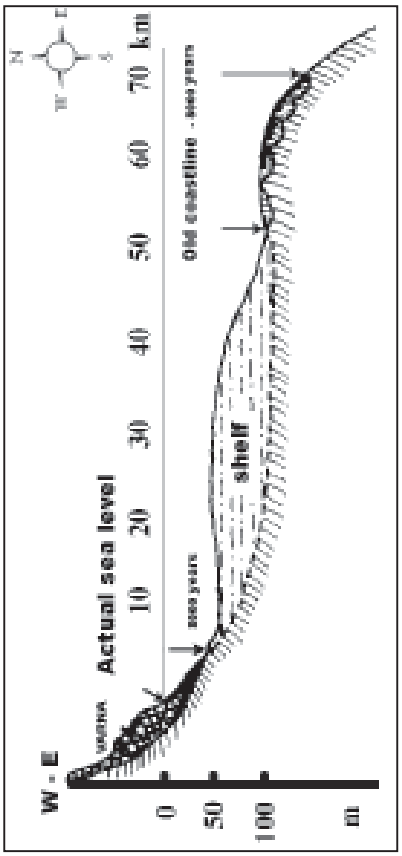


Fig. 25. Profile of the shelf and the course of the catastrophic geological events during the last 8,000 years

covered the object. Our patience lasted for half an hour until the cloud of ooze cleared a little. Astonishingly, we saw an object with vague outlines stuck into the sand instead of the expected round stone. The stretched mechanical hand of the submersible clutched an item looking like a plate with a slightly jagged edge from the one side. After hard efforts, the object was extracted from the sand and put in a sample container. Then we were in a hurry to surface with the precious object. "

Right after we got out of the submersible and stepped on deck, the "Noah's plate" as we named it (fig. 27a), was in the hands of our impatient colleagues who examined it enthusiastically. The object posed a number of questions, some of which are still waiting for answers. The most acceptable version is that the item was discovered in situ where it had

been used. The planned dives with Argus spanned over the bottom in the region of the old shores in the shelf periphery, where our ancestors used to live. The area where the river valleys crossed the present shelf and ran into the sea-lake was attractive for the ancient humans.

The "Noah's plate", which is in my collection today, became a tricky puzzle for the archaeologists. They referred it sometimes as of the old Byzantine time, sometimes to the Roman period. The ideal shapes of the plate, the advanced culture of production, and mostly the statement on its pre-deluge age, disturbed even the most famous Bulgarian and foreign archaeologists.

Even more striking is the circumstance that it was made of sandstone, which testifies to the great technological abilities of the Neolithic handicrafts. Most specialists refrained from giving an opinion on its age, as well as from estimation of the reliability of the facts regarding the discovery.

When in September, 1996 the teams of Horizon and BBC were shooting the scientific popular film "Noah's Flood", I especially showed the "Noah's plate" to them as one of the most important evidences for the existence of civilization in the Black Sea before the Flood. However, this scene is missing in the film. The scientific censorship entirely neglected this fact, not without the knowledge of Pitman and Ryan, the authors of the "Noah's Flood". They were also doubtful about the scientific reliability of facts regarding the existence of direct proofs of ancient pre-deluge culture. My attempts to publish the finding of "Noah's plate" in academic editions encountered blatant ridicule on my idea about the Flood in our lands. Only the doyen of the Bulgarian science, academician Ivan Kostov, told me sympathetically: "Petko, this is the destiny of scientific discoveries, but facts will survive the personal abuse." He was actually a very astute man. Years of searching, new ideas and theses passed. Today, thinking over the destiny of unusual scientific ideas, I am positive that they should not be censored.

Of course, the pictures of "Noah's plate" were presented to the scientific world on the Internet (fig. 27a, 27b).

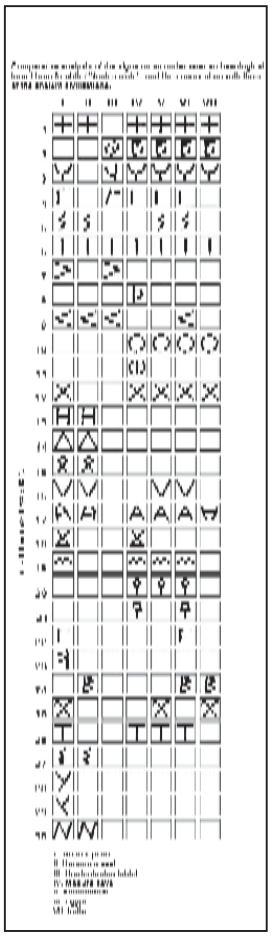
The well-known specialist in underwater archaeology Prof. Francesco Torre, at the Museum of Underwater Archaeology in Trapani, Italy, sent me his opinion: "Dear Prof. Dimitrov, I believe that the "Noah's plate" might be very ancient but I can't say something essential without seeing it personally. From the photo you have sent me, the item looks like our Neolithic ceramics (6,000-5,000 BC). But you know that the Neolithic and Eneolithic epoch all over the world are going back to an older time, i.e. 7,000-6,000 years ago from today."

In April, 2000, Prof. Torre visited Varna, where he took part in a workshop about the development of mutual project with a subject:" Correlation of geological, climatic and historical events in the Black Sea and the Mediterranean Sea during the last 25,000 years." After carefully examining the plate, he confirmed his opinion about the Eneolith age of the plate. Besides, he presented his version of the function of the plate and technology used to make it. "The Noah's plate is an everyday object that was used for grinding small dried beans, something as a prototype of present mortars. I suppose it was made of mud and small sand and it was baked under the Sun. I couldn't say with certainty whether people of that time used a potter's wheel or some primitive version of it."

One year later, in March 2001, I was invited by Prof. Torre to present a series of lectures on the Black Sea Flood in the University at Trapani, Sicily. At the Museum of Underwater Archaeology he showed me a collection of Neolithic ceramics distinguished from the "Noah's plate" by its primitive technology. He emphasized the advanced culture of the circum-Pontic culture of the time.

Regarding the signs carved in the outer side of the plate (fig. 27b), some researchers consider them casual traces of worms and scratches, while others are ready to accept them as signs of proto Sumerian cuneiform writing.

One day in August the famous Bulgarian artist and designer Bono Shkodrov called me. He had read Ryan and Pitman's "Noah's Flood" and had examined the signs on the "Noah's plate". "I am enchanted by the ideas expressed in the book "Noah's Flood". I think that the signs on the



"Noah's plate" are indeed writing symbols. Is it possible to have the plate in order to make graphical shooting of the symbols?" I was inspired by the opportunity that the scratches on the plate might be writing symbols. Is the existence of pre-deluge writing possible? This was the question aroused in my mind.

Then Bono came. A medium height man with white beard "a la Leonardo de Vinci", and with an old Zenith camera on his shoulder appeared at the door. "Yes" said Bono, after holding for a while the plate in his hands, "these are writing symbols and I will decipher them." He circled around the plate for a long time, shooting with his camera. Seeing my skeptical expression, Bono encouraged me: "In just a a week, you'll get nice images of the symbols on the plate". He told me he had been deciphering ancient writings for ten years. He kept his promise. In several days, I received marvelous graphic images of 24 signs compared to the signs from Karanovo, Gradeshnitsa and Magurata, as well as to Sumerian, Egyptian and Indian writing (fig.28). He

Fig.28. Correlation of the symbols:
I – the Noah's plate
II – Karanovo seal
III – tablets from Gradeshnitza
IV – Magurata inscription
V – Sumerian writing
VI – Egyptian writing
VII – Indian writing

also created some great pictures devoted to the Flood, Eden and Hell. The comparative table of ancient signs, prepared by Bono, was published on our web site together with the photos of "Noah's plate".

One of the prominent specialists in ancient writing symbols, a professor in multi-linguistics at the Catholic University, Brussels, Harald Haarmann, sent us his opinion on the "Noah's plate" symbols. Here is his e-mail:

"Dear Colleague,

Thank you for the paper version of your certificate relating to "Noah's plate". I am very sorry that I have kept you waiting for an answer so long (too long, in fact). A few days ago, I returned from a trip to China where I had spent several weeks traveling about 3,000 miles from Beijing to the west. I followed the route of the old Silk Road from Xi´an westward and visited the numerous historical sites of commercial and cultural activities. It was a travel full of contrasts: Chinese versus non-Chinese cultural heritage.

Before my visit to China I had stayed in Germany for several weeks. To sum up: my schedule was crammed so that your paper spent many lonely days on my desk.

Your find is extremely intriguing. As far as I can judge from your description, "Noah's plate" keeps more secrets than it actually reveals. As you suspected, the use of signs is a matter of great interest to me.

You point at the resemblance of the signs on "Noah's plate" with those of Old European writing, and you further extend your comparison to also include other ancient scripts such as Sumerian. Comparison on such a small scale (only about 23 signs can be identified on the plate, according to your table) is highly problematic. As you do, I immediately see parallels with Old European writing (Karanovo seal, Gradeshnitsa plate, etc.). But there is a puzzling experience with such comparisons. When inspecting Old European writing one can observe that, in the earliest inscriptions of the Balkan regions (e.g. the Tartaria tablets of about 5,300 B.C.), there is a layer of pictographic signs. In the later inscriptions, the number of purely abstract signs increases. This observation is of general value for the evolution of writing systems.

However, the signs on "Noah's plate" are highly abstract although the inscription (according to your assumption) is much older than the Tartaria tablets. If the chronological assessment of the find is accu-

rate then the occurrence of purely abstract signs is utterly puzzling because one would expect an older stage of the script at about 6,000 B.C. (or so). So, for the moment it is this odd anachronism which puzzles me most. In ancient Sumerian writing, one can observe an older stage (URUK IV with more motivated signs) and a younger stage (URUK III with a greater number of abstract signs and more stylized shapes). By the way, I do not think that you are out of line when you compare the signs on "Noah's plate" with proto-Sumerian signs. I am currently elaborating on a hypothesis according to which there probably was a historical relation between Old European civilization and ancient Sumerian civilization. I suggest that there was a zone of circum-Pontic cultural convergence that was split into separate regions by the Great Flood, with refugees from the inundated land moving into the Balkans and into Mesopotamia. As I still see it today, writing technology was among the innovations of the post-deluge age. The sign usage on "Noah's plate" would suggest a pre-deluge script, but that is extremely difficult to prove on the basis of only one inscribed object (such as "Noah's plate").

I had prepared a paper on the cultural consequences of the flood. An American journal required so many cuts and changes that I thought my overall idea will get lost. So it will be published in the European Journal for Semiotic Studies (in this year's issue which, unfortunately, will come out of print only next year). I think I will insert a short addition to my original text: a reference to your find. But I will keep my comments on a level of "low profile" (saying that unless further inscribed objects are found no conclusive statement can, as yet, be given as to the value of this isolated find).

Please give me further details. Have you retrieved other objects from the shelf that belong to the same site?

How shall I say? You are not alone with your ideas of a pre-deluge civilization. But there is so much to be thoroughly investigated and cautiously elaborated. If you expose yourself with too bold ideas (as I did with my hypothesis of Old European writing being the oldest of mankind) then you have to stand up against an army of opponents.

Hoping that you will accept my apologies for the incredible delay with my answer, I remain,

Sincerely,

Harald Haarmann"

Fig.29. Graves N626 and N634 from the ancient Durankulak necropolis (6,000 – 5,000 BC, author T. Dimov)

Even the single fact that the oldest processed gold in the world with an age of 5,000–4,000 BC was found in Varna (fig.19) and Durankulak (fig.29) testifies to the existence of a highly developed civilization, subsequently driven away by natural disaster or barbarous tribes. It is possible that those people survived the Flood and laid the foundations of the Sumerian civilization in Mesopotamia.

An important proof of the rapid (catastrophic) rise in the sea level is the preserved relict sediments from the old shorelines of the basin. Usually in terms of transgression, at gradual rise in the sea level, the underwater shore slope is being reprocessed (destructed). However, in this case the shore formations such as beaches, sand banks and dunes are comparatively well preserved, which means that they were rapidly submerged and taken out of the zone of wave coercion.

Sapropel sediments are one of the most important geological and paleoecological evidences of the catastrophic character of the event. They cover the deepwater Black Sea floor. Being products of mass dying of phytoplankton and zooplankton, they testify to a contrasting regime of sedimentation. Dark-

brown caoutchouc-like sediments, created by dead organics lay over carbonate sediments with Neoeuxine (pre-deluge) age, bright in color. Waters flowing into the Black Sea through the Bosporus (fig. 30) have salinity of 38%, whereas the Black Sea waters are almost fresh waters. This results in the mass dying of plankton organisms, which are extremely sensitive and hard to adapt to rapid changes in salinity.

Consequently, geocatastrophic types of sediments are created. Later on, they had significant influence on the formation of the gas-geochemical regime of the basin (the so- called hydrogen sulfide zone was formed).

There are two major geological proofs of the flood:

- The presence of the old shoreline, which is located at contemporary depths of 90-120 m, with an age of more than 8,000 years. Right here, in the region of the old beach and dune formations was found the previously described everyday item the "Noah's plate" (fig. 27a).
- A direct result from the flood is the formation of geocatastrophic organogenetic sediments in the deepwater Black Sea floor and the occurrence of hydrogen sulfide contamination.

As a geological event, the flood is an irrefutable fact.

There is some archaeological evidence that the Black Sea area was a center of a highly developed civilization. It is known that the oldest inhabitants of the Black Sea coast were the Cimmerians who left permanent signs across the entire Black Sea region.

An indisputable proof of advanced ancient culture is the Varna golden treasure (fig. 19) and the Durankulak necropolis (fig. 29). This fact fits very well with the developed hypothesis of the Bible Flood and the Black Sea.

The Cimmerian culture and civilization originated along the coast of the ancient Pont. After the destructive deluge, most of the Cimmerians migrated to their "promised land", Mesopotamia. Conquering the barbarous Semitic tribes on their way, they founded a new civilization in the cities of Ur and Nineveh and populated Europe and Asia. A significant part remained in the Bulgarian lands to create the Thracian culture and to survive the vicissitudes of the great migration of peoples.

The scientific hypothesis which maintains the thesis about the Flood in the Black Sea region is based on interdisciplinary scientific facts. For now, it has few followers and many opponents.

Chapter 7

The Sumerian Epic and the Bible Myths

In the recent years, biblical stories have become of great interest to scientists. Fragments and details of these writings are verified by science which testifies to their reliability.

"The Lord saw that the wickedness of man was great in the earth, and that every imagination of the thoughts of his heart was only evil continually. And The Lord was sorry that He had made man on the earth, and it grieved Him to His heart. So The Lord said, "I will blot out man whom I have created from the face of the ground, man and beast and creeping things and birds of the air, for I am sorry that I have made them." (Genesis 6:5-7 RSV).

If we accept the divine commencement of the world, we cannot resist the temptation to comment on the above paragraph. Probably, today God is not pleased with what He has created either. Evil and lechery rule the earth regardless of the gigantic possibilities for present mankind. Will the Lord get angry and when it will happen? Are we doomed to God's will? Can God's pastors on earth appease Him? Is there enough time until God's repentance and will he accept our repentance?

However, let's get back to those ancient times of the World Flood and try to restore the historical truth using the power of facts and scientific logic. According to Genesis the creation of the world happened 6,000 years ago and the Flood 4,300 years ago. This is a short biblical geochronology which does not fit the scientific facts about the origin of mankind. We don't intend to refute Genesis with scientific proof. On contrary, we would like to compare irrefutable biblical facts to actual catastrophic geological events.

Century after century, the Bible was accepted without question and each letter in it was held sacred by the Christians. The first critiques and doubts of its reliability appeared during the Renaissance. At the same time the first proof was received that the major postulates in the Bible describe real historical events, though later decorated with some fiction. The Bible, accepted as the oldest literature, tells us stories from before and after the Flood that are based on the Sumerian Epic.

Most myths often repeat one and the same plot in which God, being

angry with people for their sins, sent a great disaster upon earth, the Flood (fig. 31, 32), that caused destruction to people and Nature. And only a righteous man chosen by God and advised in advance was prepared for the coming ordeal. The name of the man selected by God in the different versions varies – in the Bible, it is Noah; in the Sumerian myths, it is Utnapishtim; and in the Greek myths it is Deucalion. According to some legends the Flood lasted for seven days and seven nights; according to others for nine days and nine nights; and according to the Bible it lasted forty days and forty nights.

We'd like to remind our readers of what is said in the Bible.

God's Creation. In the beginning God created the heaven and the earth. And the earth had no form. It was empty, covered with darkness and water. Then the Spirit of God hovered over the water, and God said, "Let there be light," and there was light. God saw that the light was good. Then He divided the light from the darkness. God called the light "day", and the darkness he called "night." And the evening and the morning were the first day.

Then God said, "Let there be a great expanse of air to divide the waters below from the waters above." And God called the expanse "heaven." And the evening and the morning were the second day.

Then God said, "Let the water under the heaven be gathered together in one place, and let the dry land appear," and it happened. And God called the dry land "earth"; and the gathering together of the waters He called "seas": and God saw that it was good. Then God said, "Let the earth produce grass, and herbs, and fruit trees, all yielding after their own kind," and it happened; And God saw that it was good. And the evening and the morning were the third day.

Then God said, "Let there be lights in the heavens; and let them be for signs and seasons, and for days, and years." God made two great lights; the sun to rule by day and the moon to rule by night. He also made the stars. And He set them all in the heavens to give light upon the earth; And God saw that it was good. And the evening and the morning were the fourth day.

Then God said, "Let the waters abound with living creatures, and let birds fly above the earth." So God created great whales and everything that

moves in the water, and winged animals, all these producing after their kinds; and God saw that it was good. And He blessed them, saying, "Be fruitful, and multiply." And the evening and the morning were the fifth day.

Then God said, "Let the earth be filled with living creatures." So He made the animals on the earth, the cattle, and every thing that crawls upon the earth, all producing after their kinds; and God saw that it was good. Then God said, "Let us make man in Our image, after Our likeness." And the Lord God formed man out of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living soul. And God saw everything that He had made, and it was very good. And the evening and the morning were the sixth day.

The heavens and the earth were finished; so on the seventh day God ended his work. God blessed the seventh day and made it holy.

Adam and Eve. The Lord God planted a garden toward the east, in Eden; and there He placed the man whom He had formed. Out of the ground the Lord caused to grow every tree that is pleasing to the sight and good for food; the tree of life also in the midst of the garden, and the tree of the knowledge of good and evil. Now a river flowed out of Eden to water the garden; and from there it divided and became four rivers. Then the Lord God took the man and put him into the Garden of Eden to cultivate it and keep it.

The Lord God commanded the man, saying, "From any tree of the garden you may eat freely; but from the tree of the knowledge of good and evil you shall not eat, for in the day that you eat from it you will surely die."

Then the Lord God said, "It is not good for the man to be alone; I will make him a helper suitable for him." Out of the ground the Lord God formed every beast of the field and every bird of the sky, and brought {them} to the man to see what he would call them; and whatever the man called a living creature, that was its name. The man gave names to all the cattle, and to the birds of the sky, and to every beast of the field, but for Adam there was not found a helper suitable for him.

So the Lord God caused a deep sleep to fall upon the man, and he slept; then He took one of his ribs and closed up the flesh at that place. The Lord

God fashioned into a woman the rib which He had taken from the man, and brought her to the man. The man said, “This is now bone of my bones, and flesh of my flesh; She shall be called Woman, because she was taken out of Man.” For this reason a man shall leave his father and his mother, and be joined to his wife; and they shall become one flesh. And the man and his wife were both naked and were not ashamed.

Now the serpent was craftier than any beast of the field which the Lord God had made. And he said to the woman, “Indeed, has God said: You shall not eat from any tree of the garden?” The woman said to the serpent, “From the fruit of the trees of the garden we may eat; but from the fruit of the tree which is in the middle of the garden, God has said, “You shall not eat from it or touch it or you will die.” “The serpent said to the woman, “You surely will not die! For God knows that in the day you eat from it your eyes will be opened and you will be like God, knowing good and evil.”

When the woman saw that the tree was good for food, and that it was a delight to the eyes, and that the tree was desirable to make one wise, she took from its fruit and ate; and she gave also to her husband with her, and he ate. Then the eyes of both of them were opened, and they knew that they were naked; and they sewed fig leaves together and made themselves loin coverings. They heard the sound of the Lord God walking in the garden in the cool of the day, and the man and his wife hid themselves from the presence of the Lord God among the trees of the garden.

Then the Lord God called to the man, and said to him, “Where are you?” He said, “I heard the sound of You in the garden, and I was afraid because I was naked; so I hid myself.”

And He said, “Who told you that you were naked? Have you eaten from the tree of which I commanded you not to eat?” The man said, “The woman whom You gave to be with me, she gave me from the tree, and I ate.” Then the Lord God said to the woman, “What is this you have done?” And the woman said, “The serpent deceived me, and I ate.”

Then the Lord said to the serpent, “Because you have done this, you are cursed above every animal; on your belly you shall go, and you shall eat dust all the days of your life: And I will put hatred between you and the woman,

and her descendant will crush your head.”

To the woman He said, “I will greatly multiply your pain in childbirth, in pain you will bring forth children; yet your desire will be for your husband, and he will rule over you.”

And to Adam He said, “Because you have listened to your wife and have eaten from the forbidden tree, the ground is cursed; now every day of your life, only through difficulty, will you eat from the ground. It will produce thorns and weeds, and by the sweat of your brow you will eat bread until you return to the ground; I made you from dust and you will return to dust.”

Now the man called his wife’s name Eve, because she was the mother of all the living.

The Lord God made garments of skin for Adam and his wife, and clothed them.

Then the Lord God said, “Behold, the man has become like one of Us, knowing good and evil; and now, he might stretch out his hand, and take also from the tree of life, and eat, and live forever”– therefore the Lord God sent him out from the garden of Eden, to cultivate the ground from which he was taken. So He drove the man out; and at the east of the Garden of Eden He stationed the cherubim and the flaming sword which turned every direction to guard the way to the tree of life.

Cain and Abel. Adam and Eve had two sons: the older was called Cain, the younger Abel. Abel chose to be a shepherd, while Cain became a farmer. At a time appointed by God, Cain brought his harvest from the field as an offering unto the Lord, but Abel brought a lamb. The Lord showed respect toward Abel and his offering, but He did not honor Cain and his offering. So Cain became very angry and his countenance fell.

Then the Lord said to Cain, “Why are you angry? And why has your countenance fallen? “If you do well, your sacrifice will be accepted. And if you do not do well, sin is crouching at the door; and its desire is for you, but you must master it.”

It came about when Cain and Abel were in the field, that Cain rose up against Abel his brother and killed him. Then the Lord said to Cain, “Where is Abel your brother?” And he said, “I do not know. Am I my brother’s

keeper?" He said, "What have you done? The voice of your brother's blood is crying to Me from the ground. "Now you are cursed from the ground, which has opened its mouth to receive your brother's blood from your hand. When you cultivate the ground, it will no longer yield its strength to you; you will be a vagrant and a wanderer on the earth. Therefore whoever kills Cain, vengeance will be taken on him sevenfold."

Then Cain went out from the presence of the Lord, and settled in the land of Nod, east of Eden. Cain had relations with his wife and she conceived, and gave birth to Enoch; and he built a city, and called the name of the city Enoch, after the name of his son.

Lamech who was the grandson of Enoch took to himself two wives: Adah and Zillah. Adah gave birth to Jabal; he was the father of those who dwell in tents and have livestock. His brother's name was Jubal; he was the father of all those who play the lyre and pipe. As for Zillah, she also gave birth to Tubal-cain, the forger of all implements of bronze and iron; and the sister of Tubal-cain was Naamah.

Adam lived for 930 years. Eve gave birth to sons and daughters and they gave birth to numerous offspring. One of them, Methushael lived for 969 years. His grandson was Noah, who had three sons: Shem, Ham, and Japheth

The Flood. The Adam and Eve's offspring populated the earth. But the mankind was blemished by the initial sin. A man should work hard to make his living, and his heart was obsessed by evil and perfidy. People fight, killed each other in never ending wars and plundered. The earth was corrupted and filled with violence and in this chaos no one paid attention to the warning message of the Creator.

The Lord was sorry that He had made man on the earth, and He was grieved in His heart. So he decided to destroy the man whom He had created from the face of the land, from man to animals to creeping things and to birds of the sky.

But Noah found favor in the eyes of the Lord. Noah was a righteous man, blameless in his time; Noah walked with God. Noah became the father of three sons: Shem, Ham, and Japheth. Then God said to Noah to make an ark of gopher wood, with rooms and to cover it inside and out with pitch. The

length of the ark was three hundred cubits, its breadth fifty cubits, and its height thirty cubits. The ark had three decks but only one window and one door. Noah built the ark with the help of his sons though he was 600 years old at that time (fig. 35a).

God said to Noah: "I am bringing the flood of water upon the earth, to destroy all flesh in which is the breath of life, from under heaven; everything that is on the earth shall perish. But I will establish My covenant with you; and you shall enter the ark–you and your sons and your wife, and your sons' wives with you. "And of every living thing of all flesh, you shall bring two of every kind into the ark, to keep them alive with you; they shall be male and female."

Noah did according to all that the Lord had commanded him. Now Noah was six hundred years old when the flood of water came upon the earth. Then Noah and his sons and his wife and his sons' wives with him entered the ark because of the water of the flood. It came about after the seven days that the water of the flood came upon the earth for forty days, and the water increased and lifted up the ark, so that it rose above the earth. The water prevailed and increased greatly upon the earth, and the ark floated on the surface of the water. The water prevailed more and more upon the earth, so that all the high mountains everywhere under the heavens were covered. The water prevailed fifteen cubits higher, and the mountains were covered. All flesh that moved on the earth perished, birds and cattle and beasts and every swarming thing that swarms upon the earth, and all mankind. Only Noah was left, together with those that were with him in the ark. The water prevailed upon the earth one hundred and fifty days.

In the seventh month, on the seventeenth day of the month, the ark rested upon the mountains of Ararat. The water decreased steadily until the tenth month; in the tenth month, on the first day of the month, the tops of the mountains became visible.

Then it came about at the end of forty days, that Noah opened the window of the ark which he had made; and he sent out a raven, and it flew here and there until the water was dried up from the earth. Then he sent out a dove from him, to see if the water was abated from the face of the land; but

the dove found no resting place for the sole of her foot, so she returned to him into the ark, for the water was on the surface of all the earth. Then he put out his hand and took her, and brought her into the ark to himself. So he waited yet another seven days; and again he sent out the dove from the ark. The dove came to him toward evening, and behold in her beak was a freshly picked olive leaf. So Noah knew that the water was abated from the earth. Then he waited yet another seven days, and sent out the dove; but she did not return to him again.

Then Noah removed the covering of the ark, and looked, and behold, the surface of the ground was dried up. Noah built an altar to the Lord and took of every clean animal and of every clean bird and offered burnt offerings on the altar. The Lord smelled the soothing aroma; and the Lord said to Himself, "I will never again curse the ground on account of man, for the intent of man's heart is evil from his youth; and I will never again destroy every living thing, as I have done. While the earth remains, seedtime and harvest, and cold and heat, and summer and winter, and day and night shall not cease."

Then Noah began farming and planted a vineyard. He drank of the wine and became drunk, and uncovered himself inside his tent. Ham, the father of Canaan, saw the nakedness of his father, and told his two brothers outside. But Shem and Japheth took a garment and laid it upon both their shoulders and walked backward and covered the nakedness of their father; and their faces were turned away, so that they did not see their father's nakedness.

When Noah awoke from his wine, he knew what his youngest son had done to him. So he said, "Cursed be Canaan; a servant of servants he shall be to his brothers."

The three sons of Noah – Shem, Ham and Japheth, and from these the whole earth was populated.

Japheth was the founder of the peoples from the North; Shem gave the beginning of the Semites and Ham started off the African population – the hamites. One of Ham's descendants was Nimrod who appeared a mighty hunter before God.

The Bible says that one of the richest cultures in the human history was created in the Tigris and Euphrates basin. The true creators of this culture were the Sumerians. In the 3rd Millennium BC they built gorgeous cities, irrigated the soil by means of a wide network of channels, developed handicrafts and created marvelous works of art and literature. The Akkadians, Assyrians, Babylonians, Hittites and Arameans, who later established their states in Mesopotamia and Syria, inherited the astonishing cultural achievements of the Sumerians.

Few and even false pieces of information about the culture of these peoples existed until the middle of the 20th century. Only when archaeological excavations in large scale were carried out in Mesopotamia, their greatness and wealth were discovered. Such mighty metropolis as Ur, Babylon and Nineveh were excavated, and in the kings' palaces were found thousands of tablets with cuneiform script that had been already encoded. These documents contain historical chronicles, diplomatic correspondence, contracts, myths and religious poems, among which is the oldest epic of humanity – about the Sumerian hero Gilgamesh.

These texts and documents showed that the Bible, regarded for centuries as an original work of the Jews and a book inspired by God, has its beginning in the Mesopotamian tradition and that many stories and details to a larger or lesser extent were taken from the rich treasury of the Sumerian myths and legends.

It is not surprising at all that cultures and civilizations never disappear without leaving descendants. The most valuable heritage is delivered to younger cultures in a complicated way. Until recently, it was considered that Europe inherited mostly the Greek culture; meanwhile the newest research shows that we are still heirs of what was created by the genius of the Sumerian people five thousand years ago. In the eternal circle of time, cultures and peoples flourish and become extinct but their experience lives in the next generations supporting the creation of new and more mature cultures.

The conclusion that the Old Testament includes a version of an older Sumerian legend was made by George Smith, a collaborator at the British Museum, 100 years ago. One day he took up to encode the tablets of

cuneiform script, sent from Nineveh and stored in the depository of the museum. Surprisingly, he encountered the first epic depicting the exploits and adventures of Gilgamesh, the legendary hero of the Sumerians. Smith thought he was dreaming because some tablets contained pieces of stories about a flood that strikingly resembled the biblical version. When he published those stories, there was a storm of protests on behalf of the religious hypocrites in Victorian England to which the Bible was a holy book, inspired by God. They could not acquiesce to the thought that Noah's story is a myth borrowed from the Sumerians. In their opinion the texts deciphered by Smith were an indication for casual coincidence of details. The argument could be settled by the missing tablets but their discovery seemed extremely incredible. But George Smith didn't give in. He went to Mesopotamia and a miracle occurred – in the gigantic ruins of Nineveh he found the missing parts of the story which entirely confirmed his thesis. There were such identical details as sending out a raven and a dove, the mountain on which the ark rested, the duration of the Flood, as well as the moral ideas of the story – punishment of human race for their sins and a survival of a good blessed man. Of course, there are differences. The Sumerian Noah is called Utnapishtim, a number of gods present in the original myth – all of them endowed with various human faults, in the Bible, the Flood is a Jehovah's deed, the Creator of the world, presented with all his greatness and power. Probably, the monotheistic revision of the myth came into being later, while the final religious and ethical thoroughness is a clerical contribution.

An experienced historian knows that legends often make poetry out of history but that they most often do contain a historical truth. Therefore, there is a possibility that the story is a sporadic echo of some prehistoric natural catastrophe which has been well remembered by generations.

The answer to the question why the World Flood legend appeared in Sumer was given by the excavations of one of the first village settlements in the world, Ur, located on the banks of the Euphrates.

In a hole dug at a depth of 14 m from the surface, the English archaeologist Leonard Woolley discovered a 3 m thick layer of mud sediment with no signs of human culture. Passing through this layer, Woolley excavated pieces

of bricks and ceramics that belong to a completely different culture – the Sumerian.

Thus, Leonard Woolley's excavations in the biblical "Ur of the Chaldees", the motherland of Abraham, proved not only that the great flood in the Gilgamesh Epic and the Bible Flood are identical but also that the Flood is a historical fact.

The Gilgamesh Epic has become known to us mainly from the Assyrian and Babylonian literature. This writing, much older than the Bible, describes the "world flood" with the same details as in the First Book of Moses.

"Everything I had, I took with me - gold, silver, my family and relatives and all the living things of the earth. I boarded the boat and closed the door behind me. The black clouds arrived, with the thunder god Adad rumbling within them; the earth split like an earthenware pot, and all the light turned to darkness. The Flood was so great that even the gods were frightened. The gods shook like beaten dogs, hiding in the far corners of heaven. The Flood lasted for seven days and seven nights, and finally light returned to the earth."

The discovery of the Gilgamesh Epic shocked the Christian world because it weakened the conviction in the godlike origin of the Bible. It became obvious that God did not tell the authors of the Bible about the Flood but they knew about it from older Babylonian writings. However, the Babylonian legend was inherited by a people much older than the Babylonians and the Egyptians. These were the Sumerians. The existence of this people was discovered in an unusual way. Actually, the discovery is one of the brilliant achievements of the human spirit. It came as a result from the explorations of the scientists who read the cuneiform script.

In 1956, the American scientist Samuel Noah Cramer published the book "History Starts in Sumer", which describes the accomplishments of the Sumerian culture. Obviously, it originated from greater antiquity. Indeed, the beginning coincided with the events described in the First Book of the Bible (Genesis) or at least with the time of the first people who lived after the Flood sent by God and survived by Noah only.

The oldest signs of permanent settlement in Mesopotamia are dated from the 5th to 6th century BC. A population unknown until then, the Sumerians,

settled in the Tigris and Euphrates area. They brought their highly developed culture and writing. After several centuries the Sumerians were destroyed by other barbarous tribes and from the kingdoms of Sumer and Akkad flourished Babylon.

The exceptional works of Sumerian art, crafts and culture embellish a lot of museums today. But even today, we know little about the people who created those masterpieces. Irrefutably, they were of non-Semite origin; they had dark hair for which they were called "black-headed". According to some authors, the Sumerian came from the sea, according to others the physiognomic features of the ancient Sumerians still can be seen in the inhabitants of Afghanistan and Beludgistan.

According to the legends, the history of Sumer starts from the creation of humans. From the creation of the first man, Adam, to the Flood, the Bible knows ten "forefathers". The Sumerians also had ten ancestors and they were called "the oldest kings". In some pieces of information they ruled about 250,000 years, in others about 500,000 years.

Where was created the culture which established the foundations of human civilization? Where did these mystic people come from? Had they already known about the Flood or they learned about it here in Mesopotamia? If they got the knowledge of the Flood in Mesopotamia why had they migrated here? The logical conclusion is that the Sumerians survived the Flood and moved to Mesopotamia, similar to the Jews who looked for their Promised Land. Don't we find the legend about the exodus of Jews from Egypt in a new form? Cities like Nineveh, Erichon were created before the 7th millennium BC inheriting the advanced culture of the Sumerians. Where did this culture come from? Probably, the archaeology is helpless and we could look for facts in geology, oceanology and paleo-oceanology.

The Biblical story of the creation of the world can be used as an example of how the clergy distorted the old creation epic of the Babylonians, Enuma elish (When on high), which dates back to at least the 12th century BC. George Smith deciphered the whole epic written on cuneiform tablets. In general, the story has nothing in common with the Biblical story. The content of this mythological epic in short is as follows:

In the beginning of the world there was only a watery void in which fresh waters mingled with salt waters of the sea. The fresh waters were personified as Apsu, a male being, and the salt waters as Tiamat, a female and a dreadful goddess of chaos. The myth describes a conflict between these earliest gods and a younger generation that sprang from them. Ultimately the younger gods won the war, led by Marduk. Marduk defeated the army of the elder gods and killed Tiamat–represented as a dragon–in single combat. He then split her carcass in two, forming heaven and earth from the halves, and established the sun, moon, and constellations. Kingu, Tiamat's battle leader and second husband/lover after Apsu, was also defeated by Marduk and counted among the dead gods. God Ea mingled his blood with mud and created the first man.

What has this somber, primitive cosmogony in common with the inspiring monotheistic story of the authors who edited the Old Testament? However, evidence exists that in a way it was the source of the much nobler Jewish version. The American archaeologist, James Pritchard, compared in details the two texts and discovered a number of astonishing similarities. Most impressive is the order of the events in both texts: the creation of heaven, the Sun, the Moon and constellations, the separation of water from earth, the creation of man on the 6th day, and finally, a day of rest for God in the Bible and the great feast of the Babylonian gods in the Enuma elish on the 7th day.

Undoubtedly, the biblical story of world creation was written in the silence of the cells of Jewish priests and as an intellectual conception of theologians, it had not become very popular among the Jewish people. The imagination of the ordinary men and women should have been more impressed by dramatic myths for heroic combats of gods against the tremendous dragons of chaos.

Noticeable signs of these popular beliefs are preserved in the Old Testament. In the Ugaritic epic god Baal defeats a dragon-like monster Leviathan. In the book of Isaiah (27,1), it is written: "In that day the Lord with his sore and great and strong sword shall punish leviathan the piercing serpent, even leviathan that crooked serpent; and he shall slay the dragon that is in the sea."

Biblical writers also refer to the dragon as Rahab. The battle between Jehovah and Rahab is mentioned in the Book of Job (Job 9:13), Psalm 89:10 and in the Isaiah's book.

Today, we have the advantage of tracing the road walked by the Mesopotamian myth about the battle of gods with the dragon through the history. In the Sumerian myths, the monster was defeated by Enlil – the god of air. When the Babylonian king Hammurabi conquered Mesopotamia, the dragon was killed by Marduk. Centuries passed by and the Assyrians won hegemony over the Tigris and Euphrates region – the supreme deity became Asur. Assyrian writers erased the name of Marduk on the cuneiform tablets and substituted it with the name of their god Ashur. They didn't do it very diligently as some texts still contained the name Murduk. Then the myth reached Palestine, where the Jewish made Jehovah fight with the Leviathan or Rahab. According to some scientists, the myth appears even in Christianity as the legend of St. George who killed the dragon.

When discussing the biblical story about the world creation it is worth mentioning one fact, very familiar to those who have seen in the Old Testament the Alpha and Omega of any knowledge. In 1654, James Ussher, archbishop from Ireland, announced that after carefully studying the Bible, he calculated that God created the world in 4004 BC. This date was published in the subsequent editions of the Bible for a whole century and anyone who had any doubts about it was considered a heretic.

Dr. John Lightfoot, Vice-Chancellor of the University of Cambridge, and one of the most eminent Hebrew scholars of his time, declared that the result from his most profound and exhaustive study of the Scriptures is that "heaven and earth, centre and circumference, were created all together, in the same instant, and clouds full of water," and that "this work took place and man was created by the Trinity on October 23, 4004 B.C., at nine o'clock in the morning." Sometimes, similar ridiculous declarations are made by the present clergy's hierarchy.

Heaven was also created by the Sumerian imagination. The first known account of a garden of paradise appears on a cuneiform tablet from ancient Sumer. Here we learn of the mythical place called Dilmun, a pure, clean, bright place where sickness, violence, and old age do not exist. At first this paradise lacks only one thing - water. Eventually this is provided by the Sumerian water god, Enki. The place of the biblical paradise can be easily defined in Mesopotamia because four rivers start from here, two of which are Tigris and Euphrates.

If we accept the theory of the Flood in the Black Sea, it is natural to look for the location of heaven in the Black Sea region. And why not assuming that the remains of the Noah's ark rested on the bottom of the Black Sea?

The origin of the serpent in the Bible also becomes clear to a certain extent. At the end of the Gilgamesh Epic, Gilgamesh receives from Utnapishtim a secret plant that will make him young again. But he doesn't use it because he doesn't trust it; rather he decides to take it back to Uruk and test it out on an old man first, to make sure it works. Urshanabi, the ferryman of Utnapishtim, takes him across the Waters of Death. Several leagues inland, Gilgamesh and Urshanabi stop to eat and sleep; while they're sleeping, a snake slithers up and eats the magic plant (which is why snakes shed their skin) and crawls away. Probably this Sumerian myth can explain why the Jews presented Jehovah as a serpent for centuries on. The clergy started to destroy those symbols and to ban them as a manifestation of idolatry.

Conclusion

During the past few years, there has been an open discussion in Bulgaria on the problems of the Black Sea. Re-estimation of values was done after we survived dramatic events related to the ecological situation in the Black Sea. The nightmare of red-brownish dead waters, dead inhabitants of the sea and deserted beaches and resorts, is still alive.

Of course, we do not want to dramatize the current situation of the Black Sea. Most of us were enthusiastic participants in the industrialization of our country without thinking too much about the destiny of the sea.

For decades the Danube River, emptying enormous volumes of water in the Black Sea, has served as a channel for the flotsam of the middle and eastern European countries. The rivers Dnieper, Dniester, Bug, Rioni and some others that pass through large industrial zones also import significant quantity of pollutants into the sea. Turkey has been preparing projects for discharging fecal wastes from Istanbul into the Black Sea. The Romanian chemical factories not only regularly poison our Danube towns but also dump waste products as phosphate plaster and others, directly into the sea. The numbers published in the press are as follows: the rivers flowing into the sea annually produce about 7,000 t of phosphorus and nitrogen and about 100,000 t of organic and other wastes. The Black Sea cities and resorts discharge into the sea 7,000 t of nitrogen, 2,000 t of phosphorus and 20,000 t of other organic substances per annum together with some heavy metals, oil and oil products. The biggest problem is that all pollutants emptying into the sea pass through the inhabited 100-150 m surface water layer where they are absorbed by sea organisms or are transformed on the bottom into different products.

The lack of water recycling systems have negative consequences on the sea. The Black Sea environment had exhausted its self-recycling abilities and an ecological crisis started. Nature usually gives us opportunities but they are related to substantial investments. Huge amounts of industrial and household wastes are discharged into the sea but they cannot be absorbed by the existing recycling equipment. Such equipment is totally missing on a number of locations along the coast and fecal wastes flow directly into the sea. The seafloor is strewn with various waste products (fig. 36), dumped by ships, and the fishing zone is ploughed by bottom trawls. In the last ten years, there has been a "boom" in a new biological species, Rapana tomasiana, which lives at the bottom to depths of 40-50 m. Initially, the Rapana was collected by divers, and this was harmless to the bottom biocenoses. But a little later trawls and drags were constructed and the bottom biocenoses were totally destroyed as well as the rich heritage, preserved on the bottom for thousands of years (fig. 37, 38, 39). In addition, many coast reinforcement equipments are often built against the standard rules of the defense of nature. Finally, we would like to mention those beautiful paradise spots along the coast that have been turned into real dunghills. A sad but realistic picture that testifies to our and not only our low ecological culture.

The attitude towards the ecology of the sea was entirely changed after the Chernobyl accident in April 1986. In May, the same year we were on expedition with the research ship Academic. Engrossed in work, we didn't notice when a flock of swallows had perched on the cables and pipelines of the improvised lab on board. But when the birds fell down on the table and on the floor and died in convulsions, we knew that something went wrong. We stepped on deck and were shocked – it was covered by the bodies of hundreds of dead swallows. More and more swallows perched on the ship. That same evening the Chernobyl accident was announced on the radio. Now we knew the reasons for the death of the birds as well as the headaches and ill disposition of some of the people on board. The invisible radiation had already influenced every living creature.

We closed the illuminators and hatches, washed the ship thoroughly with water and started for the shore. The sea slowly engulfed the bodies of the dead birds behind us.

Another memory about the deepwater dives carried out by the manned submersible Argus on the continental slope of the Bulgarian coast. On a calm, sunny day in July 1985, we dived towards the underwater canyon which should be explored. After roaming for six hours among mud between bottom and water, tired and stiff with cold, we encountered a huge block. It turned out that this was a concrete container about 10 m long and 3-4 m

wide, half buried in mud. We decided the container had sunk a long time ago because of the 2-3 cm sediment on its surface. Not only cold but also by now annoyed, we were in a hurry to surface because the three of us were sure that there were wastes on the bottom, at a depth of 380 m and we could only guess at their origin. Was it a delay-time bomb? Indeed, during the 1950s and 1960s many people thought that the deepwater sulfide hydrogen zone of the Black Sea could be used for dumping any kinds of garbage and apparently they had taken advantage of this "scientific" thesis. It is difficult to estimate how much and what kinds of poisonous and radioactive wastes are to be found there today.

We would like to present some curious situations, in which ill informed ecologists, who don't have sufficient knowledge of the nature of the Black Sea, arrived at "competent" conclusions. On one occasion an international team of ecologists made an ecological estimation of Burgas Bay in 1987. The prominent conclusion was that in about 500 days the ecosystem of the bay would collapse. Ten years passed and fortunately nothing has happened. We have already mentioned the ecological euphoria related to the "Blue Bourn" project.

Oil has been produced in the sea, near the Romanian coast since 1980 without serious threats to the sea environment. We don't want to underestimate the danger of accidents but we do think that the sense should dominate over the emotional performances in the press. A preventive ecological control and the establishment of ecological services will be the factors that will ensure the efficiency of natural defenses.

Natural and anthropogenic factors influencing the Black Sea environment without claiming comprehensiveness are shown on fig. 6.

However, let's forget the sad thoughts and look forward with a hope to the future. The anthropogenic pressure on the sea is tremendous but it also has a great self-purifying capacity.

The economic crisis in former socialist countries in Eastern Europe during the last 10 years has had some favorable influence on the Black Sea ecology. A number of polluting industries were limited or closed. The international community, concerned about the Black Sea has been investing more and more resources in solving the most acute ecological problems.

Let's get back to the flood in the Black Sea. We dared to uncover the newest geological history and we came upon archaeology. Geological and human annals preserved below the sea bottom are waiting to be deciphered. Today, when the theory of the Flood has become a fact, it needs more expeditions and explorations. They will offer an opportunity for discovering new settlements and necropolis that can be turned into attractive underwater museums. The challenges of the Black Sea to mankind give us hope to find its leading position in world history. We are convinced that the "Dead Sea", resurrected throughout the millenniums will reveal its secrets and will change the ideas about the most ancient history of human civilization.

Endnotes

[1] Dr. Harald Haarmann
– Independent scholar (with location in Finland),
– Director of the Institute of Archaeomythology (Sebastopol, California/USA)
– member of the research team of the "Research Centre on Multilingualism" in Brussels,
– member in the committee for the EU project "Euromosaic III"

[2] The Neolithic period began when humankind first developed agriculture and settled in permanent enclaves; it ended when the discovery of bronze led to the more advanced Bronze Age.

[3] A mineral or rock deposited directly from a solution (commonly seawater) during evaporation. For example, gypsum and halite are evaporite minerals. The Messian evaporites are aged 5,3 – 7,1 million years.

[4] Epoch, third division of the Tertiary period of the Cenozoic era, spanning an interval from about 38 million to 24 million years ago. The Oligocene (Greek for "little life") was originally defined by the percentage of modern species of shellfish (10-15 percent) found in strata of this age.

[5] Fifth and most recent division of the Tertiary period of the Cenozoic era, spanning an interval from about 5 million to 1.6 million years ago. The Pliocene was named and defined by the British geologist Sir Charles Lyell on the basis of the percentage of modern species of shellfish found in the fossil record.

[6] First division of the Quaternary Period (1.6 million years to 10,000 years before present). It is the epoch just previous to our current epoch, the Holocene Epoch.

[7] Major division of time that began about 570 million years ago and ended about 240 million years ago. The evolution of life, from primitive, multicellular, free-floating forms in the sea to advanced groups on land, can be traced by fossil remains in rock strata of the Paleozoic era.

[8] Products derived from erosion on land and imported into the ocean by the river inflow, winds, glacial and erosion of the coasts.

[9] A type of flow that occurs when a fluid is moving quickly and/or within an unconfined space, characterized by a marked increase in mixing where, superimposed on the principle motion, there are countless irregular fluctuations.

[10] Second and most recent division of the Quaternary Period. The Holocene (Greek for "wholly recent") Epoch began 10,000 years ago and continues into the present.

[11] Mineral grains with a diameter of 0, 01 – 0,001 mm; dust.

[12] A fine-grained sedimentary rock consisting mostly of clay and/or silt. Mudstone, shale, siltstone, and claystone are all pelitic.

[13] Ecologically pure organic fertilizer or fresh water pool silt originating from water plants and residues of animal origin in combination with fragments of higher plant tissue, pollen, sand, clay and various mineral solutions brought from land. Sapropel consists of mineral part originating from water solutions due to formation of sediments consisting of fragments of ash food of biomass, clay, sand, etc and organic part resulting from anaerobic biochemical decomposition of biomass and its subsequent re-synthesis by microorganisms.

[14] A freshwater inland basin that existed on the place of the Black Sea during the Late Pleistocene at the time of the last Wurm glaciation. The sea level was about 90-120 m lower than the present sea level.

[15] Masses of water and rich sediment that flow down the continental slope. As more and more sediment builds up, the continental rise forms.

[16] Breccia, derived from the Latin meaning "broken," is a rock formed of angular fragments in a matrix which may be of a similar or a different material.

[17] The epoch of the oldest glaciation of the Alpine Mountain about 800,000 - 900,000 years ago.

[18] The epoch of early Pleistocene glaciation occurred after the Gunz-Mindel interglacial of warming about 480,000 - 230,000 years ago.

[19] The epoch of before last maximum middle Pleistocene glaciation of the Alpine Mountain about 75,000 - 250,000 years ago

[20] The epoch of last late Pleistocene glaciation of the Alpine Mountain about 11,000 - 70,000 years ago.

[21] Any loose rock (sediment) larger than 256 millimeters (10 inches).

[22] The shoreline of the Chaudian low saline sea-lake that existed on the place of the Black Sea after the Eopleistocene epoch about 0,35 – 0,73 million years ago. It is located to depths of 100 m under the contemporary sea level (according to our data).

[23] An impression, cast, outline, or track of any animal that is preserved in rock after the original organic material is transformed or removed.

[24] The movement of the sea towards land during the Karangatian century, about 100,000 years ago, when sea terraces were formed along the Black Sea coast at a height of 12-23 m. The Karangatian basin is characterized by higher temperature and salinity of waters compared to the present Black Sea.

[25] A group of microscopic, usually between 20 and 150 µm long, generally single-celled organisms commonly regarded as "Aalgae".

[26] A major phytoplankton group characterized by cells enclosed in silicon frustules, or shells.

[27] Highly abundant, calcified protozoans, are one of the most important oceanic primary producers and are believed to play a crucial role in the regulation of the earths climate through their consumption of CO_2 and the production of dimethyl sulfide.

[28] A large genus of small to medium sized dinoflagellates, some but not all of which are photosynthetic. Nonphotosynthetic species are phagotrophic or osmotrophic.

[29] A layer where temperature drops rapidly as depth increases.

[30] Greek phlogistos, "flammable", hypothetical substance, representing flammability, postulated in the late 17th century to explain the phenomenon of combustion.

[31] A historical people who settled along the northern shore of the Black Sea and presumably made several inroads into Asia Minor (the accounts are confused). After their defeat by the empire of Lydia about the 7th century BC, the Cimmerians disappeared.

[32] Name given by ancient Greek writers to a number of nomadic tribes of southeastern Europe and Asia.

[33] Greek geographer and historian, born in Amasya, Pontus (now in Turkey).

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