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ADVANCES IN BULGARIAN SCIENCE



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NATIONAL CULTURAL-HISTORICAL VALUES AS PART OF EUROPEAN CULTURAL HERITAGE AND MODERN METHODS FOR THEIR PRESERVATION

In the face of new challenges Europe is aware of not only its geographic borders – it should give a new meaning to its political and economic, spiritual and cultural boundaries.

Europe of the 27 is an open, pluralistic, ideologically neutral value, where the language of European policy cannot resort any more to identity understood as a code of a cultural-historical community.

New policies and programs of the European Union for the period of 2007 – 2013 make special accent on relations between culture, education, youth, sports and European citizenship. Co-existence of peoples with different history and culture as a united harmonious community of 460 million Europeans more than ever requires from them to have the necessary knowledge and skills to communicate efficiently and to come easily to mutual understanding. Dialogue between cultures is the main instrument for forming closer relations between the European peoples.

Values and characteristics such as antique heritage, Christianity, Roman law, European humanism, enlightenment, democracy and tolerance are among indicators of European cultural identity. Implementation of the whole complex of these elements shows that there exists historical and cultural community setting its stamp on Europe, on its cultural traditions and heritage. At the same time the way in which separate cultures are formed shows that not all peoples adopt and express them in the same degree.

Bulgaria as a new member of the European Union determines its leading research spheres on the basis of priorities of the national plan for development and European trends. Financial resources of the state are not sufficient for steady and efficient maintenance of all spheres of scientific investigations, so establishing of certain priorities is the right approach in view of the program financing of scientific research. The needs of economic and social development of Bulgaria and availability of the necessary “critical mass” as infrastructure, material basis and human potential for the respective scientific investigations are taken into consideration.

“National identity and cultural heritage” is one of the priority spheres for conducting research investigations during the recent five years.

Major goals of this national priority are:

Building up and renewal of the modern scientific and information infrastructure – physical and human potential, guarantying creation of favourable conditions for investigation of the national cultural-historical heritage and for development of new methods for its preservation.



NACID

National Centre for Information and Documentation

MAIN OBJECTIVES

NACID is:

- The leading institution in the national information infrastructure in Bulgaria in the sphere of education, science and innovations.
- National information center for academic recognition and mobility (ENIC-NARIC center for Bulgaria).
- Contact point to the Directive 2005/36/EC on the recognition of professional qualifications and delegated coordinator for Bulgaria in Internal Market Information (IMI) system.

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- Building and maintaining specialized databases.
- Maintaining national stock and DB of dissertations, deposited manuscripts and other scientific publications in Bulgaria.
- Organizing application of ENIC-NARIC network decisions in the field of academic recognition.
- Realizing information assistance in procedures for academic and professional recognition.
- Performing activities resulting from the functions of ENIC-NARIC center.
- Furnishing citizens and contact points in the rest of the member states with information in connection with recognition of professional qualifications and rights for practicing regulated professions in conformity with the Directive 2005/36/EC.
- Performing functions of institutional contact point of the EU's Seventh Framework Programme.

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- *"Scientific and Technical Publications in Bulgaria";*
- *"Register of the Scientific Degrees and Titles";*
- *"Who is Who in Bulgarian Science;*
- *"Papers".*

"Science and Industry" Databases

- *"Partnership for Innovation and Development";*
- *"Knowledge for Innovations and Development".*

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Central Research and Technical Library (CRTL) with library information complex in pedagogics is one of the largest Bulgarian libraries and main supplier of information in the field of science, education, pedagogics, engineering, technology and economy with more than 4 million registered items, including books, periodicals, dissertations, publications on CD ROM, DVD. It offers:

- Lending of library materials;
- Online access to the library catalogues since 1980;
- Searching in electronic catalogues and databases;
- Electronic Document Delivery;
- Interlibrary loan.

INTERNATIONAL ACTIVITY

- Represents the Republic of Bulgaria in international organizations on the subject of its activities.
- Joint actions and projects with related national information and documentation centers in the EU.

CONTENTS



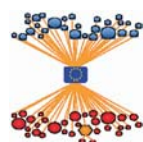
NATIONAL SCIENTIFIC PROGRAMMES WITH EUROPEAN DIMENSIONS 7

- Bulgaria in Europe and for Europe (Culture-Historical Projections) 7
- Archaeometric Investigation of Bone for Determination of the Diet of
Ancient Population of Apollonia Pontica (V – III century BC) 11
- Neolithic and Chalcolithic Settlements: New Archaeometrical
Investigations 16



BULGARIAN ADDED VALUE TO ERA 22

- National Institute of Archaeology with Museum –
Bulgarian Academy of Sciences 22
- National Museum of History in Sofia – Treasury of
the Republic of Bulgaria 27



MADE IN BULGARIA WITH EUROPEAN SUPPORT 34

- Computer Processing of Mediaeval Slavic Manuscripts in
the Institute of Literature, BAS. Repertorium Initiative (1995–2009) 34



EQUAL IN EUROPEAN RESEARCH AREA 40

BULGARIAN VIPs 40

AWARDS 43

ARTICLES 46



EVENTS 49

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NATIONAL SCIENTIFIC PROGRAMMES WITH EUROPEAN DIMENSIONS

BULGARIA IN EUROPE AND FOR EUROPE (CULTURE-HISTORICAL PROJECTIONS)

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Abstract

Bulgaria has always been part of Europe both geographically and with its unique history and culture. However, it is often artificially considered separately due to political and historical reasons. Many states appeared in and disappeared from the map of the Old Continent during the past millennia. However Bulgaria has always survived. Situated on the crossroads between Europe and Asia, the territory of the present-day Bulgaria had been fertilized by the cultures of seven great ancient civilizations that had existed for seven millennia and had deposited their norms and systems of values in the basis of the modern European community. These were the civilizations of the first Prehistoric societies, of the Thracians, of the ancient Greeks, the Roman civilization, the Byzantine civilization, the Bulgarian and the Islamic civilizations. Each of them left priceless historical monuments that would be pride for every museum in the world.

Bulgaria has always been a part of Europe both geographically and with its unique history and culture. However, it is often artificially considered separately due to political and historical reasons. Many states appeared on and disappeared from the map of the Old Continent during the past millennia. However Bulgaria has always survived. The predecessors of the modern Bulgarians were among the first Europeans. They were first in many historical undertakings, and their culture was organically interlinked with that of Europe.

Situated on the crossroads between Europe and Asia, the territory of present-day Bulgaria had been fertilized by the cultures of seven great ancient civilizations that had existed for seven millennia and had deposited their norms and systems of values in the basis of the modern European community. These were the civilizations of the first Prehistoric societies, of the Thracians, of the ancient Greeks, the Roman civilization, the Byzantine civilization, the Bulgarian and the Islamic civilizations. Each one of them left priceless historical monuments that would be pride for every museum in the world.

The oldest manmade gold in Europe was discovered over 30 years ago in the lands of the present-day Black Sea town of Varna during construction works. It comprises objects of almost 24 carat gold with a total weight of 6.5 kg. This unique prehistoric find is dated in the fifth millennium BC. The artifacts had been deposited in the graves of several buried tribe chieftains. The find comprises both adornments and symbols (insignia) of power. The recent (2005) archaeological find from the lands of the village of Dubene, Karlovo Region shows similar in character, too. It dates from the third millennium BC and comprises over 25000 finely made gold necklace elements and adornment for clothes, the majority of which are 1.5 mm in diameter. The perfect manufacturing technique astounds the present-day jewellers, and presents indisputable evidence for the exceptionally high technological goldsmith's skill in that remote epoch. All these contribute to the change in the

notions of the modern science, which believed until quite recently that the centers of the first human civilization came into existence in Asia Minor, Egypt and Palestine. Obviously, the gold Prehistoric civilization that had left traces in Bulgaria had developed in parallel to them.

The gold Thracian treasures from the 5th – 4th centuries BC triumphantly travel around the world ever since the 70s of the 20th century. They are an evidence for the high culture of the Thracians, who inhabited the present-day Bulgarian lands from the end of the 8th century BC to the 7th century AD. According to the ancient historian Herodotus, the Thracians were the most numerous people in the world after the Hindu people. Their culture had been a worthy rival of the ancient Greek culture. Traces of the Thracian civilization are to be found in over 60 000 tumuli in Bulgaria, and just over one thousand of them are studied by the archaeologists up to the present day. Obviously, their study is of great importance. The Thracians did not invent a writing of their own, and everything we know about them we owe to the stories told by the ancient Greek and Roman authors, as well as to the archaeological excavations. The Thracians gave to Europe and to the world Spartacus, the famous gladiator that led the greatest rebellion of slaves in history, as well as Orpheus, the divine musician whose music according to the legend reduced to submission even the wild beasts. Thrace was conquered by the Romans in AD 46 and the Thracians, in their acquired quality of Roman citizens, gave to the world's history emperors like Maximinus, Justin, Justinian the Great, commanders like Velizarius and Narses, builders, philosophers, etc.

The civilization of Hellas, the human ideas of which contributed to the modern ideas of democracy of the present-day European community, had embraced the Bulgarian lands for over seven centuries. This happened through the Greek towns that were established along the Bulgarian shores of the Black Sea during the 7th – 6th centuries BC. Apollonia (the present town of Sozopol) was the undisputable leader and most successful among them. Greek civilizations had an extremely powerful impact in all spheres of life of the Thracians but the most important

one was the spread of the greatest achievement of man – the writing.

The inclusion of the Bulgarian lands for six centuries to the Roman Empire in the 1st century AD radically changed the civilization model. Over 120 Roman towns were built on the territory of the provinces of Moesia and Thrace together with a unified system of roads and strongholds. The territory of the present-day Bulgaria is strewn with imposing remains of the Roman culture: ancient theatres, art masterpieces, mosaics, tombs, etc. And then the catastrophe came.

The so-called "great migration of peoples" began. All big town centers were destroyed as a result of the invasions of the Huns, Carpians, Yazigs, Goths, Avars, Slavs and tens of other peoples that continued for more than two centuries.

The Byzantine civilization that was born after the splitting of the Roman Empire in AD 330 also left significant traces. The Bulgarian lands constituted the predominant part of the European territories of Byzantium and were closest to its capital Constantinople. Dazzling samples of the Byzantine art were created in the centers of the Byzantine civilization – Nesebur, Sozopol, Plovdiv, Sofia, etc. – tenth of churches with priceless frescoes and icons.

In 632 the leader of the Onogunduri tribe Khan Kubrat established an independent state. It embraced the lands in the north of the Caucasus Mountain, and was called Great Bulgaria. It is the only state that appeared on the map of Europe during the great migration of peoples that have survived to the present day with the name given at its establishment. The archaeological monuments from Great Bulgaria are an evidence of the mightiness of the Old Bulgarian civilization. The world famous treasure of Malaya Pereshchepina, which comprises over 700 gold and silver trophies and gifts of honor to the Bulgarian Khan by the rulers of Iran and Byzantium, is one of them. Today this treasure is a part of the exposition of the large Russian museum of Hermitage.

In 680 the soldiers of the Old Bulgarian state led by Khan Asparukh seized from Byzantium the province of Moesia and settled for the first time in the lands that are now part of the territory of modern Bulgaria. During the 250 years



The Panagyurishte
Treasure.
Late fourth – third
century BC.
Meroul Location
Panagyurishte.
Gold.
Total weight. 6.164 kg



Red-Figure Oinochoes. Second third of
the fourth century BC.
Necropolis of Apollonia Pontica.



Artophorion.
Monastery of the Ascension in
Decani, Serbia. 1626.
Cast hammered and open work
silver-gild, blue enamel and
colored glass.

that followed Bulgaria enlarged considerably its territory in cruel battles with Byzantium. It included the lands of Thrace, Macedonia, present Serbia and Romania, and part of Hungary, all of which were inhabited at the time by Slav tribes. Thus, it became the third European political superpower (after Byzantium and the empire of the Franks) that defined the directions of development in the Old Continent.

The powerful armies of Bulgaria stopped the barbarian waves that came periodically from Asia, invaded West Europe and ruined both its population and economy. In 717 the Bulgarians delivered smashing blows on the Arabic tribes that had besieged Constantinople and thus saved Byzantium and the ancient civilization from the first invasion of the Islam.

In 864, during the reign of Tsar Boris I, Bulgaria adopted Christianity as official religion. According to the laws at that time the preaching of the words of God in Greek jeopardized the national consciousness of the Bulgarians. Thus, Tsar Boris I stood by the idea of brothers Cyril and Methodius, Bulgarians from Thessalonica at Byzantine service, to preach by the Slavonic alphabet created by them as early as in 855. The pupils of Cyril and Methodius arrived in Bulgaria in 879, introduced Slavonic in the churches and established schools in each parish. Meanwhile, thousands of teachers, clergymen and monks were prepared in Ohrid and Preslav. They translated into Slavonic hundreds of thousands sermon books. This made possible for the new Bulgarian ruler, Tsar Simeon the Great, to announce the Slavonic writing for official writing in the Bulgarian state and church. This event is one of the most significant in Mediaeval Europe and is a priceless contribution of Bulgaria to the European culture. For the first time on the Old Continent one people professed its faith in God and created culture in its own mother tongue. Thanks to this event a large portion of the Bulgarian population was literate during the Middle Ages. Meanwhile, West Europe had adopted as literature language the dead Latin language that was spoken by clergymen and politicians only, i.e. by not more than 2-3% of the population. Starting from Bulgaria, Bulgarian monks spread the Slavonic writing throughout the Slav world from

the river of Oder to the mountain of Ural. It was used in Serbia, Croatia and Romania until the 18th century, while the Slavonic writing still exists in Russia and Mongolia. Thus, the Slavonic alphabet turned into a mediator that made accessible to these states the acquisitions not only of Christianity but of Antiquity as well.

The medieval Bulgarians also gave the world the most exact calendar in the history of mankind. Twenty five years ago it was promoted by UNESCO to become the united calendar of the entire world.

In the 14th century Bulgaria, being divided in a number of small feudal states, could not withstand the new Islamic invasion, and in 1396 it was conquered for the whole five centuries that followed by the Ottoman Turks. The Bulgarian aristocracy was exterminated and the statehood died away. The civilization of the Islam penetrated the Bulgarian lands and gave birth to valuable crop: hundreds of temples of the new religion (mosques), Ottoman mausoleums, etc.

Bulgaria was revived for a new life on the 3rd of March 1878 after the crushing victories of both Russian soldiers and Bulgarian volunteers. The Turnovo Constitution, accepted by the Great National Assembly in 1878, was one of the most democratic in Europe at that time. According to its texts the new Bulgarian state was hereditary constitutional monarchy with a parliament of one chamber. The Prince of Hesse Alexander I (Battenberg) was chosen for the first Knyaz of Bulgaria on April 17th, 1879. Bulgaria started to modernize and became European at accelerated rates under the leadership of talented Bulgarian statesmen like Stefan Stambolov, Alexander Malinov, Andrey Lyapchev, etc. Towards the beginning of the 20th century Bulgaria was the economically most stable and most dynamically developing country on the Balkans. However, the political development of Bulgaria in modern and present times was condemned tragic. The Berlin Contract from 1878 restored the Bulgarian state but unjustly divided it in several pieces. It established the vassal of the Turkish sultan Principality of Bulgaria and the Province of East Rumelia under Turkish protectorate. Territories of about 150 000 sq.m., inhabited by more than 2.5 million ethnic Bulgarians, in Macedonia, Aegean Thrace,

North Dobrudzha and in Serbia were left outside the borders of the new state. Their problems gave rise to the so-called national question that underlaid the platform of the political development in the country.

The road to the Bulgarian independence passed through the Union of the Principality of Bulgaria and East Rumelia in 1885, when the Bulgarians boldly broke the *status quo* on the Old Continent and the will of the Great Powers. During the Serbian-Bulgarian War the Bulgarians succeeded with blood to defend their right to unite. On September 22nd 1908 Knyaz Ferdinand I rejected the vassal dependence of Bulgaria on the Turkish sultan as a result of a perfect diplomatic action. He declared Bulgaria as kingdom and himself – Tsar of the Bulgarians. However, this did not complete the national union. During

the four years that followed the country led four wars for national independence but did not succeed to realize its national ideal.

On the eve of September 9th, 1944 the illegal pro-communist opposition in Bulgaria performed a coup d'état and usurped the power supported by the bayonets of the Soviet Army that was already on the territory of the country. On September 15th, 1946, after a referendum that was performed under Soviet occupation, Bulgaria was declared Peoples Republic. For more than 45 years it was the most faithful satellite of the USSR. The last communist dictator Todor Zhivkov was deposed by the Plenum of the Bulgarian Communist Party on November 11th, 1989. The country started along the democratic way of development, applying in practice the values of the European Community.

ARCHAEOMETRIC INVESTIGATION OF BONE FOR DETERMINATION OF THE DIET OF ANCIENT POPULATION OF APOLLONIA PONTICA (V – III CENTURY BC)

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Abstract

The determination of the paleodiet is based on determination of the microelement composition of archaeological bones (humans and animals) as well as on determination of the isotope ratios of the carbon ($\delta^{13}C$) and nitrogen ($\delta^{15}N$) in the collagen isolated from the bone materials.

The present investigation has the aim to compare the applicability of the both methods for determination of the paleodiet. For comparison data obtained by both methods analyzing bone remains of the population of the Greek colony Apollonia Pontica from V – III century BC (today Sozopol) will be used. At the same time new data about the diet of the population of the Greek colony will be obtained and comparison will be made with the available data about the diet of the population of Ancient Thrace.

INTRODUCTION

Two approaches may be used for paleodiet determination. The first one is based on archaeo-

botanical and/or osteological investigations and chemical analysis of excavated food remains (see e.g. [McGovern, 2001]). Archaeobotanical investigations of foodstuffs permit to reveal human activities connected with usage of plants and the relative part of vegetable food in the paleodiet. The osteological investigations additionally reveal the type and quantity of consumed meat.

The second approach is based on the use of direct analysis of animal and human bones (see e.g. [Burton, 1996, Burton & Price, 1990; 1991; 1999; 2000; Burton & Wright, 1995; De Niro & Epstein, 1982; Honch et al., 2006; Lambert et al., 1984a, 1984b; Lambert & Weydert-Homeyer, 1993; Lee-Thorp, 2008; Schoeninger, 1989; Schwarcz & Schoeninger, 1991; van der Merwe, 1977; Zlateva, 2003; Zlateva & Kuleff, 2003]).

The composition of bones includes organic and inorganic components. The inorganic component is on the base of hydroxyapatite –

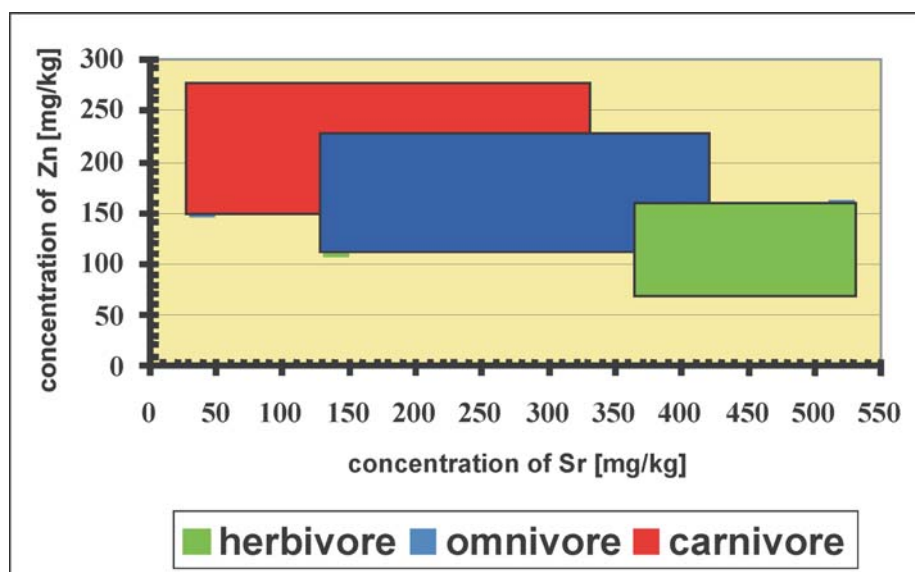


Fig. 1. Values of concentrations of Sr and Zn in bones according to the diet

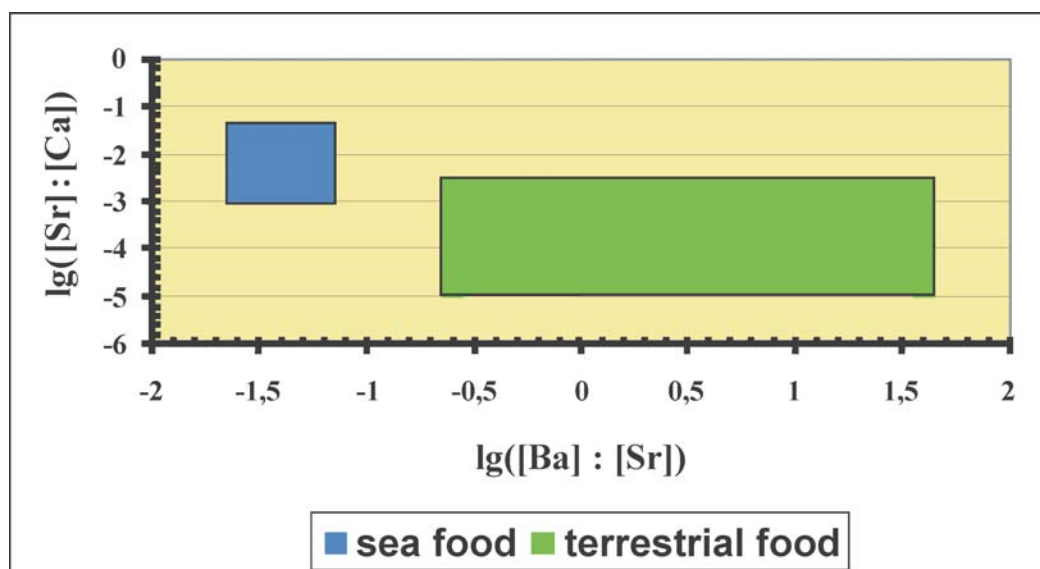


Fig. 2. Values of logarithm of the ratio of concentrations of Ba, Ca, and Sr in bones according to the source of food

$\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$, containing also CaSO_4 and CaCO_3 as well as different microquantities of Al, Ba, Cu, Fe, Mg, Sr, Zn, etc. The hydroxyapatite represents 22% of the bone. Analysing inorganic part of the bones paleodiet could be reconstructed on the base of correlation between the concentration of Ca, Ba, Cu, Sr, Zn in the animal and human bones and different kinds of food consuming [Burton, 1996, Burton & Price, 1990; 1991; 1999; 2000; Burton & Wright, 1995; Lambert et al., 1984a, 1984b; Lambert & Weydert-Homeyer, 1993; Zlateva, 2003; Zlateva & Kuleff, 2003; Zlateva et al., 2003]. The idea about correlation of the concentration of microelements in

the bone is given on Fig. 1 and Fig. 2.

The organic components in bone are lipids and collagen, which represent 12% of bone. The collagen fibres are protein molecules. Dietary reconstruction using stable carbon isotope analysis of collagen is based on the fact that foods differ in their carbon isotope ratio $^{13}\text{C}/^{12}\text{C}$, expressed as $\delta^{13}\text{C}$ and determined by

$$\delta^{13}\text{C} = \frac{\left(\frac{^{13}\text{C}}{^{12}\text{C}}\right)_{\text{sample}} - \left(\frac{^{13}\text{C}}{^{12}\text{C}}\right)_{\text{standard}}}{\left(\frac{^{13}\text{C}}{^{12}\text{C}}\right)_{\text{standard}}} \cdot 1000$$



Fig. 3. Ancient Apollonia Pontica (Sozopol) with necropolis

As standard material for $\delta^{13}\text{C}$ the Belemnites from Pee Dee, North Carolina (USA) are used.

The same is valid for isotope ratio $^{15}\text{N}/^{14}\text{N}$, where the $\delta^{15}\text{N}$ is determined and reflects trophic level of the individual in the food chain – carnivores, omnivores, and herbivores. As standard material for $\delta^{15}\text{N}$ the isotope ratio of nitrogen in the air is used.

This approach for reconstruction of the diet was exploited in a number of publications (see e.g. [De Niro & Epstein, 1982; Honch et al., 2006; Lee-Thorp, 2008; Schoeninger, 1989; Schwarcz & Schoeninger, 1991; van der Merwe, 1977]).

MATERIALS AND METHODS

1. Apollonia. The colony of Apollonia was founded in 610 BC by the city of Miletus in Asia Minor on the site of the present day town of Sozopol on the Black Sea coast of Bulgaria (Fig. 3). The site had a number of desirable characteristics: excellent harbor, good fishing, and an easily defensible location. The colony enjoyed great prosperity during the 5th and 4th centuries BC, with population estimated to have numbered 3000 citizens.

In 1938 on the shore of the Black Sea approximately 2.5 km south of Sozopol a necropolis of Apollonia (see Fig. 3) was discovered. Until now more than 1200 graves were excavated (see [Panayotova & Nedev, 2004; Venedikov, 1963]).

2. Methods of analysis. Using ICP-AES (Spectroflame D) the concentration of Al, Ba, Ca, Cu, Fe, Mg, Mn, Na, P, Sr and Zn in tubular bones of 57 skeletons (16 males; 25 females; 1 child and 15 still not identified) excavated in the necropolis of Apollonia had been determined [Zlateva, 2003; Zlateva et al., 2003].

The isotope ratio in 54 bone samples of rib fragments (23 males; 31 females) was determined using VG SIRA 10 mass spectrometer [Keenleyside et al., 2006].

PRELIMINARY RESULTS

On the basis of analytical data and the knowledge about correlations between chemical composition of bones and the diet following results are obtained:

According to Fig. 4 the investigated remains of the individuals from Apollonia could be divided in 2 groups [Zlateva et al., 2003]. High concentration of strontium is related to the consumption not only of foodstuffs from plants, but also of marine products. The very low data of the ratio $[\text{Sr}]:[\text{Ca}]$ indicates consumption of corn (wheat, barley) as well as of milk. Figure 4 indicates also that a part of the investigated individuals from Apollonia consumed marine food as well as a mixture of marine and terrestrial foods. This conclusion is supported by the low content of barium. Our proposal for marine food was consumption of molluscs, which did not exclude fishes. The diet of the group of 4 people is totally on the food with terrestrial origin. As the 4 individuals are women, we suppose that they are from Thracian origin, perhaps married or slaves (more about in [Zlateva, 2003]).

According to Fig. 5 the diet of the population from Apollonia is enriched in ^{13}C and ^{15}N in comparison to the herbivores [Keenleyside et al., 2006]. This suggests that these humans were obtaining a significant amount of their dietary protein from sea food. Thus the suggestions using both organic and inorganic components of the bone lead to the same conclusion.

According to Fig. 6 the investigated individu-

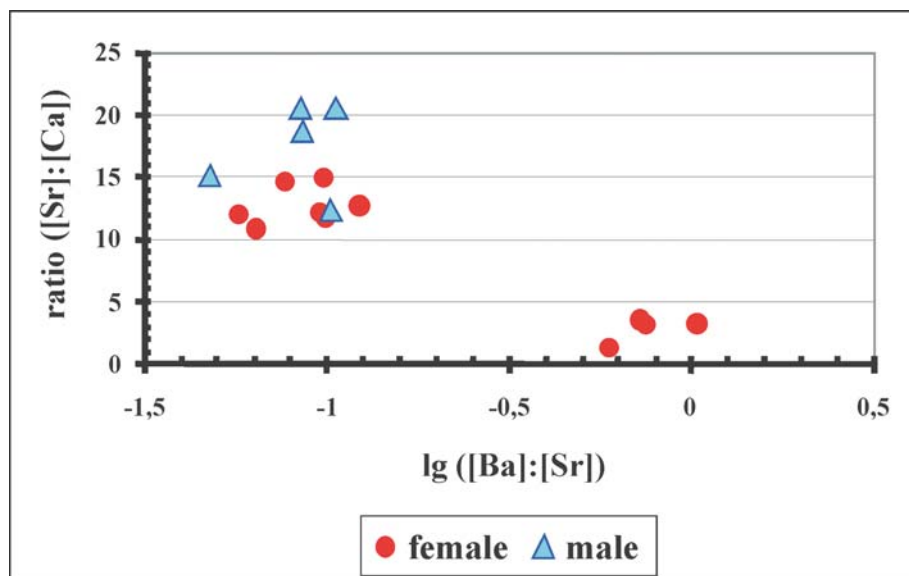


Fig. 4. Bivariate plot $\lg ([Ba]:[Sr])$ versus ratio $([Ba]:[Ca])$ for human remains from necropolis of Apollonia (according to [Zlateva et al., 2003])

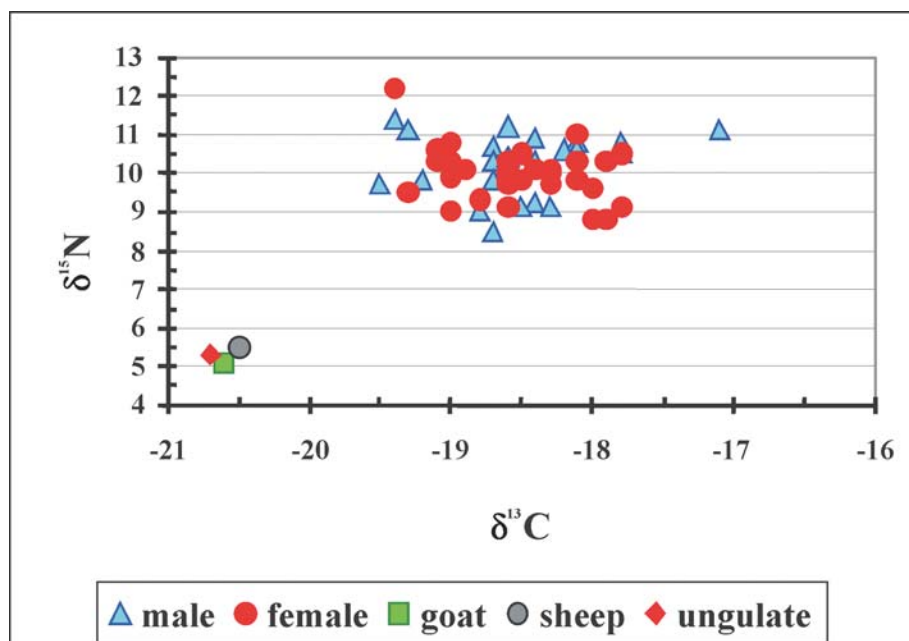


Fig. 5. Bivariate plot of $\delta^{13}C$ vs $\delta^{15}N$ for human and animal remains from necropolis of Apollonia (according to [Keenleyside et al., 2006])

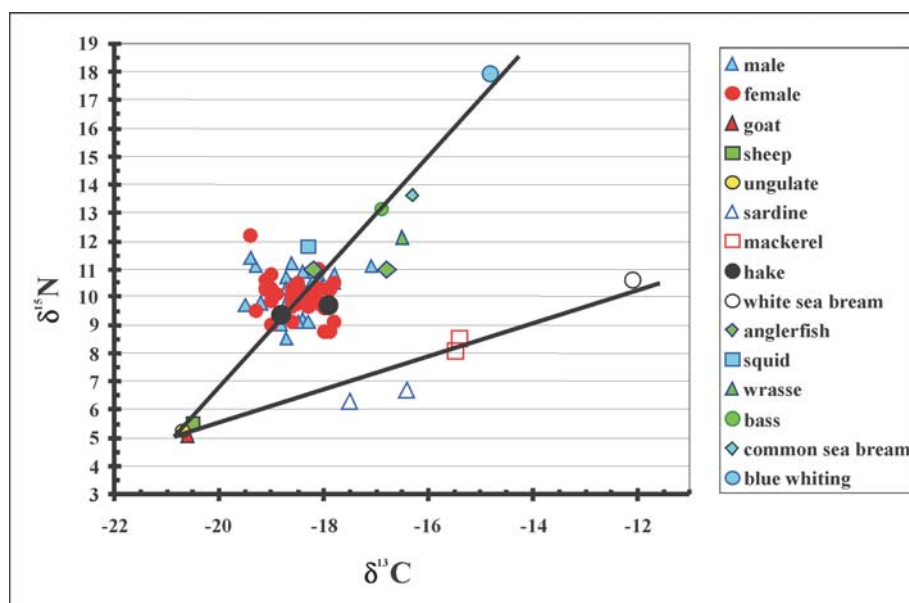


Fig. 6. Correlation of the values of $\delta^{13}C$ and $\delta^{15}N$ of the population of Apollonia Pontica and fishes from the Mediterranean Sea (according to [Keenleyside et al., 2006])

als used sea food like hake and anglerfish [Keenleyside et al., 2006]. That means more fishes in the diet as it was proposed using the data for $\lg([Ba]:[Sr])$ vs. the ratio $([Sr]:[Ca])$ (see [Zlateva et al., 2003]). The latest observation about the diet of the population of Apollonia is a little bit different from the results according to determination of diet on the base of isotope ratio – $\delta^{13}C$ and $\delta^{15}N$. These results will be evaluated with analysis of bones taken from one and the same skeleton using both methods.

The comparison between the results obtained through analysis of organic and inorganic parts of human bones [Keenleyside et al., 2006; Zlateva, 2003; Zlateva et al., 2003] shows that both methods lead to similar results about paleodiet. At the same time the analysis of inorganic part of the bone is easier and cheaper in comparison to determination of $\delta^{13}C$ and $\delta^{15}N$.

In the proposed project analysis of the bones taken from the one and the same skeleton will be carried out and for the first time the results obtained using both analytical methods – analysis of inorganic and organic parts of the bones for evaluation of the paleodiet will be compared.

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NEOLITHIC AND CHALCOLITHIC SETTLEMENTS: NEW ARCHAEOMETRICAL INVESTIGATIONS

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Abstract

The objective of the project "Neolithic and Chalcolithic settlements: new archaeometrical investigations" is to address social issues by studying the changes in the settlement pattern of these periods by means of remote sensing techniques. Some of the key research problems and preliminary results of our magnetometer surveys in north-western Bulgaria are presented.

INTRODUCTION

The increased opportunities for problem oriented research, particularly in universities, are among the positive aspects of Bulgaria's ascension to the EU. The funds received from the thematic competitions on "Cultural Heritage and Archaeometry", organized by the Scientific Research Fund of the Bulgarian Ministry of Education and Science, played a crucial role for the establishment of the Laboratory of Archaeometry and Experimental Archaeology at the New Bulgarian University. Its main purpose is to introduce the students to scientific research practices developing professional skills. The project that will be presented here is a good example of carrying these principles into practice by introducing the students to a cutting-edge technology for field research generating scientifically meaningful results.

The funding for the project "Neolithic and Chalcolithic settlements: new archaeometrical investigations" was partly used for acquiring modern equipment (optical level, handheld GPS, portable cesium magnetometer) for geodetic and geophysical measurements used for documentation in field surveys. These instruments allow fast and reliable evaluation of the size, organization and preservation state of archaeological sites, located over vast areas, such as settlements and graveyards, the remains of which are often covered by considerable amounts of sediments. Traditional methods of archaeological

investigation and documentation of such sites by excavations usually require many years of field work and huge financial investments in study and preservation activities. Contrastingly, the use of geophysical equipment often allows within days to be collected enough data to propose a meaningful estimation of the location and the nature of a given archaeological monument; not least they could be used for planning the field work beforehand.

The application of geophysics in archaeology is particularly useful whenever archaeological sites are endangered by destruction in the course of building works. The potential of magnetometry became increasingly deployed since the 1990's for the planning of long-term excavation projects covering vast sites, such as the Lower town in Troy or Pteria in Turkey [1, 6]. In Bulgaria so far the method had limited application mostly on historical sites from the Iron Age to the mediaeval period [24].

The main objective of the current project is to introduce the practice of magnetometric survey to the investigation of prehistoric sites in Bulgaria, as well as to apply it systematically to a representative sample of Neolithic and Chalcolithic sites in order to trace the regularities and trends in the development of their spatial organization for drawing conclusions about social issues. Training camps during the field work are designed to provide ample opportunities for the students from the Archaeology Department of NBU to take active part in the research and to gain practical skills.

NEW CHALLENGES IN BALKAN PREHISTORY

The increased application of magnetometry in the research of prehistoric settlements in South-Eastern Europe over the last decade brought almost dramatic changes in the understanding of this period. Magnetometric measurements of

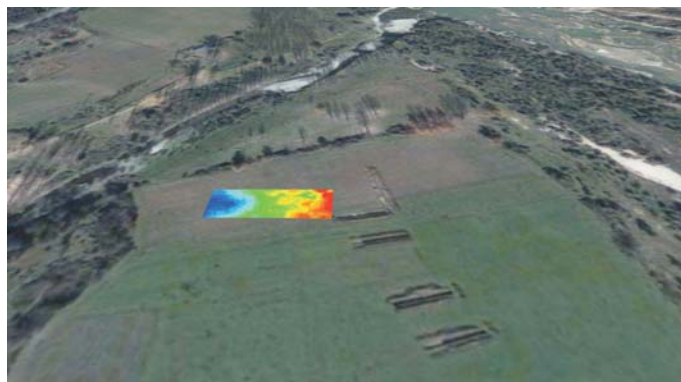


Fig. 1. Varhari. Three-dimensional combination of magnetic survey laid over satellite image, which is draped over 3D terrain model.



Fig. 2. Okhoden-Valoga, view from east.

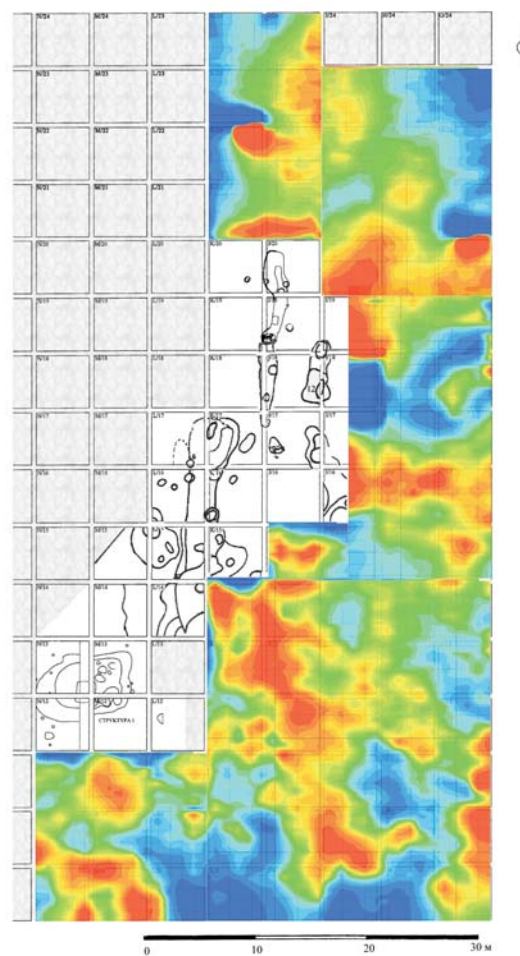


Fig. 3. Okhoden-Valoga. Magnetic survey image.



Fig. 4. Borovan-Ezeroto, view from north.

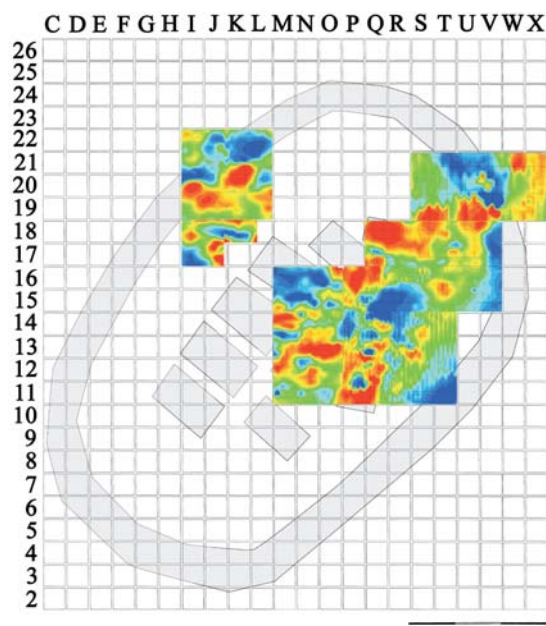


Fig. 5. Borovan-Ezeroto. Magnetic survey image and tentative reconstruction.

Polgár-Csőszhalom and other sites in Hungary, Těšetice-Kyjovice in the Czech Republic, Okolište in Bosnia-Herzegovina, and Ujvar and Pietrele in Romania [8, 9, 12, 15, 17, 18] to name but few, revealed unexpected structural elements of the prehistoric settlement system including complex fortification structures like alternating concentric ditches and wooden palisades, probably indicating certain social unrest. Through magnetometric measurements it was also revealed that a large number of houses are to be expected in the immediate vicinity of the fortified tell settlements. These observations not only challenge the traditional estimations of the number of the size of prehistoric communities but also put forward the question whether such structured habitation reveals in fact a vertical hierarchic structure mirrored in the organization of the inhabited space. Logically these discoveries question the widespread views of the Neolithic as a peaceful period of agricultural activities carried by egalitarian societies [13].

For a large part of the XX century the study of the Neolithic and Chalcolithic periods in Bulgaria was dedicated to the establishment of coherent chronology and periodization of archaeological cultures. Excavations of key sites with multiple phases of occupation, where progressive development of some characteristic remains could be easily traced and used for relative synchronization of the occupation phases between distant sites, played major role for the achievement of this goal.

Application of radiocarbon dating since the 1970's gave further impetus of these studies by providing independent means for establishing the isotope age of the traces of human activity dating back for several millennia. Moreover this method brought the chance to approach prehistoric finds in a way similar to historical sources. One of the main challenges when studying Neolithic and Chalcolithic periods today is to draw socially meaningful information, which could reveal historical processes marking the periods of rise and fall of particular archaeological cultures.

The archaeological studies identified at least two major shifts in the development of the prehistoric societies inhabiting the Bulgarian territory

since the end of the last glacial period. The first is related to the appearance of the first agriculturalists in the early Neolithic (ca. 6 000 BC), the second – to the so-called “domestication of metals” in the early Chalcolithic (ca. 4700-4500 BC). It is considered that until the adoption of crop and animal husbandry, the size and respectively the structure of the human societies are largely dependant on the environmental factors that provide resources needed for the substantiation of their existence. Contrastingly, under favorable conditions, the production of the farmers generates excessive resources and opportunities for population growth. The growing demand for arable land and pastures as well as the dearth of mineral resources of limited provenance and highly prized metallic materials no doubt caused competition and conflict eventually leading to reorganization and restructuring of the prehistoric communities for achievement of better protection of their interests.

The changes in the social structure of the societies from the distant past are best studied through the analysis of two main types of archaeological features – variability of the grave goods and the spatial organization of the settlements. There are very few graves altogether known from the Neolithic and the early Chalcolithic in Bulgaria and so it is hardly possible to use them for drawing general conclusions. Therefore our knowledge about the social development in these periods is mostly based on excavations of settlements. The most extensively studied and published settlements are situated in the north-eastern part of the country and they are often used as models for the general reconstructions of the social process in these periods [20, 21].

In northern Bulgaria the first agricultural communities settled in the immediate vicinity of rivers and water sources, providing plentiful resources for sustaining agriculture and animal husbandry. The villages are often unfortified and lack indications for general building plan (Ovcharovo-Gorata, Usoe) [23]. Their inhabitants lived in oval houses partially dug into the ground. Few centuries later, the early Chalcolithic settlements in the same region are found on naturally elevated places or formed artificial mounds

(tells) that were sometimes skillfully fortified by ditches and palisades (tell Polyanitsa, tell Ovcharovo) [20, 21]. The houses there are free standing, rectangular in plan, and organized into clusters aligned by axially running streets. Similar spatial patterns and building techniques are known from Upper Thrace already in the Neolithic and that is why some consider the possibility that the change in the settlement organization of the Chalcolithic settlements to the North of Stara planina could be due to infiltration of population from the south [23].

In any case it seems certain that the differences in the appearance and planning of the settlements reflect a trend towards centralization and different structuring of the societies of the Chalcolithic period as compared to that of their distant forerunners. In order to advance the knowledge about these periods, it is needed to seek out the reasons and mechanisms that could have brought about such dramatic changes, as well as to determine whether they have local or regional relevance. That is why in the framework of this project we decided to turn our attention to the changes in the settlement patterns of the Neolithic and Chalcolithic periods, particularly in Western Bulgaria. Among the reasons for this choice is that there are registered some of the earliest agricultural settlements (Krainsi, Gălăbnik, Kovachevo, Okhoden) [2, 4, 5, 7, 11], as well as the earliest evidence for copper metallurgy [14, 22].

METHODS OF RESEARCH

Our methods of research are based on a combination of remote sensing techniques and modern technologies for location of archaeological sites using handheld GPS (Garmin GPSmap 60CSx) and free satellite imagery from GoogleEarth. An optical level (Sokkia C-410) is used for setting local grids over the sites, helping the positioning of the geophysical measurements. Cesium vapor magnetometer (Geometrics G-858) is used for measuring local anomalies in the magnetic field of the earth, which may be caused by natural and manmade features. The principle is that a number of archaeological features, such as fired soil, or accumulation of fired artifacts, as well as accumulation or removal of magnetically enriched topsoil during construction

activities among others, could intensify the local magnetic field by forming easily recognizable magnetic anomalies. Magnetometer surveys are considered as the most productive of ground-based remote sensing methods, owing to very fast instrumentation allowing coverage of large areas in short amounts of time [10].

Through cooperation with the partner project ARCITEC (also funded by the Scientific Research Fund of the Ministry of Science and Education) we also started using a differential GPS device (Sokkia GSR1700 CSX) for acquiring the exact coordinates of the magnetometric measurements needed for generating 3D terrain models. Both are intended to ascertain the localization and the future identification of potentially interesting features detected by the magnetometric survey. As a final step, the magnetograms are georeferenced and could be displayed as layers on topographic maps or 3D models of the Earth surface, using mapping software including *Surfer* and *GlobalMapper* (Fig. 1).

The choice of suitable terrain for the pilot studies was of considerable importance for this project. One drawback in the application of geophysics in archaeological surveys is that the method reveals archaeological structures indifferent to their chronological position. That is why it was particularly important to focus on sites, that are currently being excavated and chronological and stratigraphic parameters of which are already defined. Moreover, the results of our measurements could be easily verified in the course of the ongoing excavations by setting test trenches over the perspective anomalies. These conditions were instantly identified at two prehistoric sites in north-western Bulgaria – the early Neolithic settlement at Okhoden-Valoga, as well as the early Chalcolithic site Borovan-Ezeroto. The excavations at both sites are directed by G. Ganetsovski from the Regional Historical Museum – Vratsa.

PRELIMINARY RESULTS

The early Neolithic settlement Okhoden-Valoga has been investigated since 2002 [4, 25]. It is situated in a picturesque spot on the first river terrace of the Skut River (Fig. 2). The excavated trenches reveal the remains of dug-out features, in some of which the remains of their

former inhabitants were found [5]. These are among the oldest human remains discovered in this part of the country. The magnetometric investigations at Okhoden-Valoga were performed in the immediate surroundings of the trenches excavated so far (Fig. 3). They show a number of magnetic anomalies closely resembling in shape and size some of the already excavated dug-out features. This study enabled us to define more precisely the habitation area, as well as to pick up the most perspective areas for setting new test trenches. The renewal of the excavations in Okhoden-Valoga is planned to start in May, meaning that the first verification of our results should be available already this summer.

The investigation at Borovan-Ezeroto started as rescue excavations in the late 2008. Already in the first trenches remains of house structures and small finds dating the site to the early Chalcolithic were discovered. It is located in the immediate vicinity of a powerful spring, on the edge of a natural elevation allowing nowadays excellent visual control over several kilometers of the vicinity. Its general flattish relief, located on mildly sloping terrain, provides no indications about its actual size and plan (Fig. 4).

The use of the magnetometer in search mode allowed the most prospective zone to be located and surveyed. A number of anomalies with rectangular shape and mean size 70-150 m² could be identified (Fig. 5). The comparison to the plans of partially excavated synchronous sites provides solid arguments for their interpretation as built structures (houses). Interestingly, there could be discerned neighboring anomalies with relatively high and low magnetic fields, colored respectively in red and blue. We are inclined to suppose that typically for the houses of this period their walls contained considerable amounts of clay. If they were destroyed by conflagration, as is often the case, the clay floor and plaster would be fired leading to intensification of their magnetic field, owing to the so called thermoremanent magnetism. Contrastingly, the rectangular anomalies showing low magnetism could represent non-burnt or dug-out structures.

Also, there could be recognized a curvilinear anomaly observable along the eastern and the

north-western periphery of the studied area (Fig. 5). It seems plausible to interpret it preliminarily as indication for some kind of negative feature, such as a ditch, encompassing the habitation area of the settlement. Further measurements are planned for tracing the course of this anomaly, and its structure will be revealed by setting test trenches. If the hypothesis about its function as fortification feature is confirmed by these tests, then the model of structural transformation of the settlement patterns from unfortified to fortified settlements developing from the early Neolithic towards the early Chalcolithic will find confirmation also in north-western Bulgaria and will provide further support to the hypothesis for its supra-regional significance.

In the course of rescue excavations some 10 km to the north-east of Borovan-Ezeroto, along the river Skut another early Chalcolithic site known as Altimir-Bresta [3] was excavated. It revealed a number of dug-out features, interpreted as pits for ritual deposits, located outside of the habitation area of the village. This is an indication that excavations focused on the central parts of the villages convey a very partial picture of the settlement pattern and it would be interesting to apply the potential of the remote sensing techniques also to the areas adjacent to the investigated sites.

It is also needed to conduct similar investigations on statistically representative sample of synchronous sites to collect consistent data with scientific significance. Parallel studies on sites from the late Neolithic and the late Chalcolithic could further contribute to the coherent understanding of the social (pre)history of the region as reflected in the changes of the settlement patterns. The results of the pilot application of non-destructive remote sensing techniques on prehistoric sites in Bulgaria already revealed their promising potential giving ground to suppose that their continuation will throw more light on the distant past of our country.

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BULGARIAN ADDED VALUE TO ERA

NATIONAL INSTITUTE OF ARCHAEOLOGY WITH MUSEUM – BULGARIAN ACADEMY OF SCIENCES

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The National Institute of Archaeology with Museum (NIAM) of the Bulgarian Academy of Sciences as academic and museum potential is one of the most significant research institutions in the field of archaeology in Europe. It comes as a successor of two primary state institutions – the Museum of Archaeology and the Institute of Archaeology.

The Bulgarian State's concern to preserve the historical and cultural heritage of the nation is dating as back as from 1878, when the Antiquity Department of Sofia Public Library was established among the first institutions of the newly liberated Bulgaria. On April 5, 1879 it was further developed to Bulgarian National Library and Museum. In 1890 the Law for Search of Antiquities and Support of Scholarly Institutions and Libraries defined that "all the undiscovered materials and ancient objects, wherever they are to be found, belong to the State". On September 23, 1892 the Director of the National Library and Museum transferred officially the collections of antiquities to Vaclav Dobruski - the first Director of the Bulgarian National Museum. The first museum exhibition was opened by tsar Ferdinand in 1905.

Bulgarian Archaeological Society, established in 1901, set in 1920 the basis of the Bulgarian Institute of Archaeology as responsible for independent archaeological excavations and research.

In February 1947 the Bulgarian Institute of Archaeology joined the Academy and in 1948 the National Museum of Archaeology integrated

with the Institute of Archaeology under the common title of Institute of Archaeology with Museum (IAM) of BAS. On January 29, 2007 BAS credited the Institute of Archaeology with Museum with a new statute and changed its name into National Institute of Archaeology with Museum (NIAM) of BAS – a mark of the Bulgarian State's recognition of the public position of the institution and its leading role in the field of archaeological research, training of specialists in archaeology and museum work.

The staff of NIAM numbers 128 people, 106 of them with university and academic degrees. The scholars of NIAM work on the thorough investigation of the material and spiritual culture of the groups, tribes and nations that inhabited the today's Bulgarian territories from about 1 400 000 before present till the XVIII century. The academic structure of the National Institute of Archaeology with Museum comprises five chronological and thematic sections: Section of Prehistory, Section of Thracian Archaeology, Section of Classical Archaeology, Section of Medieval Archaeology, Section of Numismatics and Epigraphy, Department of Interdisciplinary Studies, as well as two Branches for investigation of the ancient Bulgarian Capitals – in Shumen and Veliko Tarnovo; and the National Museum of Archaeology with two departments – Exhibitions and Depots. The National Museum of Archaeology - the greatest and oldest one in Bulgaria, with its renovated exhibitions and high-tech equipment, plays the principal role as one of the most important centres in Bulgaria for studying,



preservation and popularization of the past of today's Bulgarian territory. The specified units of Editorial Group, Research Archives, Accountant's Office, Secretariat and Library serve to the academic activities, administrative, economic and financial issues of NIAM.

NIAM realizes the entire cycle of specific works of archaeological research – field archaeological investigation, laboratory archaeometric investigation, completion the depots of the National Museum of Archaeology with new important artefacts, their conservation and restoration, publication of academic works, magazines and series, organization of permanent and temporary exhibitions of highest academic, educational and aesthetic level, as well as intensive popularization activities.

The National Museum of Archaeology is responsible for development of exposition plans for permanent and temporary exhibitions of NIAM on a national and international level, an academic processing of the museum collections for releasing corpuses, as well as consultant and review activities, modern academic decisions in the field of museumology, development of museum-educational programmes on history and arts designed for schools. NIAM, as well as other museums in the country would play much more active role as educational centres in case the



Ministry of Education and Science itself embraces these opportunities well employed worldwide and includes the museum educational programmes as an element of school education.

NIAM is an educational institution with PhD coursed, while many of its specialists are lecturing at Bulgarian and foreign universities.

Responding to the earnest problems in the field of cultural legislation, NIAM scholars actively

take part in the investigation and work on improvement of the legal order in the Republic of Bulgaria and its harmonization with the legislation of the European Union.

Specialists and scholars of NIAM take part as experts in regular boards, foundations and commissions of institutions outside BAS, as well as in many advisable interdepartmental commissions for valuation of the conditions of the archaeological sites.

For its research and expert activities NIAM also plays an essential role in resolving the problems of the archaeological heritage as a factor for stable development of the country.

NIAM is the basic national institution to carry out a consistent academic policy of professional study and protection of the archaeological heritage of the country, and also its presentation abroad.

In 2008 NIAM issued 15 periodicals and series:

- Archeologia;
- Bulletin of the Institute of Archeology;
- Annual of the National Archaeological Museum;
- Excavations and Research;
- Interdisciplinary Studies;
- Numismatica, Sphragistica and Epigraphica;
- Dissertations;
- Studia Praehistorica;
- Pliska – Preslav;
- Preslav;
- Problems of the Proto-Bulgarian History and Culture;
- Contributions to the Bulgarian Medieval Archaeology;
- Tsarevgrad Tarnov;
- Archaeological Discoveries and Excavations;
- Helis.

A series of volumes dedicated to anniversaries of prominent Bulgarian archaeologists is also in release.

For the nature of the archaeological heritage as a public state property, all the principal activities of the Institute are to be “academic service to the Bulgarian State and society under the conditions of market economy and civil society”.

NIAM is the national centre and coordinator of all the field archaeological investigations on the Republic of Bulgaria’s territory. The Institute

carries out scholarly and methodic control over them. It organizes annual archaeological reports and national archaeological conferences, where scientific and organization problems of the Bulgarian archaeology have been discussed. The Council for Field Research of NIAM, headed by the director of the NIAM, consists of representatives of NIAM, of the Ministry of culture, the National Institute of Monuments of Culture and Sofia University, and gives permissions for archaeological excavations all over the country.

The Research Archives of NIAM are of unique nature and national significance. They keep the archaeological documentation of the annual regular archaeological investigations on the territory of Bulgaria, giving an opportunity of working with it to anybody interested. At present they contain 812 collections that cover the investigated archaeological sites of the past 50 years.

The Library of NIAM holds the total number of 70 782 volumes of academic specialized literature.

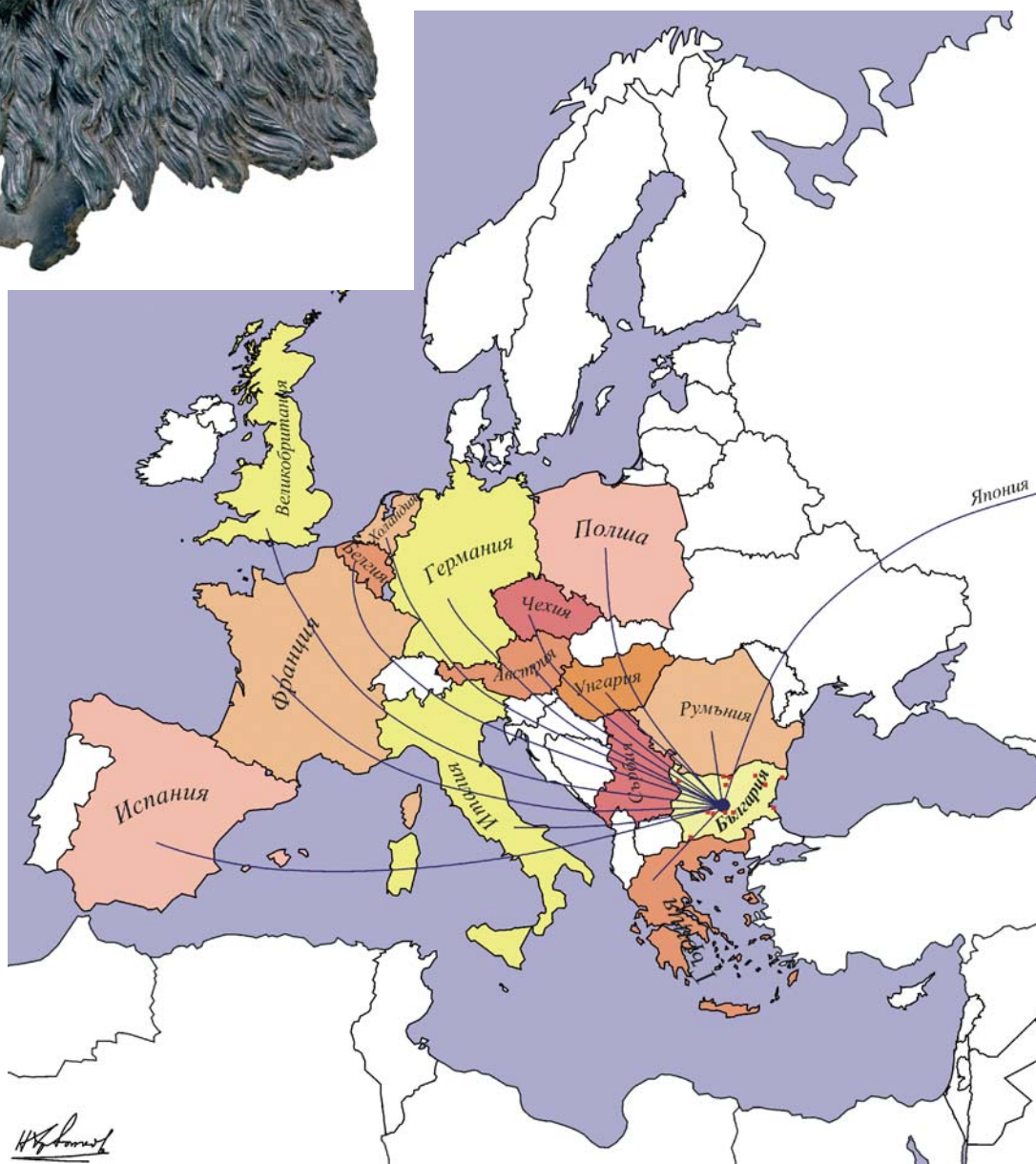
The new equipment of the **Laboratory of NIAM** – a donation from the Japanese government, is the basis for its development as a centre for specialization of young specialists, for scientific analyses and for creation of a database for different materials – clay, metals, etc.

The specialists of NIAM were the first to introduce modern approaches in the archaeological survey and registration of the archaeological heritage in the 80’s of the XX century. **The National Information system “Archaeological map of Bulgaria”**, created by them is used not only for purely scientific purposes, but also for preservation and monitoring of the archaeological heritage, for the needs of construction activities and infrastructural projects, in the struggle against the illegal traffic. It is used by the Ministry of culture, regional and local museums, etc. The creation of the Archaeological map of Bulgaria is only one of the examples for the leading role of science, indicating that freedom of mind and flexibility of organisational forms are of great profit for the society.

NIAM is among the leading institutions to apply **interdisciplinary and archaeometric investigations**. It keeps an active co-operation with many institutes within BAS, as well as out-



Thracian golden mask from the Svetitsata tumulus near Kazanlak.
Treasure Hall of the National Archaeological Museum



Map of the countries involved in international collaboration with the National Archaeological Institute with Museum

side it. Often this co-operation within BAS is a kind of informal one. It relates to realization of joint studies of a particular site, theme or problem, as in many cases it sets the beginnings of development of some new trends. NIAM has realized investigations in the fields of geo-archaeology, geo-physics, archaeo-magnetism, palaeo-seismic activities, anthropology, remote methods in archaeology, joint historical-archaeological studies, laboratory analyses, etc. The number of already realized or discussed contracts and the establishment of consortiums for long-term collaboration in the field of systematic and binding interdisciplinary approaches at various stages of archaeological investigation is increasing quickly.

The scholars of NIAM realize a very close collaboration with other **national, regional and municipal museums** in the country, as well as with **the universities** in the country. There are many joint teams for field and laboratory archaeological investigations.

Especially active is the work of NIAM specialists concerning the **Infrastructure projects** of the National Road Agency, Bulgarian Railways, Transbulgargas, etc. All these academic research works and the results obtained have a direct relation to the economic development of the country, and to the problems of protection of some rare monuments of the archaeological heritage. At the same time, very significant facts have been accumulated concerning some vaguely known aspects of the ancient cultures over the Bulgarian territories.

The sites explored by the NIAM specialists come as a main factor in the development of still another field of the Bulgarian economic life – **cultural tourism**. Almost all of the projects realized up to now supported by PHARE programmes of trans-border collaboration, as well as other programmes, have been carried out with the active participation of the NIAM associates.

NIAM also carries out archaeological investigations of some key sites according to **contracts with many municipalities** in the country, as in future they are to be socialized.

In essence, greater number of archaeological sites explored by NIAM, after thorough study, conservation and restoration, comes as a firsthand and most significant element of the

cultural tourism, a basic factor of stable development of the country.

The long-term archaeological investigations of the Institute contribute greatly to revealing the most significant sites over the Bulgarian territory dating from the Prehistory to the Middle Ages. They elucidate some of the fundamental aspects of their cultural development and provide with data of highly developed civilizations. Considerable number of Prehistoric Tells appears to be the backbone of chronological scales of the development of Prehistoric cultures in the Eastern Mediterranean and South-Eastern Europe, e.g. Kozarnika Cave, the Salt Extracting Centre at Provadia, the Prehistoric settlement near Durankulak, the Tells at Karanovo, Yunatsite and Dyadovo. Spectacular discoveries flash in the field of early Thracian culture as the study of megalithic sites, the rock niches and sanctuaries in South-Eastern Bulgaria – in Tatul, Perperikon, etc. The great Thracian cult and town centres have been revealed as the capital of the Getai in Sboryanovo Reserve and Emporion Pistiros. Outstanding examples of the Thracian sepulchral architecture have been uncovered in the necropolises near Shipka – Sheinovo, Starosel, Alexandrovo, Sveshtari, etc.

Greek colonies along the Black Sea coast are in the process of investigation – Nesebar, Sozopol, Pomorie, as well as significant towns from the Roman and Late Antiquity Age – Novae, Nicopolis ad Istrum, Oescus, Nicopolis ad Nestum, Heracleia Sintica, etc.

Research achievements in the field of early Bulgarian culture are also significant, coming with the work in the Bulgarian capital towns of Pliska, Preslav and Veliko Tarnovo - Trapezitsa, and the early Bulgarian necropolis at Balchik.

In 2008 the specialists of NIAM excavated 260 sites from different periods from all the 370 sites excavated in the country.

International collaboration gets realized on more than 15 projects of inter-academic and inter-institutional level, as well as through development of general themes together with foreign universities, museums, and other academic and cultural institutions: on the field, as well as in the laboratory, and study, training of students and organization of joint academic events. Among

them are excavations of important Bulgarian sites - the **Kozarnika cave**, the **Kovachevo settlement**, **Apollonia Pontica** and **Bizone**, the **Decorative sculpture** along the Western Black Sea Coast - with France, the Bulgarian – Greek projects of the **Yunatsite Tell**, **Promahon settlement** and the **Thracian settlement Halka Bunar**, the Bulgarian-Japanese project of the **Dyadovo Tell**, the Bulgarian-Czech-French-British project of **Emporion Pistiros**, the Bulgarian-Hungarian project of **Avars, Proto-Bulgarians and Magyars**, the Bulgarian-Serbian project on the **archaeological cultures on the territory of Bulgaria and Serbia**, the Bulgarian-Polish project of **Novae** near Svishtov, investigations with Germany on **Gold and Iron**, etc.

International collaboration of NIAM constantly expands as new countries and partners get involved, and the scholarly problems enrich.

Nevertheless, its own academic funds for fundamental research and long-term partnership are still under the necessary level. It will let NIAM participate as equivalent partner on the one hand, and draw in partners, on the other, especially after Bulgaria joined the European Union.

International activities in the field of **museum**

work are also very active. NIAM is a promoter and co-promoter of a series of international exhibitions presenting the newest and most significant archaeological artefacts from the collections of NIAM and the provincial museums, arranged in prestigious foreign museums, as well as of the traditional annual national archaeological exhibition, presenting the most recent archaeological discoveries and takes in *The Night of the Museums* and *The Night of the Scholars* organized annually by the European Union.

In the course of the past 60 years the structure of NIAM has proved its expedience and effectiveness.

The accepted academic policy of integration with other institutions, the broad employment of **interdisciplinary approaches**, as well as the role of NIAM within the system of **protection of the archaeological heritage**, and the cultural and social life of the country, will keep on constantly developing.

Nevertheless, NIAM needs support for further staff maintenance and modernization of the institution as a national research and museum centre, guaranteed funds for fundamental research, for continuation of this policy with a view to even more effective work.

NATIONAL MUSEUM OF HISTORY IN SOFIA – TREASURY OF THE REPUBLIC OF BULGARIA

Tzvetana Kjoseva, Deputy Director

National Museum of History, 16, Vitoshko lale Str., 1618 Sofia, Bulgaria

The National Museum of History (NMH) was established on May 5th 1973 with Decree No. 90 of the Bureau of the Council of Ministers. It is national treasury of the Republic of Bulgaria, storage of relics of world importance and one of the biggest museums of history on the Balkan Peninsula. Over 650 000 cultural monuments and a vast archaeological and historical archives are stored in its collections. This is more than one fifth of the monuments recorded in Bulgaria. Culture-historical valuables were added to the collections of NMH since the beginning of the 90s of the 20th century when several museums were closed: the Museum of Bulgarian-Soviet

Friendship and the National Museum of Revolutionary Movement.

The first representative exposition of the museum was opened in 1984 on the occasion of the 1300th anniversary of the establishment of the Bulgarian state. The museum was accommodated at that time in the Palace of Justice in Sofia and its exposition space was about 10 000 sq. m. In 2000 NMH was moved in a building at the foot of the mountain of Vitosha – in the former Building No. 1 of the governmental residence in Boyana, where the decision for the deposition of the last communist leader of Bulgaria, Todor Zhivkov was taken. Architect Barov

designed the building and it was erected in 1974. The history of the present-day Bulgarian lands (from the seventh millennium BC to the mid 20th century) is presented in the context of the European history by means of over 10 000 exhibits arranged in a space of about 6000 sq.m. The main exposition of the museum is situated in five halls. However, the most distinguished cultural monuments that are found in the Bulgarian lands are also presented temporarily.

Exhibits that are connected with the history of the Bulgarian lands in Prehistoric times – seventh – second millennia BC – are presented in Hall No. 1. Artifacts from the Varna Chalcolithic necropolis (fifth millennium BC) are shown in the central zone of the hall. According to the archaeologists the find presents the oldest manmade gold in the world that precedes in time even those from the ancient Egypt and the Near East. The necropolis comprises 294 graves. 990 gold items with total weight of about 1.5 kg were found in one of them only. The man buried in this grave must have been chieftain or priest of the tribe. Gold artifacts were found in more than 80 of the graves. They are made of almost 24 carat gold and their total weight is about 6.5 kg.

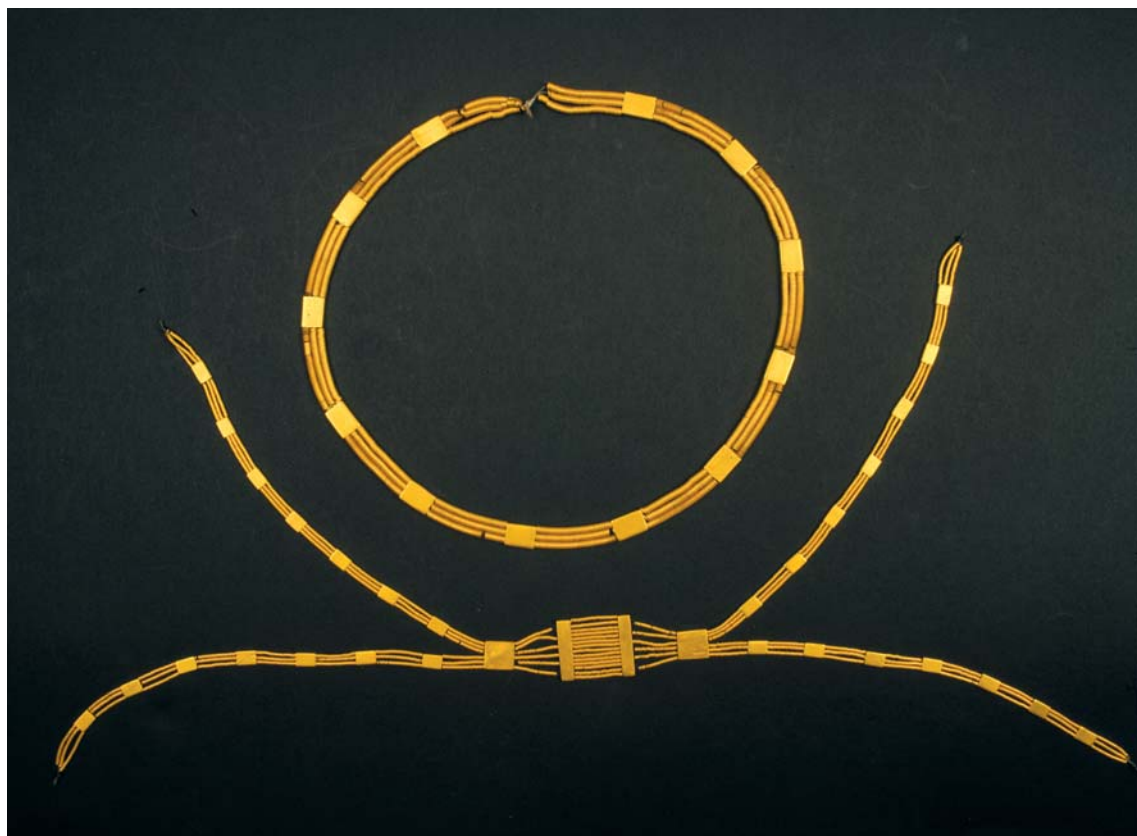
Among the most valuable monuments in Hall No. 1 are the gold strings of beads and adornments for clothes of some tribal chieftain that were excavated from the Early Bronze Age archaeological site near the village of Dubene, Karlovo Region. The find dates from the 3200 BC and comprises over 25 000 single elements. This outstanding find will lead to quite new conclusions concerning the early history of the Southeastern Balkans. The still going on excavations reveal that the gold necklaces from the graves of at least three Thracian rulers, who lived 4300 years ago, are 180 years older than the treasure of Priam in Troy. This fact changes the notions in the world archaeology that the Mycenaean sources of gold, and even those of Troy, were in Greece and in Asia Minor. The abundance of native gold around the river of Tundzha proves that it must have been a real ancient Klondike. On the other hand, the find from Dubene presents us with another enigma – high manufacturing technology. The present-

day archaeologists called the people that deposited these priceless artifacts Proto-Thracians. One possible version is that the master-goldsmiths may have been representatives of some unknown to the science civilization that had existed in our lands but had disappeared in some cataclysm.

Hall No. 2 – Ancient Thrace (end of 6th – 1st century BC – 6th century AD) – is dedicated to the Thracians – the first evidenced in the written sources population in the present-day Bulgarian lands. We learned a lot about them from many ancient Greek authors, including the poems of Homer *Iliad* and *Odyssey*. In the 5th century BC the Thracians established a state of their own – the Odrysian Kingdom – that gradually turned into a first-rate political power on the Balkan Peninsula. According to Thucydides there was no other country with larger income and other riches than the Odrysian Kingdom in the lands between the Adriatic Sea and the Black Sea.

Towards the end of the 4th century BC Seuthes III, the Odrysian king, built his new capital that bore his name – Seuthopolis. It was built in accordance with a preliminary plan. The streets intersected at right angles forming squares with sanctuaries and beautiful statues. The Odrysian Kingdom fell apart after the murder of king Kotys I (389-359 BC). It was under the power of Philip II of Macedon, of Alexander the Great and of Lysimachus for several decades.

Some of the most significant Thracian treasures are presented in the exposition of NMH. They had been discovered by chance or during archaeological excavations of part of the numerous Thracian mounds located in South Bulgaria and in the sub-Balkan region. Here are the gold treasures of Duvanlii (5th – 4th centuries BC), Vratsa, Kravevo (3rd century BC) and Yakimovo (2nd-1st century BC), as well as the world famous gold, silver and silver-gilt treasures from Borovo, Letnitsa, Rogozen (part) and Panagyurishte, dated in the 5th – 4th centuries BC and reflecting the blossoming of the Thracian culture. A large Thracian treasure was found in 2005 during archaeological excavations of a tumulus near the village of Zlatinitsa, Tundzha Valley, Yambol Region. It is dated in the 4th century BC and comprises artifacts that had been deposited as



Necklaces from Tumuli № 3. Early Bronze Age necropolis near Dabene, Karlovo District. Gold.



The Borovo Treasure. First half of the fourth century BC. Borovo, Rouse District. Silver-gilt.

funerary offerings during the burial of a Thracian ruler: helmet with representations of snakes, iron armor, sharp sword and a silver-gilt greave, richly decorated with unique scenes related to the Thracian beliefs. The ruler had worn on his finger a massive gold signet-ring representing *intaglio* himself as a horseman. The gold wreath placed on the head of the ruler is also an insignia of the royal power.

The Thracian lands were included in the borders of the Roman Empire during the 1st century AD. The developed process of urbanization divided the Thracian lands into two worlds: the Greek-Roman one of the towns and the peasant – the Thracian one. The official Roman art developed predominantly in the towns and found its expression in the honoring of the official gods and the cult of the emperor. Sanctuaries were erected around the villages, where the old faith was preserved. Most often they were dedicated to the Heros – chief god of the Thracians. The Thracians continued to pile tumuli and to deposit in them precious offerings, among which chariots were found. Their rich decoration included bronze, silver and silver-gilt appliques, representing predominantly Dionysiac subject-matters. The production of jewelry, small sculpture, cult vessels and vessels for everyday life, etc. continued developing. A large portion of the exhibits in Hall No. 2 – Thracia – participates often in representative exhibitions of the Bulgarian culture abroad.

Hall No. 3 is dedicated to the mediaeval Bulgarian state (7th – 14th centuries). It presents the first state of the Bulgarians – the so-called Great Bulgaria. It was established by Khan Kubrat (632-665) in the basins of the rivers of Dnepr and Kuban. The replicas of some of the items comprising the Malaya Pereshchepina Treasure, identified as part of the funerary offerings deposited in the grave of Khan Kubrat, are presented here as an evidence of its military-political power. Towards the end of the 7th century the Bulgarians seized from Byzantium the lands between the Carpathians and Stara Planina and established Bulgarian Khaganate on the Danube river (681-684). It included the Slav tribes that had settled in these lands as early as in the 6th century. The inscribed columns presented in the

exposition witness to the high sense of the Bulgarians of statehood and historical memory. The exposition also shows symbols of power – a medallion of Khan Omurtag, column attachments and replica of the treasure from Nad Saint Miklos, cup of Zupan Sibin, etc. – that illustrate the cult of the khan and the role of the aristocracy of pedigree among the Bulgarians. Monuments connected with everyday life of the common population are also presented: adornments, amulets, ceramic vessels, etc.

Bulgaria adopted Christianity in 864 and in the 9th and 10th centuries that followed turned into a mighty political power and into a first-rate factor in medieval Europe. Valuable evidence for that progress is presented by the royal seals – *molivdovuli* of Knyaz Boris-Mikhail (852-889), of Tsar Simeon the Great (893-927) and of Tsar Peter (927-970). The Old Bulgarian culture marked its Golden Age. Stone plastics and decorative painted ceramics from the capital Preslav – one of the chief cultural centers of Southeast Europe – rich collections of vessels, breast crosses and adornments demonstrate high achievements in the field of applied arts.

Towards the end of the 10th century the state center was moved under the pressure of Byzantium to the western Bulgarian regions with center in Ohrid. Byzantine state and cultural traditions were established across the Bulgarian lands in the period of the Byzantine reign (1018-1185), which was marked by many rebels against the foreign rule. However, the Bulgarian nationality kept its historical memory.

Evidences of the political and church history, of the power and richness of both rulers and aristocracy, of the blossoming of the medieval town and of the crafts in the period between the 12th and the 14th centuries – a period known as the Second Bulgarian Kingdom – are presented in the western part of Hall No. 3. The exposition shows portraits of Bulgarian rulers and personal objects: the largest Bulgarian medieval gold signet-ring (61.15 g), which was owned by Tsar Kaloyan (1197-1207) and eleven treasures comprising adornments of gold and silver, as well as coins, etc. Objects related to the history of the Ohrid Archbishopric that had inherited the fame of the first Bulgarian patriarchs are presented in the cen-



Archbishop's mitra. Brass, gilded, coloured stones; medallions - wood distemper, portraits of the four Evangelists. XIX century.



Double-Sided Icon of Christ Pantokrator and the Deposition from the Cross. Obverse: Fourteenth century. Reverse: Eighteenth century. Unknown provenance.

tral space of the hall together with items connected with the Turnovo Patriarchate (1235): seals of various patriarchs, valuable items of gold, silver and jade. The mitre of the Ohrid archbishops stands out among them.

Two fateful dates frame the history presented in Hall No. 4: 1396, when the Ottoman Turks seized the territory of the medieval Bulgarian state by fire and sword, and 1878, when Bulgaria was revived for new political life with the signing of the San Stefano Peace Treaty by the Russian and the Ottoman empires. This almost five-century existence of the Bulgarians under Ottoman rule may be divided into two large periods: 15th – 17th centuries, called late middle ages, and 18th – 19th centuries, the epoch of the Bulgarian National Revival.

The Ottoman seizure shook the Bulgarian feudal society from its fundamentals. The aristocracy was liquidated or assimilated, while the workers of the cultural and literature centers were forced to seek for deliverance abroad. The towns gradually acquired Oriental character. The Bulgarians as "infidels" were deprived of political rights. The Bulgarian church was subjected to the Constantinople Patriarchate. The enforced by the Ottomans state and economic system was orientated towards the military expansion inspired by Islam. The exposition presents from that time objects that symbolize the Ottoman doctrine, as well as items of everyday life of the Bulgarians: objects used in everyday life as well as pieces of luxury, jewelry and embroidery, weapons, etc.

The spiritual life of the Bulgarians under Ottoman rule moved into the cloisters. Unique pieces of art are shown in Hall No. 4: icons, murals, church plates, jewelry, textiles and manuscripts.

During the epoch of the National Revival the Bulgarians attained progress in both economy and culture, and started to fight for their liberation. This process was part of the pan-Balkan revival that had been influenced by the ideas of the Renaissance and the Enlightenment. It was a time for diffusion of capitalistic manufacturing forms, for development of modern political way of thinking and culture – from the first national manifest of the Bulgarians, *Slavo-Bulgarian History*

(1762) by Paisy of Chilandari, to the political programs for national liberation of Georgi Sava Rakovski, Lyuben Karavelov, Vasil Levski and Khristo Botev in the 60s – 70s of the 19th century.

The exposition presents the first New Bulgarian printed book, the first Bulgarian Primer Book by Dr. Peter Beron, the epochal document on the establishment of the Bulgarian Exarchate that points out the ethnic boundaries of the Bulgarian nation among the Christian subjects of the Sultan, together with: weapons, flags and awards from the fights for national liberation with an accent on the April uprising from 1876 and the Russian-Turkish Liberation War in 1877-1878. The big cross from the chapel in San Stefano, where the peace treaty was signed on March 3rd 1878, symbolizes the revival of Bulgaria for new political life.

The exposition that treats the Third Bulgarian kingdom (1878-1946) embraces the period from the restoration of the Bulgarian state in 1878 to the date in 1946 when it was declared Peoples' Republic. The provisions of the Berlin Peace Treaty (1878) divided unjustly the country into several parts. They established the autonomous Principality of Bulgaria, which was vassal of the Ottoman Empire, and the province of East Rumelia, which was under the direct political and military power of the Sultan. Over 2.5 million ethnic Bulgarians were left outside the Principality of Bulgaria.

Over 900 exhibits present fundamental moments of the political, economic and cultural development of the Third Bulgarian Kingdom: the first Bulgarian constitution (the Turnovo Constitution, 1879), the unique lithography "United Bulgaria" by Nikolai Pavlovich, the public act that declared independence of Bulgaria and its proclamation as kingdom in 1908, relics from battles in the wars for national union (1912-1918), unique objects that are related to the rescue of the Bulgarian Jews from their being deported to the Nazi concentration camps (1943) and to participation of Bulgaria in the World War II (1941-1945), the bell by which Bulgaria was proclaimed People's Republic at the Bulgarian parliament in 1946, etc. Important place in the exposition is reserved for Bulgarian monarchs – Knyaz Alexander I, Knyaz (Tsar) Ferdinand I and Tsar Boris III

— as well as for eminent politicians, scholars, writers and cultural workers that played an important role for the construction and development of Bulgaria, and its turning into a modern country of European model. Objects from the interior of royal palaces, personal belongings of the members of the monarchic dynasty, etc. stand out among the exhibits.

Several separate thematic halls are a permanent part of the exposition of NMH.

Hall No. 9 is devoted to the ancient town of Apollonia Pontica (*pres.* Sozopol) that was established in the 7th century BC by settlers from the Ionian town of Miletus. It was the largest *apoikia* (Greek daughter city-state) on the western coast of the Black Sea. It played an important role in the processes of mutual acquaintance between Thracians and Hellenes. Many painted lekithoi (vessels for ointments and aromatic resins), painted vases showing painted scenes with Amazons, toys, etc. are displayed.

Hall No. 10 presents elite exemplars of the numismatic collection of NMH. Numerous hoards and single exemplars of ancient and medieval coins exposed in this hall characterize Bulgaria as a true coin treasury. Here are shown pre-coin forms of money, ancient coins minted in various foreign towns and rulers from the period between the 6th and the 1st centuries BC, silver denarii of the Roman Republic, Roman Imperial coins of gold, silver, bronze and copper, Byzantine coins (6th – 14th centuries), as well as exemplars of the Bulgarian medieval coinage (12th – 14th centuries).

In the Ethnography Hall a visitor will be able to enjoy the unique handmade costumes and adornments from the period of the National Revival, as well as objects of everyday life, objects related to the calendar Christian feasts, etc.

The museum has a beautiful park with lapidary of memorial and epigraphic monuments from ancient times, tombstones from the period of the National Revival and stone plastically molded elements of Christian churches.

The NMH organizes large representative exhibitions abroad that present the ancient Thracian and Old Bulgarian culture. The museum edits its own annual collection of scientific papers – *Izvestiya na NIM* ("Proceedings of the

NMH"), albums of its unique collections, guides, monographs and collections of scientific papers concerning a broad range of questions. These issues and other thematic books may be purchased at the museum shops.

Several other interesting historical buildings are also part of the National Museum of History: **Boyana Church National Museum** (a unique monument of the East European medieval art, 1207, protected by UNESCO, 2 km from NMH); **Monastery of Zemen** (a remarkable creation of the Bulgarian architecture and wall-painting of the 11th century, located in the vicinity of the town of Zemen); **Steamship Radetzky National Museum** (a national relic related to the heroism of the members of the detachment of Khristo Botev who died for the liberation of Bulgaria in 1876, restored as an exact copy of the legendary for Bulgaria original steamship with the donations of 1 200 000 Bulgarian children); **Bulgaria and the Slav's World Museum** that stores over 70 000 culture-historical monuments related to the connections between Bulgaria and Russia and the other Slav's countries; the **Forty Martyrs Church in Veliko Turnovo** (built in the 9th century, reconstructed in honor of the victory of Tsar Ivan Asen in the Battle of Klokotnitsa in 1230, preserved the graves of Tsar Kaloyan and of St. Sava of Serbia); SS Theodore Tiron and Theodore Stratilata Church in the village of Dobursko, Razlog Region (built in 1614, it shows painted images of a whole gallery of warrior-saints).

About 160 people – historians, archaeologists, art historians, ethnographers, philologists, restorers, security people and technical personal – work at the National museum of history and its subsidiaries. The Central Laboratory for Conservation and Restoration, which is the biggest one in Bulgaria, is also part of NMH. It comprises specialists in conservation and restoration of exhibits made of almost all basic materials.

The Museum works everyday. Sunday – free entrance.

For further information and requests: Phone: (+359 2) 955 42 80; Fax: (+359 2) 955 76 02

For additional information, visit the website of NMH and its subsidiaries:

<http://www.historymuseum.org/>;

<http://www.seebg.net/NacionalenIstoricheskiMuzei/>.



MADE IN BULGARIA WITH EUROPEAN SUPPORT

COMPUTER PROCESSING OF MEDIAEVAL SLAVIC MANUSCRIPTS IN THE INSTITUTE OF LITERATURE, BAS REPERTORIUM INITIATIVE (1995–2009)

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The application of computer technologies to store, publish and – most importantly – investigate written sources belongs to the most promising tasks at the boundary between technical sciences and the humanities. The Repertorium Initiative was founded in 1994 at the Department of Old Bulgarian Literature of the Institute of Literature of the Bulgarian Academy of Sciences in collaboration with the University of Pittsburgh (US). The Repertorium is a universal database that incorporates archeographic, paleographic, codicological, textological, and literary-historical data concerning the original and translated medieval texts distributed through Slavic manuscripts between the eleventh and the seventeenth centuries. These data include both parts of actual texts and the results of their scientific investigation, with particular attention to the study manuscripts typology, a traditional aspect of philological scholarship that has been reinvigorated by the introduction, through the Repertorium Initiative, of computational methodologies.

1994–1995

Bulgarian-American project "*Computer-Supported Processing of Old Slavic Manuscripts*" began in 1994, sponsored by IREX – Washington (1994–1995). A new type of software was built, which was based on the SGML (Standard Generalized Markup Language) accepted by the International Society of Standardization (ISO), and especially in its TEI (Text Encoding Initiative) im-

plementation. The goal of the project was to create a sophisticated system of processing Slavonic Manuscripts in the universal format with multiple using.

The system for computer analytical description of medieval Slavic manuscripts was carried out in the process of the teamwork of David Birnbaum, Milena Dobрева, Institute of Mathematics and Computing at BAS, Beirend van Dijk, who was then a post-graduate student at University of Groningen (The Netherlands) and Harry Gaylord, who taught computer systems in the same University. The experiments on the program, using tests, continued almost to the end of 1994. In July–August of 1995, the last changes and specifications in the system of document type definition (DTD) were made during the visit of David Birnbaum in Sofia also together with Andrey Bojadziev from Department of Cyril and Methodius studies at Sofia University. Andrey is an author of a very sophisticated system for description of the language in the system of metadata.

The description used here is *specifically* intended for the developing of a Repertory of the Old Bulgarian literature and letters and is adopted for Medieval Slavic texts. The development of fonts for writing the original texts in Medieval Cyrillic belongs to research associate Rumyan Lazov from the Institute of Mathematics and Computing at BAS. The complex description of Slavic manuscripts is built by the stand-

ard of Standard Generalized Markup Language (SGML), which was accepted by the International Society of Standardization (ISO). This electronic standard is based on the ability to include special “markings” in the texts of natural languages, the so-called tags. Tagging circles certain parts of the text and signals what the data represents. It makes very easy to draw out data from the text during its computer processing. This standard was used for the first time in the description of Medieval Slavic manuscripts and for including *an arbitrary* (free from limitations) sizes of non-normalized texts from the manuscripts themselves in the process of description. Our SGML-based undertaking was oriented not only toward preparing manuscript descriptions that might be suitable for printing, electronic rendering, and searching, as was the case with the data-base’s approach. Rather, we anticipated even at that stage that the manuscript description files would be suitable for direct analysis, so that we would be able, for example, to identify patterns of structural similarity within a corpus of manuscripts on the basis of the same raw data files that we would also use to generate traditional printed manuscript descriptions.

The team has followed five main principles, formulated by David J. Birnbaum (see — <http://www.slavic.pitt.edu/~djb/>): 1. Standardizing of

document file formats; 2. Multiple use (data should be separated from processing); 3. Portability of electronic texts (independence of local platforms); 4. Necessity of preservation of manuscripts in electronic form; 5. Orientation to the well-structured divisions of data according to the Slavic traditions of codicology, orthography, paleography, textology, etc.

The system for encoding of medieval Slavic text (TSM) was discussed on an international conference in Blagoevgrad (24th–28th July, 1995). The reports from the conference were published in a separate volume. The philosophy of SGML helped to settle some well-known misunderstandings among palaeoslavists concerning philological questions of terminology, inventory of units, character sets and data structure.

1996–1999

During the period from 1995 through 1998, a team of scholars based primarily at the Institute of Literature at the Bulgarian Academy of Sciences produced SGML descriptions of some 150 medieval Slavic manuscripts of all types.

At the same time, the Institute of Literature entered into a project with Ralph Cleminson at the Central European University entitled “Computer-Supported Processing of Slavonic Manuscripts and Early Printed Books”, which led to the encoding of additional manuscript descriptions and publication of several articles addressing the technology underlying the project. Ralph

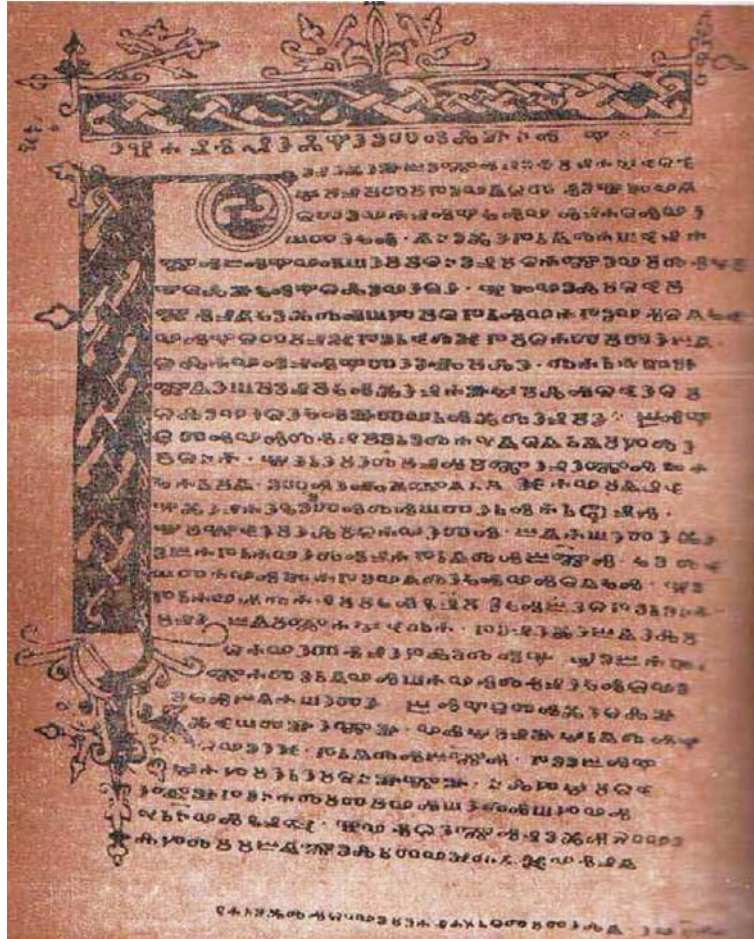


Fig. 1. Codex Marianus, Tetraevangelion, written in Glagolica, the end of the 10th c.

Cleminson, David Birnbaum, and others presented the results of their research at the Twelfth International Congress of Slavists in Kraków in 1998, where the International Committee of Slavists established a Special Commission to the Executive Council of the Committee for the Computer-Supported Processing of Slavic Manuscripts and Early Printed Books. The Commission's authorization was renewed at the Thirteenth International Congress of Slavists in Ljubljana in 2003. Participants from Austria, Bulgaria, Czech Republic, Germany, Italy, Macedonia, Great Britain, the US, etc. put on discussion some mainstream questions in the field. At the Fourteenth International Congress of Slavists in Ohrid, 2008 a round table took place, in which including of the Old Cyrillic character set in Unicode 5.1 was discussed on the base of the *White paper* prepared by the members of the Commission: David J. Birnbaum, Ralph Cleminson, Sebastian Kempgen, and Kiril Ribarov (*Scripta & e-Scripta*, 6, 2008, 161–193).

2000–2005

For five years amount of analytically described manuscripts increased to three hundred. Members of the team were: Anna Stoykova, Nina Georgieva, Elena Tomova, Adelina Angusheva, Andrey Boyajiev, Margaret Dimitrova, Dimitrinka Dimitrova, Desislava Athanasova, Maya Petrova-Taneva, Radoslava Stankova, Dilyana Radoslavova, and Anissava Miltenova. The book under the title: "MEDIEVAL SLAVIC MANUSCRIPTS AND SGML: PROBLEMS AND PERSPECTIVES" (Sofia, 2000) is sponsored by IREX and Central European University). The articles in the book not only put into scientific circulation the achieved results from the analysis of the manuscripts, but also mark the problems that are waiting to be solved. The web page of the Repertorium was developed at that time (<http://clover.slavic.pitt.edu/~repertorium/>).

A continuation of the original project, "Electronic Description and Edition of Slavic Sources" (2002–2003, sponsored by UNESCO), was in a transitional stage of migrating from SGML to XML technology. In 1994–1995, when the SGML DTD for the project was first constructed, *Extendible Markup Language* had not yet been conceived. Since then electronic and web technologies have changed very rapidly, and now we have

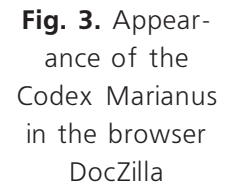
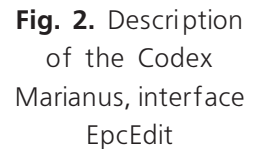
tools that are very convenient for direct browsing and editing the markup files. Direct access to XML documents from such popular browsers as *Internet Explorer*, *Opera*, or the *Gecko-engine* powered ones, as *Mozilla*, *Doczilla*, and *Netscape*, provide more control and efficiency. This fact, together with the development of special recommendations for the markup languages produced under the auspices of the *W3 consortium*, *Unicode*, and other institutions and international initiatives, has led to a rapid growth of academic applications based on XML technology.

So, this stage is characterized not only by accumulation of still more manuscript descriptions, but also by a conversion of our materials from SGML to XML. The transition to XML was dictated by the remarkably broad acceptance of XML within the electronic-text community, and particularly by its adoption by the TEI, initially as an alternative to SGML, but ultimately as a replacement for it. We have currently converted over one hundred manuscript descriptions from our initial corpus of three hundred; the rest will be converted in time, and all new descriptions are being created directly in XML.

Presentation of David Birnbaum at the Thirteenth International Congress of Slavists in Ljubljana (2003) demonstrated a new level of document multipurposing: the generation directly from TEI XML manuscript descriptions of dendrograms that illustrated the degree of structural similarity among miscellany manuscripts and SVG plectograms showing the item-by-item correspondences in the contents of pairs of manuscripts. Andrey Boyadzhiev's presentation at the Ljubljana Congress illustrated the use of the same files to produce prose descriptions suitable for publication electronically or on paper.

2006–2009

At the beginning of Repertorium project we had concentrated on the production of manuscript descriptions based on the promise that one would be able to employ them directly in computer-assisted analysis at some point in the future. Recent years had shown that the descriptions were suitable for use in a range of analytical applications, but primarily within a fairly low-level query framework that did not take full



advantage of the hierarchical XML structure. David's work showed that radically new non-textual representations of manuscript structures were available essentially for free from the same files that were used to produce formatted descriptions. This development demonstrated that computers did more than provide a new way of performing such traditional tasks as producing manuscript descriptions. Rather, the production of electronic manuscript descriptions enabled new and innovative philological perspectives on the data. Not only did it make traditional activities easier and more reliable, but it also created opportunities for radically new philological research.

Most important achievement during the recent years is Repertorium Workstation, in which we put experimentally 103 manuscripts (<http://clover.slavic.pitt.edu:8080/exist/mss/index.xml>). The corpus is searchable concerning by contents of manuscripts (scientific and original titles, and incipita) and by repository information. It is also possible for a specialist not only to extract archeographic data with full verification, but to build a tree for comparing of the content of the manuscripts and to receive a visual picture of it in SVG format.

The project "SLOVO: Towards a Digital Library of South Slavic Manuscripts" (2007–2008) obtained funding from the Austrian Science and Research Liaison Office (ASO). One of the main goals of the project is application of the established standards and methods in information technology to the specific field of Slavic written heritage materials. The project participants are the Department of Old Bulgarian Literature, Institute of Literature, Bulgarian Academy of Sciences (coordinator); Institute of Literature, University of Skopje, Republic of Macedonia; Institute of Literature, Centre for Scientific Research, Slovenia; Institute of Balkan Studies, Serbian Academy of Sciences and Arts, Belgrade, Serbia; and Institute of Slavic Studies, University of Vienna, Austria. Within the frames of the project a conference and workshop took place (Sofia, 2008). The materials were published in a book with proceedings.

The project SLOVO corresponded to the Seventh Framework program of the EU for creating

digital libraries of European cultural heritage, in this case concerning the common European heritage of the South Slavs and the Central Europeans. Participants in SLOVO proceed from an assumption that an integrated approach to the Slavic cultural heritage (manuscripts, archival documents, icons, photographic collections, etc.) is the best way of facilitating their preservation, dissemination, and study. The definition of problems and transfer of knowledge in the field of encoding Slavic manuscripts was happened not only among institutions of the five participating countries (Austria, Bulgaria, Macedonia, Serbia, and Slovenia), but also with conference participants from Germany, Russia, Hungary, the UK, and the US. Very productive dialogue of developing international standards for presentation and multifunctional investigation of medieval texts and manuscripts in the context of contemporary information technologies was a fact.

At this stage the working team of the Institute of Literature, Bulgarian Academy of Sciences is also working on the next projects:

1. Joint projects with the British Library, London, for electronic catalogue of collection of Slavic manuscripts (Working team: Anissava Miltenova, Andrey Boyadzhiev, Dilyana Radsolavova, Ralph Cleminson, Katya Rogachevskaja with co-operation of Central Library of BAS – Dincho Krastev and Sabina Aneva).

2. Joint project with Gothenburg University, Sweden, for implementation of computer tools in the study of late mediaeval Slavic manuscripts and creating a base for digital library corresponding to the requirements of the EUROPEANA (working team from the Institute of Literature BAS).

3. The national project "Metadata and electronic catalogues" (Institute of Literature, Institute of Bulgarian language, Sofia university) is concentrated on the terminology in palaeoslavistic. The project has been supported by the National Science Fund and includes somewhere about 570 denotations and terms in the field of genre theory, archeography, palaeography, textology, language, etc., which are included into an electronic dictionary in the Moodle environment.

4. Collaboration with the Library of the Rus-

sian Academy of Sciences, St.- Petersburg, directed to build a network for exchange of contents data of Slavic manuscripts in XML and to realize joint electronic editions (working team from the Institute of Literature BAS with cooperation of the Central Library of BAS).

5. Ongoing is also a project with the Slovenian Academy of Sciences and Arts about implementation of computer technologies in editions of Old Slavic written monuments (Anissava Miltenova and Elena Tomova from Institute of Literature, and Matija Ogrin from the Centre for Scientific Research, together with Alenka Kavčič-Čolić from the National Library in Ljubljana).

Contemporary scientific study of the European medieval written heritage is not yet sufficiently developed with respect to Slavic philology,

history, linguistics, and culture. The potential impact of the SLOVO project is visible in a scholarly and educational sphere. One of the principal achievements of the project is integration of specialists from such different fields as history, linguistics, literary studies, library science, and information technology. Scholars in these areas agree on the need for an interdisciplinary approach to the digital preservation of valuable text sources from the distant and recent past and their presentation in EUROPEANA. In addition to providing metadata of high quality, the outcome of the project is a pilot portal (<http://slovo-aso.cl.bas.bg/>), which intends to demonstrate realization of the best practices and implementation of standards in a specific application area that is the Slavonic cultural heritage.



EQUAL IN EUROPEAN RESEARCH AREA

BULGARIAN VIPs

Prof. IVELIN KULEFF, DSc

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Professor in the field of radioanalytical chemistry, author and co-author of more than 150 publications in Bulgarian and international journals.

Prof. Dr. Ivelin Kuleff, DSc was born on 05.07.1942 in Shumen, Bulgaria. He finished his secondary education in Sofia in 1960 and from 1962 studied chemistry at Faculty of Chemistry of the University of Sofia. He graduates as a chemist in inorganic chemistry in 1967 and from the autumn of the same year is a probationer-assistant in radiochemistry at the Chair of inorganic chemistry of the Faculty of Chemistry. In 1984 he moves to the Chair of analytical chemistry, where organizes the work of the newly raised Laboratory of radioanalytical chemistry, where he works now.

During 1971/72 as a fellow of the IAEA in Vienna he worked in the field of hot atom chemistry at the Institute of the Nobel award winner Prof. Rudolf Mößbauer at the Technical University in Munich, Germany.

In 1980 he presented his PhD thesis titled: "Neutron activation determination of the content of uranium in rocks, minerals and natural waters" and was conferred the scientific degree – doctor. In 1989 he obtained the academic title of associate professor of radioanalytical chem-

istry. In 1997 he presented dissertation titled: "Archaeometric investigations by neutron activation analysis" and was conferred the title of doctor of science.

During 1993 he worked together with Prof. Ernst Pernicka at the Institute of Nuclear Physics of Max-Planck Gesellschaft in Heidelberg, Germany on the common project about investigation of the oldest archaeological metal finds from Bulgaria. In the period of 1999-2001 he was a guest-professor at the Institute of Archaeometry of the Bergakademie Freiberg, Germany, where he delivered lectures on Physical methods of analysis and Radioanalytical chemistry for students of archaeometry. During the summer semester of 2004 he was a guest-professor at Johann-Wolfgang Goethe University in Frankfurt am Main, Germany, where he delivered lectures on Archaeometry for students of archaeology.

The main research field of Prof. Kuleff is radioanalytical chemistry – development of the neutron activation analysis and application of the method for analysis of different objects. At the same time during the recent 25 years he works using INAA, ICP-AES, ICP-MS and other analytical methods for analysis of archaeological finds with the aim to determine the origin of the raw materials as well as the technology for preparation of the finds. Prof. Kuleff is author and co-author of more than 150 publications in Bulgarian and international journals. He is one of the translators of the textbook "Instrumental Analysis" (two editions) and chapters in 5 collective monographs edited by famous publishing companies.

Prof. Kuleff prepared and delivered lectures on the following university courses: Nuclear chemistry and radiochemistry, Radioanalytical chemistry, Chemistry of the environment, Instrumental methods of analysis, Radioecology, Chemical problems in nuclear energetics, Methods of absolute dating, Archaeological chemistry.

Prof. Kuleff was a coordinator of the network "Learning and Teaching of Archaeometry" to the program CEEPUS and keep cooperation with a number of European scholars: Prof. Ernst Pernicka (University of Tübingen); Prof. Joahim Henning (Johann Wolfgang Goethe University in

Frankfurt am Main); Prof. Claudio Caneva (University "La Sapienza", Roma); Prof. Marek Trojanowicz (University of Warsaw); Prof. Ernst Lankmayr (Technical University, Graz), etc.

Prof. Kuleff is a member of the Gesellschaft für Archeometrie of Germany and is the national representative of Bulgaria in the Commission on Atomic Weight and Isotopes of UPAC.

Prof. Kuleff was a member of the Specialized Council on inorganic and analytical chemistry (1997 – 2004) and at the moment is the president of the Commission in chemistry of the High Commission of Accreditation.

Assoc. Prof. ANISSAVA MILTENOVA, PhD

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Chair of the Department of Old Bulgarian Literature, Institute of Literature at the Bulgarian Academy of Sciences. Author and co-author of more than 100 papers in scientific journals and conference proceedings.

Mrs. Anissava Miltenova has graduated from Sofia University St. Kliment Ohridsky, Faculty of Slavic Studies. She defended her MSc degree in 1974 and her PhD thesis "15th–17th Centuries Bulgarian Literature Characterization (Mixed Content Miscellanies)" in 1983 at the Institute of Literature, Bulgarian Academy of Sciences; she defended the Doctor Habil. Thesis "Erotapokriseis: Texts of Short Questions and Answers in Old Bulgarian Literature" in 2005. She specialized in medieval Slavic studies in Institute of Russian Literature, Petersburg (1981–1982), in the Center of Balkanology, Thessalonika (1984), in the Witgenstein Cultural Institute, Vienna (1986), and she was a Fulbright fellow in 2003 at the University of Pittsburgh, PA, USA.

Since 1992 Anissava Miltenova is an Associate Professor at the Institute of Literature. Since

1999 she is the Chair of the Department of Old Bulgarian Literature, Institute of Literature at the Bulgarian Academy of Sciences.

Research Activity

Dr. Miltenova's scientific career from 1980 to 1994 was connected with text transmission in *Slavia Orthodoxa*, typology and macrostructure of medieval Slavic manuscript and apocryphal literature. She worked in the field of historical-apocalyptical texts, which are important original sources for Bulgarian history and literature at the time of Byzantine domination (11th–12th c.) and at the time of Second Bulgarian kingdom (13th–14th c.). The result of her investigation together with Prof. Vassilka Tapkova-Zaimova is a monograph on this subject. She took part in many international conferences on the subject of translations from Greek in the Bulgarian literature in the Middle Ages, and she is especially interested in apocrypha and popular literature. Since 1994 she has been working in the field of computer supported processing of medieval Slavic manuscripts. She leads a research team that developed the project "Repertorium of Old Bulgarian Literature and Letters with computer tools". The results of the project were used in the work "History of Bulgarian Medieval Literature", which was published in 2008 (in co-authorship with young scholars A. Angusheva, D.

Atanasova, A. Boyadzhiev, N. Gagova, M. Dimitrova, M. Yovcheva, T. Slavova, A. Stoykova, and L. Taseva). On February 26, 2009, Dr. Miltenova got "Pythagoras" Award for the best research team with contribution to science for the project "Repertorium". The research team is from the Institute of Literature, Sofia University and Institute of Mathematics and Informatics at BAS (E. Tomova, R. Kojcheva, I. Kuzidova, D. Radoslavova, R. Stankova, M. Petrova-Taneva, D. Getov, A. Boyadzhiev, R. Lazov).

Participation in International Projects

During the period of 1994-2003 A. Miltenova was a leader of 5 projects in the field of digital humanities: financed by IREX Washington, by Central European University – Budapest, by UNESCO and 2 projects financed by National Science Foundation in Sofia. She works on 4 bilateral projects (with the British Library, London, with Swedish Royal Academy, with Slovenian Academy of Sciences and Arts and with the Library of the Russian Academy of Sciences in St.-Petersburg, as well as European project "SLOVO: Towards a Digital Library of South Slavic Manuscripts" (Austria, Slovenia, Serbia, Macedonia and Bulgaria as a coordinator).

Organization and participation in conferences, congresses and workshops: Computer Processing of Medieval Slavic Manuscripts. First International Conference, Blagoevgrad, 24-28 July 1995; ALLC-ACH' 96. University of Bergen, Norway,

June 25-29 1996; 12th Congress of Slavists, Krakow, 1998; Bulgarian Studies at the Dawn of the 21st Century: A Bulgarian-American Perspective. Sixth Joint Meeting of Bulgarian and North American Scholars, Blagoevgrad, 30 May – 2 June, 1999; 13th Congress of Slavists, Ljubljana, 2004; International conference and workshop AZBUKY.NET, 24–27 October, Sofia 2005; Digital Humanities Congress, 5-9 July 2006. PARIS – SORBONNE, etc.

Publications

Dr. Miltenova is an author and co-author of over 100 papers that have been published in scientific journals and conference proceedings in the field of philology, medieval studies, and digital humanities.

Other Activities:

- Member, Union of Scientific Professionals in Bulgaria (since 1983)
- 1998-2002 – Head of the Commission for Computer Processing of Medieval Slavonic Manuscripts and Early Printed Books, International Committee of Slavists
- Head of the Executive Council of Bulgarian Studies Abroad of the Bulgarian Academy of Sciences (since 1995)

Dr. A. Miltenova has a rich teaching experience in seminars in the field of: history of Old Bulgarian literature, textology, and Christian culture and literature (New Bulgarian University and Sofia University).

AWARDS

PRESIDENT OF BULGARIA AWARDS INNOVATIVE COMPANIES AT FORUM ORGANIZED BY ARC FUND



The Applied Research and Communications Fund (a member of the ECabit network and infoDev's Global Network of Business Incubators) the EC Representation in Bulgaria, the Ministry of Economy and Energy, and the World Bank Mission in Bulgaria organized the Fifth National Innovation Forum: Innovation Infrastructure and Policy for Economic Growth on February 24, 2009. The Forum was held under the auspices of the President of the Republic of Bulgaria, Mr. Georgi Parvanov. The President awarded the winners in the Innovative Enterprise national contest.

The first place in the category "Small Enterprise" was won by **ORAK Engineering** – a software consultancy company established in 1996. It has developed its own Software Business Platform R5 for trade and tourism and today is among the leaders of the market for software products for these sectors and a reliable business partner.

In the same category **diplomas** were conferred on **KEIT LLC** for innovative technologies in the field of safety and **Panteley Toshev Ltd. Co.** – for production of raw materials and stuffs for food industry, which are a novelty for the Bulgarian market.

The first place in the category "Medium

and Large Enterprise" was won by **SPARKY ELTOS JSC**. The company carries out research-applied, designer's, commercial, intermediary, representative and manufacturing activities in the field of hand-held electrical instruments and engines for them and special instruments. It took part in the competition with its four innovative solutions for hand-held electrical machine tools – an angle grinding machine, two types of drilling machines – perforators, and a mixer.

In the category **diplomas** were conferred on the companies **BIANOR** – for innovative software solutions in the sphere of telecommunications, and **CENTROMED JSC** – for innovative solutions for production of articles by the method of centrifugal casting.

Special award of the Jury was handed to **Saturn Engineering LLC** for their outstanding achievements in 2008 among total of seven highly innovative companies.

In his speech president Parvanov highlighted the appropriate timing for organizing the initiative - the start of the European year of creativity and innovation. Creativity and innovation are considered to be key factors for securing the welfare of society. The measures already implemented have not yet had the intended impact. He pointed out drawbacks such as lowered fi-

nancing, weak motivation, insufficient concentration of resources and negative influence of the financial crisis. The measures now needed include stronger support for public-private partnerships, for innovation-oriented companies and for participation in innovation networks.

Among other keynote speakers were Ms. Meglena Plugchieva, the Deputy Prime Minister of Bulgaria, Mr. Patrick Lambert, Director of the Executive Agency for Competitiveness and Innovation (EACI) at the European Commission, Professor Anders Flodstrom, Member of the Execu-

tive Committee of the European Institute of Innovation and Technology, Deputy Minister of Finance, Directors at the Ministry of Economy and Energy, Heads of The World Bank Mission and EC Representation to Bulgaria, business representatives and others. The Forum was well attended by a mixture of enterprises and entrepreneurs, scientists and researchers, NGOs, media and diplomats.

The forum also featured the Innovation.BG 2009 report, the premium annual policy analysis of the National Innovation System.

"PYTHAGORAS" SCIENCE AWARDS

Vice Prime Minister and Minister of Education Daniel Valchev handed annual awards for science "Pythagoras 2009". The ceremony took place in Sofia on February 26, 2009.

The Great "Pythagoras" Science Award was presented to the Corresponding Member Prof. **Petar Atanasov**, DSc, nominated by the Institute of Electronics at the Bulgarian Academy of Sciences (BAS). His research achievements are in the field of optoelectronics – investigation of optical active waveguide layers and optical gas sensors. Prof. Atanasov has twice received the Academician Emil Djakov Award for particular contributions to the field of nanotechnologies and generating nanoparticles at laser ablation of metals. During the recent three years he has published 74 scientific articles in international scientific journals with impact factor and average citation rate 70.

Minister Valchev presented Great Award to the best research team led by Assoc. Prof. **Anissava Miltenova**, PhD, from the Institute of Literature at BAS. The most significant achievements of the team are connected with popularization and digitalization of the Old-Bulgarian literary heritage.

The research team has developed and applied a computer model for analytical description of Slavonic manuscripts, for publication of Old Bulgarian texts on the Internet and search programs for use of information corpus. The team creates electronic catalogues and databases of medieval Cyrillic manuscripts and a digital library of Slavonic manuscripts, early printed books and

a reference database in partnership with the leading European cultural research institutions, such as the British Royal Library, Universities in Goteborg and Uppsala, and University in Pittsburg, USA.

KTzM-Plovdiv became the largest investor in science. The company has developed its own intellectual products: two patents for technology for processing of Zinc-containing raw materials and an innovative method for sulphur trioxide production. The company owns original technology equipment solutions and production know-how. Two research technological laboratories are established – Laboratory of Ecology certified by ISO and accredited to perform testing of emissions of noxious substances in the atmospheric air and Electrotechnical Laboratory with considerable experience in electrical system parameters control.

Scientists and research teams with substantial contributions to the development and popularization of Bulgarian science and scientific results are distinguished with the prestigious "Pythagoras" Award. The Jury chaired by Acad. Petar Kenderov has estimated 118 nominations in 14 research categories.

The Jury's criteria include scientometric indices, participation in international organizations and projects, contributions to the development of the research sphere in Bulgaria, etc.

Guests of the event were: Meglena Plugchieva, Bulgarian Deputy Prime Minister in charge of the European Funds, politicians, famous scientists, business people, etc.

"PYTHAGORAS 2009" SCIENCE AWARD WINNERS

✓ **"Pythagoras" Award for science:**

- for scientist — Corr. Member Prof. **Petar Atanasov**, DSc — Institute of Electronics at BAS;
- for the best research team led by Assoc. Prof. **Anissava Miltenova**, PhD — Institute of Literature at BAS.

✓ **"Pythagoras" Award for an established scientist in the field of:**

- technical sciences — Prof. Dr. **Vladimir Kozhuharov** — University of Chemical Technology and Mining (UCTM);
 - medical and biological sciences — Assoc. Prof. Dr. **Tsvetomir Denchev** — Institute of Botany at BAS;
 - natural and mathematical science — Assoc. Prof. **Konstantin Hadjiivanov**, DSc — Institute of General and Inorganic Chemistry at BAS;
 - social and humanitarian science — Prof. **Rumyana Damyanova**, DSc — Institute of Literature at BAS.
- ### ✓ **"Pythagoras" Award for:**
- young scientist — Assoc. Prof. **Bozhidarka Koleva**, PhD — Sofia University "St. Kliment Ohridski";

- most successful scientific adviser of post-graduate students — Assoc. Prof. Dr. **Nikolay Vitanov** — Supreme Attestation Commission (SAC);
- most successful international projects leader — Assoc. Prof. **Angel Smrikarov** - SAC;
- most successful scientist working abroad with considerable contribution to Bulgaria — Prof. **Vladimir Getov** — Institute for Parallel Processing of Information at BAS;
- research team with applied projects in business — Assoc. Prof. Dr. **Maria Krachanova** — Institute of Organic Chemistry with Center of Phytochemistry at BAS;
- the largest private investor in science - **KTzM-Plovdiv**;
- most successful company in the field of research — **Optella LLC**, Sofia;
- most successful female scientist — Prof. **Elena Atanasova**, DSc — Institute of Solid State Physics at BAS;
- overall contribution to science — Acad. **Dochi Ekserova** — Institute of Physical Chemistry at BAS.

"EVRIKA" AWARDS FOR THE YEAR 2008

On January 29, 2009 official awarding of laureates of "EVRIKA" Foundation awards for 2008 for achievements in science and for the best young manager, inventor and farmer took place in Sofia City Art Gallery.

The awards are granted to young people for their significant achievements in science, for innovations with great social importance, for achievements in management of business organizations, as well as for high results in agricultural activities. The restrictive condition is that candidates for "EVRIKA" awards ought to be under the age of 35. Candidates for the awards are nominated by public and business organizations and higher educational institutions, and final selection is accomplished by specialized selection committees in each field.

For the year 2008 **Andon Rangelov** received

the joint award of "EVRIKA" Foundation and Higher Attestation Committee at the Council of Ministers **for achievements in science** for excellent defence of a dissertation "Coherent Control of Quantum Systems and Impulse Fields" for which he got an educational and scientific degree "Doctor".

The award for young innovator for 2008 was granted to **Tihomir Petrov Kumanov** from the city of Dobrich. Tihomir Kumanov's invention "thermobrick" is an energy-saving element for masonry, used for non-bearing walls of residential and administrative buildings. The main purpose of the invention is to get a large-scale construction product for masonry.

"EVRIKA" award for young farmer for 2008 was given to **Ivailo Krasimirov Iliev** from the city of Varna.

ARTICLES

RECENT PUBLICATIONS OF BULGARIAN SCIENTISTS

- Title:** **Stereotype content model across cultures: Towards universal similarities and some differences.**
- Authors:** Cuddy, Amy J. C.¹ acuddy@hbs.edu, Fiske, Susan T.², Kwan, Virginia S. Y.², Glick, Peter³, Demoulin, Stephanie⁴, Leyens, Jacques-Philippe⁴, Bond, Michael Harris⁵, Croizet, Jean-Claude⁶, Ellemers, Naomi⁷, Sleebos, Ed⁷, Tin Tin Htun⁸, Hyun-Jeong Kim⁹, Maio, Greg¹⁰, Perry, Judi¹¹, Petkova, Kristina¹², Todorov, Valery¹², Rodriguez-Bailón, Rosa¹³, Morales, Elena¹³, Moya, Miguel¹³, Palacios, Marisol¹³
- Source:** British Journal of Social Psychology, Vol. 48, 1, (Mar. 2009), 1-33, 4 charts, 4 graphs
- Author Affiliations:** ¹Northwestern University, Evanston, Illinois, USA;
²Princeton University, Princeton, New Jersey, USA;
³Lawrence University, Appleton, Wisconsin, USA;
⁴Catholic University of Louvain, Louvain-la-Neuve, Belgium;
⁵Chinese University of Hong Kong, Shatin, New Territories, Hong Kong;
⁶University of Poitiers, Poitiers, France;
⁷Leiden University, Leiden, The Netherlands;
⁸Japan Women's University, Tokyo, Japan;
⁹Ewha Women's University, Seoul, South Korea;
¹⁰Cardiff University, Cardiff, Wales, UK;
¹¹University of Tromsø, Tromsø, Norway;
¹²Institute of Sociology, Sofia, Bulgaria;
¹³University of Granada, Granada, Spain.
- ISSN:** 0144-6665
-
- Title:** **Co-evolving academic rhetoric across culture; Britain, Bulgaria, Denmark, Germany in the 20th century.**
- Authors:** Shaw, Philip¹ philip.shaw@english.su.se, Vassileva, Irena² vassileva_irena@hotmail.com
- Source:** Journal of Pragmatics, Vol. 41, 2, (Feb. 2009), 290-305
- Author Affiliations:** ¹Department of English, University of Stockholm, Sweden;
²Department of English, South-West University, Blagoevgrad, Bulgaria.
- ISSN:** 0378-2166
-
- Title:** **The manuscript heritage of Ioan Kratovski.**
- Authors:** Stankova, Liliana¹, Nenkovska, Lora¹
- Source:** European Journal of Science and Theology, Vol. 5, 1, (Mar. 2009), 13-24
- Author Affiliations:** ¹Center for Slavic and Byzantine Studies, 18, Prof. I. Duitchev Str., Sofia 1618, Bulgaria
- ISSN:** 1841-0464

- Title:** **Cicer arietinum (chick pea) in the Neolithic and Chalcolithic of Bulgaria: implications for cultural contacts with the neighbouring regions?**
- Authors:** Marinova, Elena^{1,2}, Popova, Tzvetana³
- Source:** Vegetation History and Archaeobotany, Vol. 17, Suppl. 1, (Dec. 2008), S73-S80
- Author Affiliations:** ¹Katholieke Univ. Leuven, Ctr. Archaeol. Sci., B-3001 Louvain, Belgium;
²Sofia Univ. St. Kliment Ohridski, Dept. Bot., Sofia 1164, Bulgaria;
³Bulgarian Acad. Sci., Natl. Archaeol. Inst. Museum, Sofia 1000, Bulgaria.
- ISSN:** 0939-6314
-
- Title:** **Anthracological analysis from Kovacevo, southwest Bulgaria: woodland vegetation and its use during the earliest stages of the European Neolithic.**
- Authors:** Marinova, Elena¹, Thiebault, Stephanie²
- Source:** Vegetation History and Archaeobotany, Vol. 17, 2, (Mar. 2008), 223-231
- Author Affiliations:** ¹Sofia Univ. St. Kliment Ohridski, Dept. Bot., Sofia 1164, Bulgaria;
²Protohist Europeenne, CNRS, UMR 7041, F-92023 Nanterre, France.
- ISSN:** 0939-6314
-
- Title:** **Palaeointensity determination on an early medieval kiln from Switzerland and the effect of cooling rate.**
- Authors:** Donadini, F.^{1,2}, Kovacheva, M.³, Kostadinova, M.³, Hedley, I. G.⁴, Pesonen, L. J.²
- Source:** Physics and Chemistry of the Earth, Vol. 33, 6-7, (2008), 449-457
- Author Affiliations:** ¹Univ. Calif. San Diego, Scripps Inst. Oceanog., La Jolla, CA 92093 USA;
²Univ. Helsinki, Dept. Phys. Sci., Div. Geophys., FIN-00014 Helsinki, Finland;
³Bulgarian Acad. Sci., Inst. Geophys., BU-1113 Sofia, Bulgaria;
⁴Univ. Geneva, Dept. Mineral., CH-1205 Geneva, Switzerland.
- ISSN:** 1474-7065
-
- Title:** **Mineral magnetism and archaeomagnetic dating of a mediaeval oven from Zlatna Livada, Bulgaria.**
- Authors:** Herries, A. I. R.^{1,2}, Kovacheva, M.², Kostadinova, M.²
- Source:** Physics and Chemistry of the Earth, Vol. 33, 6-7, (2008), 496-510
- Author Affiliations:** ¹Univ. New S. Wales, Human Origins Grp., Sch. Med. Sci., Sydney, NSW 2052 Australia;
²Bulgarian Acad. Sci., Inst. Geophys., BU-1113 Sofia, Bulgaria.
- ISSN:** 1474-7065
-
- Title:** **The Campanian Ignimbrite and Codola tephra layers: Two temporal/stratigraphic markers for the Early Upper Palaeolithic in southern Italy and eastern Europe**
- Authors:** Giaccio, Biagio¹, Isaia, Roberto², Fedele, Francesco G.³, Di Canzio, Emanuele⁴, Hoffecker, John⁵, Ronchitelli, Annamaria⁶, Sinitsyn, Andrey A.⁷, Anikovich, Mikhail⁷, Lisitsyn, Sergey N.⁷, Popov, Vasil V.⁸
- Source:** Journal of Volcanology and Geothermal Research, Vol. 177, 1, Special Issue, (Oct. 2008), 208-226
- Author Affiliations:** ¹CNR, Ist. Geol. Ambientale & Geingn, I-00138 Rome, Italy;
²Sez Napoli Osservatorio Vesuviano, Ist. Nazl. Geofis. & Vulcanol., Naples, Italy;
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⁸Bulgarian Acad. Sci., Inst. Zool., Sofia, Bulgaria.

ISSN: 0377-0273

Title: **The tradition and the new tendencies in the decoration of Putna's codices collection.**

Authors: Nenkovska, Lora

Source: European Journal of Science and Theology, Vol. 4,3, (Sep. 2008), 19-26

Author Affiliations: Center for Slavic and Byzantine Studies, 18, Prof. I. Duitchev Str., Sofia 1618, Bulgaria

ISSN: 1841-0464

Title: **Mid-Holocene vegetation change in the Troad (W Anatolia): man-made or natural?**

Authors: Riehl, Simone^{1,2}, Marinova, Elena³

Source: Vegetation History and Archaeobotany, Vol. 17, 3, (May 2008), 297-312

Author Affiliations: ¹Univ. Wisconsin, Ctr. Climat. Res., Madison, WI 53706 USA;

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EVENTS

MINISTER VALCHEV OPENED AN EXHIBITION OF DIGITALIZED UNIQUE MANUSCRIPTS AND ARCHIVE DOCUMENTS

On February 2, 2009 Minister of Education and Science Mr. Daniel Valchev opened in the St. St. Cyril and Methodius National Library an exhibition on the topic "Digitalized archives and documents: popularization, investigation, preservation. A Realized project".

Over 40 original restored and digitalized unique manuscripts and archive documents, such as the Enina Apostle of the XI century, Dobrej Gospel of the XIII century, transcript of the Koran of the XV century, documents in Ottoman-Turkish language about the history of Bulgarian lands, as well as documents about the history of Austria, Italy, Hungary, Greece and Turkey are on display.

The exhibition is on the project financed by the National Science Fund at the Ministry of Education and Science within the contest "Investigation of national cultural-historical values as part of European cultural heritage and modern methods for their preservation" for the period of 2007-2008.

Special collections in the National Library including Slavonic, oriental and other foreign language manuscripts, documents and periodicals have been restored and digitalized within the project. Its direct purpose is extension and acceleration of the process of restoration and digitalization of valuable and endangered documents with proved scientific, historical and educational value on the national and European scale.

29 May 2009

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Phone: (+359 32) 659 557

Web address: <http://www.tu-plovdiv.bg>

1 – 4 June 2009

Ninth International Conference on

Electron Beam Technologies EBT'09

Varna, Bulgaria

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Phone: (+359 2) 875 0077; Fax: (+359 2) 975 3201

E-mail: die@ie.bas.bg

Web site: <http://www.ie-bas.dir.bg>

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NOTES