

Uticaj paradigme na formiranje problema artefakata od okresanog kamena

The influence of paradigm on the formation of the problem of stone artifacts

Vasilije Marojević
Narodni muzej Crne Gore
Novice Cerovića b. b.
81250 Cetinje, Crna Gora
vasilijemarojevic92@gmail.com

UDK 902-03:693.12

Apstrakt:

O karakteru naučnih paradigmi i njihovoj smjeni tekla je živa rasprava tokom sedamdesetih godina 20-og vijeka, uglavnom kao reakcija na knjigu „Struktura naučnih revolucija“ filozofa i historičara Tomasa Kuna koja je objavljena 1961 godine. U njoj autor iznosi stavove kojima je uzburkao naučnu javnost, istakavši da je čitava naučna istorija sačinjena iz niza revolucija koje smijenjujući se međusobno, negiraju osnovne teorijske postulate one prethodne. Između dvije revolucije, po Kunu, trajao bi period „normalne nauke“ koja se ne praktikuje kroz sistem potčinjen logici i metodološkim kanonima, već kroz paradigmu koja je u tom trenutku prihvaćena od naučne zajednice. Uslijedile su negativne reakcije sa različitih strana, između ostalih i od tadašnjih arheologa. Neki su međutim pokušavali da prošlost arheologije „uklope“ u teorijski okvir koji je predložio Kun. Zagovarači ovog modela unutar arheologije primijenili su ga da bi objasnili prošlost, ali prevashodno tadašnje domete arheologije kao discipline; arheologija se počela shvatati kao kompleksna nauka sastavljena iz više odvojenih tradicija. Iako prisustvo različitih tradicija ne možemo

Abstract:

About the character of scientific paradigms and their shifts, there was an ongoing debate during the seventies of 20th century, primarily as a reaction to the book “The structure of scientific revolution” by the philosopher and historian Tomas Kuhn, published in 1961. The author expresses views that have irritated scholars, noting that the entire scientific history is composed by a series of revolutions by interchanging one another, deny the basic theoretical postulates of the previous ones. According to Kuhn, between two revolutions, there will be a period of “normal science” that is not performed through a system subjected to logic and methodological canons, but through a paradigm accepted by the scientific community at the moment. Negative reactions followed from various sides, among others including contemporary archaeologists as well. On the other hand, some have tried to “incorporate” the history of archaeology in the theoretical framework proposed by Kuhn. Advocating this model in archaeology, it was implemented to explain history, but primarily the contemporary peaks of archaeology as discipline; archaeology started being per-

dovesti u pitanje, revolucionaran karakter njihove smjene je prilično sporan. Na ovu konstataciju nas navodi činjenica da se fokus arheoloških istraživanja nije pomjerao sa izučavanja materijalnih ostataka ljudskih aktivnosti, uprkos neupitnom metodološkom razvoju.

Ključne riječi: praistorijska arheologija, naučni metod, teorijska paradigma, evolucionizam, procesna arheologija, arheološka kultura, kameni artefakti, tipologija, tehnološke analize

ceived as complex science, composed of many traditions. Although the presence of various traditions cannot be questioned, the revolutionary character of their shifts is rather disputable. We are induced to this statement by the fact that the focus of archaeological research has not been changed from studying material culture of human activities, despite the undisputable methodological development.

Keywords: prehistoric archaeology, scientific method, theoretical paradigm, evolutionism, processual archaeology, archaeological culture, stone artifacts, typology, technological analysis

Uvod: U cilju sagledavanja prošlosti arheologije, ovaj rad donosi pregled paradigmi koje su dominirale u različitim periodima njenog trajanja, a na neki način su ostavile pečat na teorijski okvir u kojem arheologija danas živi. Za određivanje karakteristika svake od njih kao glavni pokazatelji poslužiće nam artefakti od okresanog kamena, zbog posebne osjetljivosti metodološkog pristupa njihovim analizama na različita teorijska polazišta. To je prevashodno posljedica važnosti informacija koje sadrže u sebi, a do kojih se može doći samo uz precizno definisan metodološki pristup. Njihova relativna učestalost u arheološkom zapisu kao i jednostavan postupak analize pogodovao je ranom interesovanju za studije litike što je rezultiralo velikim napretkom u razumjevanju praistorijske tehnologije. Međutim, to što smo danas u mogućnosti da definišemo slijed postupaka koji su neophodni da bi nastala neka od alatki, ne znači da imamo na umu koliki je put arheologija morala preći dok nijesu osmišljeni mehanizmi koji su nam to omogućili. Imajući u vidu navedeno, želimo otkriti koja su to pitanja postavljena u svakoj od paradigmi, a na koja je trebalo dobiti odgovore analizom ovih predmeta.

Antikvarstvo XVII i XVIII vijeka

Prije nego što je otkrivena njegova prava funkcija, oruđe i oružje napravljeno od kamena u naučnoj zajednici XVII i XVIII vijeka smatrano je za manje više razumljiv prirodni fenomen. Evropski pisani izvori u nekoliko navrata opisuju čvrste predmete koji tokom olujnog neveremna padaju na tlo. Na jednom od mjesta gdje je navodno udario grom, pronađen je neobičan predmet od kamena, u obliku glave sjekire. Nakon što ga je pregledao lokalni ljekar i zaljubljenik u geologiju, slučaj je doveden u vezu sa mnogobrojnim drugim sličnim događajima koji su se dešavali širom kon-

Introduction: In the aim of observing the history of archaeology, this paper brings an overview of paradigms that dominated in different periods of its existence, and in some way, had an impact on the theoretical framework in which archaeology dwells today. To determine their characteristics, the artifacts made of flaked stone serve as the main indicator, due to their unique sensitiveness to methodological approach of analysis at various theoretical starting points. Above all, it's a result of the important information they contain, which can only be accessed through a precisely defined methodological approach. Their relative frequency in archaeological records along with the simple analysis procedure, combined with early interest in lithic analysis, resulted in great improvement for understanding prehistoric technology. However, the fact that we have the possibility to define the order of the necessary steps for one tool to be made today, does not mean that we are aware of what archaeology went through, until those mechanisms were invented. Taking into consideration the above mentioned, we want to find out which questions were asked in each of the paradigms, and which answers should be answered by analyzing these objects.

Antiquarianism of the 17th and 18th century

Before their real function was discovered, the scientific community of the 17th and 18th century, tools and weapons were made of stone as a more or less explainable natural phenomenon. European written sources describe, in several occasions, solid objects that fell on the ground during storms. In one place, where supposedly a lightning struck, an unusual object made of stone in a shape of an axe was discovered. After it was examined by the local physician and geology enthusiast, the

tinenta. Ovakvi predmeti nazivani su *ceraunia*, što predstavlja starogrčki izraz za munju, ali je u brojnim evropskim jezicima podrazumjevao „gromovno kamenje“ (Goodrum 2008, 482-483). Dakle, riječ je o fenomenu koji je kroz period srednjeg vijeka bio prepoznat od strane ljudi zainteresovanih za prirodne fenomene, a za njegov nastanak pružena su objašnjenja koja će biti osporena tek tokom XVIII vijeka.

Keraunijuse su prirodnjaci posmatrali kao prirodne tvorevine i čudesa, dok su im od strane onih malo manje upućenih u nauku pridavana magijska svojstva; tretirani su kao amuleti koji štite od udara groma ili kao „viline strijele“. Sam pojam se odnosio na veliki broj kamenih predmeta koji su se razlikovali po veličini, boji i oblicima, međutim, smatralo se da imaju isto porijeklo. Najprihvaćenije mišljenje tokom XVI i XVII vijeka bilo je da keraunijusi nastaju u oblacima, hemijskim procesima od zemljane prašine uz prisustvo vlage i visokih temperatura izazvanih eksplozijama munja. Međutim, oblici i karakteristike nekih od pronađenih predmeta nijesu se u potpunosti uklapali u tu priču, te su stoga zahtjevali dodatna objašnjenja. Poseban problem je recimo bilo objasniti nastanak perforacija na nekom od kamenih nalaza u uslovima kad predmet nastaje u atmosferi (Goodrum 2008, 489). Tako je flamanski ljekar i prirodnjak Anselm Boethius de Bot (Anselm Boethius de Boodt), izrazivši skepsu prema meteorološkom porijeklu keraunijusa, tvrdio da je u stvari riječ o metalnim alatka koje su se zbog svoje ogromne satrosti pretvorile u kamen. Smatrao je da je kojim slučajem porijeklo ovih predmeta vezano za atmosferu, oni bi vjerovatnije imali više sferičan oblik i ne bi mogli razviti onoliku težinu ili perforacije konusnog oblika. (Goodrum 2008, 489-490).

Početak XVIII vijeka objavljena je knjiga u kojoj je pruženo objašnjenje koje se ovog puta odnosilo i na one prob-

case was later connected with many other similar ones that happened throughout the continent. These objects are called *ceraunia*, which derives from the ancient Greek word for thunder, but in various European languages means “thunderstones” (Goodrum 2008, 482-483). The same phenomenon was noted during the middle ages by people interested in natural phenomena, and the offered explanations for its formation would be disputed only during the 18th century.

Naturalists considered *ceraunia* natural creation and a miracle, whilst those less experienced in science, assigned them magical properties; also, they were treated as amulets that protect from lightning or as “fairy arrows”. Although the term was applied to numerous stone tools that differed in size, color and shape, it was believed that they had the same origin. The most widely accepted viewpoint during the 16th and 17th century was that *ceraunia* are created in the clouds, as a result of chemical processes of dust and humidity and high temperatures caused by lightning. However, the shape and characteristics of some of the discovered objects did not fit the narrative, and required additional explanation. It was especially difficult to explain how the perforations of some of the tools came to be, having in mind that the objects were created in the atmosphere (Goodrum 2008, 489). Thus, the Flemish physician and naturalist Anselm Boethius de Boodt, questioning the meteorological origin of *ceraunias*, claimed that in fact they are metal objects, transformed in stone due to their age. He considered that if the origin of these objects is somehow connected with the atmosphere, they would have a more spherical shape, and would not be as heavy or have a conical perforation (Goodrum 2008, 489-490).

In the beginning of the 18th century, a book was published in which an explanation is offered, but also covering problems

leme koje prethodna teorija nije mogla da objasni. Tako je njen autor, Mikel Merkati (1541-1593) ostao zapamćen kao prvi čovjek koji je (još u XVI vijeku) sa staništa današnje nauke, ispravno protumačio kamene sjekire i vrhove strijela kao alatke koje su služile nekadašnjim evropljanima. Međutim, njegov doprinos razrješavanju problema „gromovnog kamenja“ ostao je neotkriven sve do objavljivanja knjige 1717. godine, duže od vijeka nakon njegove smrti (Bahn 2005, 197). Kao upravnik vatikanske botaničke bašte imao je priliku da se upozna sa prirodnim čudesima pohranjenim unutar muzeja, posebno sa tamošnjom geološkom zbirkom. Tu se između ostalog susreo sa arheološkim i etnografskim materijalom koji je poticao iz Afrike, Azije kao i iz Novog svijeta, što će se pokazati kao ključno za njegov dalji rad. U svojoj knjizi *Metalloteca Vaticana Mercati* je sabrao svo svoje znanje iz geologije, a u posebnim poglavljima se osvrnuo na fenomen kearaunijusa navodeći ranija tumačenja za njihov nastanak. Pozivajući se na radove antičkih autora, navodi da neki od njih smatraju da su ljudi prije ovladavanja tehnikom proizvodnje metala potrebno oruđe i oružje pravili od jedne vrste kamena – rožnaca. Kao uporište mu je poslužila i Biblija u čijem se jednom dijelu pominju kamena sječiva korištena od strane Jevreja ali i pojedini antički pisci, prije svih Lukrecije i njegovo djelo *De Rerum Natura*¹ (Goodrum 2008, 494-495). Kako bi dodatno potvrdio svoju teoriju Merkati navodi etnografske podatke o nekim narodima iz Novog svijeta koji su se i u tom periodu služili kamenim alatkama, praveći na taj način analogije između njih i autora evropskih artefakata. Kako je pružio potpuno novi pogled na ovaj fenomen govoreći o njegovoj velikoj starosti, osjetio se i pozvanim da pruži dalja objašnjenja ali i

1 Autor opisujući prvobitne ljude piše o tome kako zamišlja da su prije otkrića metala alat pravili od kamena, roga i kosti (Goodrum 2008, 495)

that the previous theory could not answer. Its author Mikel Merkati (1541-1593) is recognized as the first one that (in the 16th century) properly explained axes made of stone and the point of arrows as tools that served former Europeans. However, his contribution to explaining the problem of “thunderstones” remained unrecognized until the publishing of the book in 1717, more than a century after his death (Bahn 2005, 197). As the director of the Vatican botanical garden, he had the chance to explore the natural wonders stored in the museum, especially its geological collection. There he came across archaeological and ethnological material that originated from Africa, Asia, and the New World, which will be crucial to his further work. In his book *Metalloteca Vaticana Mercati* he collected all of his geological knowledge, and dedicated a separate chapter to the ceramias phenomenon, while listing early explanations for their creation. Citing works of ancient authors, he mentions that some of them consider that before humans figured out the techniques of metal production, they made their tools from one type of stone - chert. He used the Bible as a starting point, where at one place a stone cutter used by the Jews is mentioned, as well as other ancient writers, among which Lucretius in his work *De Rerum Natura*¹ (Goodrum 2008, 494-495). To further confirm his theory, Mercati lists ethnographic data of some people from the New World, which in that period used stone tools, creating an analogy among them and the authors of the European artifacts. As he offered a completely new interpretation to this phenomenon concerning its old age, he felt he had to give further explanation and propose some chronological framework for its creation. He considered that because of

1 Describing the first humans, the author writes how he imagines that before the discovery of the metal, they made their tools out of stone, antler and bone (Goodrum 2008, 495).

da predloži neki vremenski okvir njegovog nastanka. Smatrao je da je zbog biblijskog potopa, pustoši koju je on ostavio na zemlji kao i migracije Nojevih sinova došlo do zaboravljanja nekih tradicija i vještina, pa tako i tehnike obrade metala (Goodrum 2008, 495-496 Murray 2007, 86-87).

Do momenta objavljivanja djela Merkatijeve Metaloteke, jedan broj istraživača nezavisno je stigao na trag zaključaka do kojih su došli De Bot i Merkati. Karakteristike prirodnjaštva XVI i XVII vijeka koje su stvorile uslove za ova otkrića bilo je formiranje velikih zbirki poznatijih kao „kabineti kurioziteta“² od strane obrazovnih institucija ili uticajnih pojedinaca. U okviru njih su se nalazile značajne geološke, arheološke i etnografske zbirke koje su omogućile poređenje evropskih keraunijusa sa onim predmetima za koje se pouzdano zna da su bili napravljeni od strane pripadnika van-evrposkih naroda (Goodrum 2002, 259; Palavestra 2011, 60).

Artefakti, trostepeni sistem i evolucionizam XIX vijeka

U prethodnom poglavlju pomenu ti su neki od antikvara koji su svojim radom na analizi keraunijusa ukazali na mogućnost postojanja različitih perioda u ljudskoj istoriji. Međutim, tek je danski antikvar Kristijan Jigenrsen Tomsen (1788-1865) uspostavio vezu između artefakata, njihove klasifikacije i određivanja starosti. Na taj način stvorio je trostepeni sistem koji će postati kamen temeljac za stvaranje hronologije evropske praistorije.

Tomsen se prihvatio teškog zadatka koji je podrazumjevao sistematizaciju raznovrsnog materijala pohranjenog u

the Great Flood, the destruction left behind it and the migrations of Noah's sons, some traditions, skills as well as techniques of metal production were forgotten (Goodrum 2008, 495-495; Murray 2007, 86-87).

Until the publishing of *Mercati's Metallotheca*, a number of scholars independently came across the same conclusions to which De Boodt and Mercati came. The characteristic of 16th and 17th century naturalism that created the conditions for these discoveries, were the reason for establishing great collections known as "cabinets of curiosities"² by educational institutions or influential individuals. They contained geology, archaeology and ethnography collections that allowed comparison of European *ceraunias* with object for which were clearly made by non-European people (Goodrum 2002, 259, Palavestra 2011, 60).

Artifacts, three-age system and evolutionism of the XIX century

In the previous chapter some of the antiquarians which with their analysis work are mentioned, pointing towards possible existence of different periods in humans' history. The Flemish antiquarian Christian Jurgensen Thomsen (1788-1865) established connection between artifacts, their classification and chronological determination. He created the three-age system, which will become the foundation for establishing the chronology of European prehistory.

Thomsen took on a great challenge that involved systematization of diverse material stored in the National collection of antiquities in Denmark. Based on which

² Zbirke čudesa u kojima su se čuvali neobični i egzotični predmeti, fosili i druge rukotvorine koje su pobuđivale interesovanje. Širom srednjovjekovne Evrope bilo ih je na stotine i mnoge od tih zbirki su vremenom prerasle u muzejske ustanove.

² Cabinets of curiosities in which were kept uncommon and exotic finds, fossils and other handmade objects, that provoked interest. Throughout medieval Europe, there were a hundred of them, and many of those collections by time were transformed into museum institutions.

Nacionalnoj zbirci antikviteta Danske. U zavisnosti od toga koji je materijal korišćen za proizvodnju alatki, tamošnju zbirku je organizovao na način što je nalaze svrstao u tri hronološka perioda: kameno, bronzano i gvozdno doba. Sagledavajući i međusobne odnose među nalazima primjetio je da se keramika javlja u sva tri doba, dok se staklene posude javljaju samo u najmlađem, gvozdenom dobu. Koristeći asocijacije Tomsen je bio u mogućnosti da u hronološke okvire smjesti gotovo sve nalaze koje je imao na raspolaganju. Posvetivši posebnu postavku svakom periodu, produžio je sa širenjem svoje hronološke šeme i na lokalitete širom Danske. Uvidom u situaciju na terenu i obraćanjem pažnje na kontekst nalaza primjetio je da se sahrane u kamenim grobnicama mogu datovati u kameno doba, dok su kremacije bile praktikovane u bronzanom i gvozdenom dobu. Postavio je i osnove arheološkoj klasifikaciji pošto je pažljivo razvrstavao artefakte po različitim kategorijama (posude, igle, noževi, sjekire, klinovi itd.)³. Iako nije pružao mogućnost preciznijeg datovanja predmeta, Tomsenov hronološki sistem je brzo prihvaćen u muzejima širom Evrope gdje je bio dodatno modifikovan i prilagođavan novim nalazima (Palavestra 2011, 98-99; Murray 2007, 198). Jens Vorse, jedan od najbližih Tomsenovih saradnika, dodatno je unaprijedio Tomsenov model, ali je njegov doprinos ogroman i zbog unaprijeđenja metodologije iskapanja i klasifikacije nalaza. Tokom terenskih istraživanja duž danske obale zaključio je da bi se kameno doba u Danskoj moglo podijeliti na mlađe i starije. Tako je tehnološki naprednije alatke kao i one od glačanog kamena zajedno sa keramikom smjestio u mlađe kameno doba, zato što

material is used in crafting the tool, he organized the collection by placing finds in three chronological periods: Stone, Bronze and Iron Age. Examining the mutual relations among the finds, he noticed that pottery is present in all of the three periods, whereas glass vessels are appears only in the later Iron Age. By using associations, Thomsen had the opportunity to chronologically determine all of the available finds. While dedicating a separate collection to every period, he continued the expanding of his chronological scheme to sites throughout Denmark. Through field survey and careful context research, he noticed that burials in stone tombs can be dated in the Stone Age, while cremations have been used in the Bronze and Iron Age. He established the base of archaeological classification due to his carefully classified artifacts in different categories (vessels, needles, knives, axes, pegs etc.)³. Although Tomsons' chronological system did not provide a more precise dating of the finds, in short time it was accepted by museums throughout Europe, and further modified and updated to new finds (Palavestra, 2011, 98-99; Murray 2007, 198). Jens Worssae, one of the closest collaborators to Thomson, additionally upgraded this model, but his contribution is also important due to the improvement of the methodology of excavations and finds classification. During field research along the Danish coast, he concluded that the Stone Age in Denmark can be divided into Late and Early Stone Age. Thus, he placed technologically advanced tools as the ones made of polished stone along with the pottery in the Late Stone Age, as those finds were absent in the earlier period (Murray 2007, 189-199).

Uniformitarianism⁴ and the idea of

3 Svoj cjelokupan doprinos arheologiji Tomsen je sabrao u knjizi *Vodič kroz Nacionalni muzej*, objavljenoj 1863. i koja je za kratak period postala vrlo uticajna publikacija prevedena na brojne evropske jezike.

3 His complete contribution to archaeology Thomson collected in his book *Guide through the National Museum*, published in 1863, which in short time became influential publication, translated to numerous European languages

4 Uniformitarianism - is the assumption that the

su ti nalazi u prethodnom periodu izostali (Murray 2007, 198-199)

Uniformizam⁴ I ideja o velikoj starosti planete, zajedno promovisani od strane geologa Čarlsa Lajela, bili su od neprocjenjivog uticaja na rad plejade britanskih biologa Čarlsa Darvina, Alfreda Volesa i Tomasa Hakslija, baš kao I na sam koncept evolucije kojem su pomenuta trojica idejni tvorci i najvatreniji zagovarači. Intelektualci evolucionisti će naučnom radoznavnošću i inteligencijom udariti temelje antropološke discipline, postavljati suštinska pitanja i podstaći svoje učenike da sakupljaju mnogo materijala. Iako Darwin tek u poslednjoj rečenici Porijekla vrsta pominje evoluciju čovjeka, koncept prirodne selekcije će se uskoro proširiti i na čitava ljudska društva gdje će u fokusu pažnje biti njihova materijalna kultura. Širenje koncepta evolucije na polja kulture, društva i tehnologije omogućilo joj je da dobije karakter teorijske paradigme čiji se značaj i uticaj ne mogu mjeriti ni sa jednom drugom u ljudskoj istoriji. Otvoren je put socijaldarvinizmu, konceptu jednolinijske evolucije promovisanom od strane Darwinovih istomišljenika koji su se u svom radu prevashodno bavili ljudskim društvima, odnosno etnologijom i antropologijom. Od tada, glavna intelektualna briga epohe bila je da se narodi i društvene institucije poređaju po redoslijedu evolucije sa jedne strane, i da se utvrdi porijeklo tih institucija sa druge (Delijež 2012, 17). Luis Henri Morgan, jedan od najuticajnijih mislilaca XIX vijeka, svoje materijalističko shvatanje kulture i ljudskih društava obrazložio je u knjizi *Drevno društvo* (1877). Po njegovom mišljenju istorija čovječanstva se tako može podijeliti na tri velika stadijuma: divljaštvo, varvarstvo i civilizaciju. U koji od navedenih stadijuma će biti smješteno

⁴ Uniformizam – ideja da su zakoni koji vladaju u prirodi nepromjenjivi (uniformni) u vremenu i prostoru, a geološki procesi koji su se dešavali u prošlosti identični procesima koje možemo opaziti danas.

the planet's age, promoted by the geologist Charles Lyell had crucial impact to the works of numerous British biologists like Charles Darwin, Alfred Wallace, Thomas Huxley, as well as to the concept of evolution that these three people created and advocated. Intellectuals and evolutionists with their scientific curiosity and intelligence put the foundations of anthropology as a discipline, asking vital questions and encouraging their disciples to acquire vast material. Although Darwin mentions human evolution only in the last sentence of his *Origin of Species*, the theory of natural selection will shortly affect the entire human society where the primary focus will be their material culture. The expansion of this theory of evolution into fields of culture, society and technology, enabled it to become a theoretical paradigm, whose importance and impact cannot be compared to any other in human's history. The path is open to Social Darwinism, a theory of linear evolution promoted by Darwin's followers, whose works were primarily in human societies i.e., ethnology and anthropology. From that point, a major intellectual concern in that period was to arrange the sequence of the people and social institutions on one side, and verify the origin of the institutions on the other side (Delijež 2012, 17). Lewis Henry Morgan, one of the most influential anthropologists in the 19th century, explained his materialistic concept of cultures and human societies in the book *Ancient Society* (1877). According to him, the history of mankind can be divided into three major stages: savagery, barbarianism and civilization. In which of the presented stages one society will be placed in, depended of its technological development (stone tools, bow and arrow, pottery) or by the prevalence of their diet

natural laws that operate in the universe are consistent (uniform) in time and space, and geological process that happened in the past are identical to present days' processes.

neka zajednica zavisi od nivoa njene tehnološke razvijenosti (kamenno oruđe, luk i strijela, grnčarija) ili od preovlađujućeg načina ishrane (sakupljanje, lov i ribolov, poljoprivreda) (Delijež 2012, 23). Edvard Tejlor je jedan od malobrojnih evolucionista koji su podvukli psihičko jedinstvo čovjeka govoreći kako ljudski duh funkcioniše na relativno sličan način u svim društvima, a na to ga je navelo otkriće sličnih predmeta i običaja u različitim djelovima svijeta. Međutim njegov glavni doprinos antropološkoj teoriji ogleda se kroz razvijanje komparativnog metoda koji je stavljao u odnos podatke iz različitih sredina, da bi iz njih mogao da izvuče opšte generalizacije, uglavnom evolucionističkog tipa. Na taj način su današnje društvene zajednice koje koriste kamenno oruđe za Tejlora predstavljale "prežitke" praistorijskog društva i svi njegovi aspekti odslikavaju jednak nivo razvitka (Palavestra 2011, 91; Delijež 2012, 29).

Tokom XIX vijeka zabilježeni su prvi pokušaji sistematske analize kremenih artefakata. Za njenog začetnika smatra se Vilijam Holms jer je u svojim radovima detaljno opisao njene ciljeve i značaj. To se odnosilo na upotrebu kamenih alatki kao hronoloških markera, razumijevanje evolucije njihove funkcije i oblika kao i otkrivanje načina njihove proizvodnje i upotrebe (Andrefsky 2005, 3-4). Uz tipološke analize artefakata koja je nastala u XVIII vijeku i dodatno razvijena kroz trostepeni sistem, u XIX vijeku započeti su pokušaji replikacije, odnosno eksperimentalni pokušaji rekonstrukcije njihovog nastanka. Pioniri u tim poduhvatima su, razumljivo, bili arheolozi. Sven Nilson, iako vjerovatno nikada nije napravio vjernu kopiju nekog praistorijskog artefakta, iskoristio je svoje znanje koje je stekao pripremom kremenja za svoju pušku kako bi razumio tehnike koje su korišćene u njihovoj izradi. Za razliku od njega istaknuti engleski naučnik Džon Evans je prvi javno 1868. predstavio

(gathering, hunting and fishing, agriculture) (Delijež 2012, 23). Edward Tylor is one of the few evolutionists who emphasized the psychic unity of humankind, stating that the human spirit is relatively similar in every society, though he had deduced this conclusion through comparing similar objects and customs in different parts of the world. However his major contribution to anthropological theory is the development of the comparative method, comparing data from different parts of the world in order to obtain basic generalizations, mainly with an evolutionistic character. In this sense, the contemporary societies which use stone tools, Tylor considers them as "survivals" of the prehistoric societies, and all of their characteristics reflect equal level of development (Palavestra 2011, 91; Delijež 2012, 29).

During the 19th century, the first attempts for systematic analysis of stone artifacts are noted. William Holmes is considered to be its initiator, since in his work he gives detailed description of its goals and importance. It refers to the usage of stone tools as chronological markers, understanding their functional and shape evolution, and identifying their production and usage (Andrefsky 2005, 3-4). Through typological analysis of artifacts created in the 18th century, and the additionally developed three-age system, in 19th century efforts for replication begun, i.e. experimental attempts to reconstruct their production. Of course, the pioneers in those attempts were archaeologists. Although Sven Nilsson, never succeed to produce an accurate replica of some prehistoric artifact, he used his knowledge acquired during the flint production for his weapon, to understand the techniques used for their production. Contrary to him, the distinguished English scholar John Evans, was the first one who in 1868, publicly presented the technique of direct percussion and pressure flaking. Furthermore,

tehniku direktnog okresivanja i okresivanja pritiskom. Pored navedenog, Evans je zaslužan i za prve pokušaje izrade ručnih klinova, sjekira i drugih rudimentarnih tipova oruđa (Johnson 1978, 337).

Franc Boas i kulturno-istorijska arheologija

I pored intelektualnog uspona koji je socijal-darvinizam doživio time što je bio prihvaćen od strane velikog broja uticajnih antropologa, političke implikacije koje je sa sobom donio nijesu prošle bez kritike. Članovi Berlinskog društva antropologa su već krajem XIX vijeka snažno reagovali na evolucionističke ideje motivisani ekstremnim stavovima zastupanim od strane Ernesta Hekela, sunarodnika koji se čvrsto držao Darwinovog koncepta evolucije prenesenog na društvo. Koncept prirodne selekcije Hekelu je poslužio kao opravdanje za kolonijalizam, osvajačke ratove, ideje o superiornosti ili inferiornosti nekih naroda pa čak i za njihova istrebljenja. Rudolf Firhov, vodeće ime berlinske antropološke škole, nošen svojim liberalnim političkim shvatanjima zamjerao je Hekelu na njegovom rasnom determinizmu. Za Firhova, kulturne razlike nijesu označavale i rasne odrednice, a kultura, jezik i nacija se nijesu nužno morale poklapati (Palavestra 2011, 108-109). U Americi se Franc Boas zajedno sa svojim učenicima i istomišljenicima zalagao za prihvatanje lokalnog razvoja tamošnjih kultura, uz to suprotstavljajući se kulturnom evolucionizmu koji je bio ustanovljen od strane Luisa Morgana. Boasova škola istorijskog (kulturnog) partikularizma ističe difuziju uticaja kao glavnog pokretača kulturnih promjena, odbacujući migracionizam i evolutivne nivoe razvoja društava. Kulturna raznolikost će za pristalice ove antropološke škole biti tumačena kao proizvod više etapa istorijskih dodira između velikog broja kulturnih grupa (Tostevin 2012, 24). Iako nije odbacivao

Evans is accredited for the first attempts of handmade pegs, axes and other rudimentary types of tools (Johnson 1978, 337).

Franz Boas and culture-historical archaeology

Beside the intellectual development that the Social Darwinism experienced because of its adoption by numerous influential anthropologists, political implications brought criticism. Members of the Berlin Anthropological Society, already in 19th century, strongly reacted to the ideas of the evolutionism motivated by the radical standpoints advocated by Ernst Haeckel, a fellow citizen who strongly believed in Darwin's theory of evolution. The theory of natural selection by Haeckel, served as a warrant for colonialism, conquering battles, ideas of superiority or inferiority of some nations, or even their genocide. Rudolf Virchow, the leading figure of the Berlin Anthropological Society, driven by his liberal political beliefs, argued Heinkel's racial determinism. To Virchow, cultural differences did not mean racial classification, whereas culture, language and ethnicity, did not necessarily have to correspond (Palavestra 2011, 108-109). In America, Franz Boas along with his students and followers advocated the local development of their cultures, opposing cultural evolutionism established by Lewis Morgan. Boas's school of historical particularism emphasizes the influence of diffusion as a main force in cultural differences, rejecting the migrationism and stages of evolution in development of societies. Followers of this anthropological school will interpret cultural diversity as product of numerous historical interactions among a great number of cultural groups (Tostevin 2012, 24). Although he did not reject the theory of evolution in nature, he neglected the influence of biology in human development and emphasized the societies' role. Driven

koncept evolucije u prirodi, zanemarivao je uticaj biologije na formiranje čovjeka u prvi plan ističući važnost društva. Vođeni tim teorijskim okvirom odbijali su mogućnost postojanja opštih i univerzalno važećih principa ljudskog ponašanja, na taj način se ogradiвши od „velikih sinteza“ na kojima su insistirali evolucionisti. U fokus antropologa boasovske tradicije došle su pojedinačne kulture, njihove specifičnosti, razlike više negoli sličnosti. Tokom rada u muzeju Smithsonian u Vašingtonu, Boas je imao priliku da svoje teorijske postulate prenese na organizaciju postavke. Evolucionista Mejson, u želji da akcenat stavi na opštem razvoju kulture i evolutivnim fazama, raspoloživi arheološki materijal razvrstao je u klase (grnačarija, oružje, muzički instrumenti), ne obraćajući pažnju na njegovo geografsko ili kulturno porijeklo. Boas je za razliku od njega postavku htio da uredi na takav način što bi svaki posjetilac bio u prilici da prepozna karakterističan stil jednog naroda ili kulture, jer bi nalazi bili predstavljeni u okviru konteksta kome pripadaju (Palavestra 2011, 112-113).

Difuzionizam koji je za Boasa predstavljao centralni teorijski okvir za objašnjavanje kulturnih promjena, imao je strogo uporište u Bečkoj etnološkoj školi i konceptu „kulturnih krugova“. Za njih neka kulturna osobina može nastati samo jednom, jer su ljudi po prirodi neinventivni pa bi se ona širila od jedne do druge društvene zajednice jer su ljudi skloni podražavanju, a kultura je „zarazna“. Ove tvrdnje čine osnovu na kojoj se zasniva rekonstrukcija kulturne istorije praćenjem difuzije materijalne i nematerijalne kulture između različitih grupa (Murray 2007, 287,290,291; Tostevin 2012, 25) Na identičnim principima nastala je osnova evropske kulturne istorije predstavljena od strane najznačajnijeg arheologa prve polovine XX vijeka, Gordona Čajlda. Za razliku od svojih teorijskih uzora iz etnologije i antropologije, Čajld je posebnu pažnju obraćao na arhe-

by those theoretical frames, they rejected the assumption of the existence of general and universal principles in human behavior, thus distancing themselves from the “major synthesis” which evolutionists insisted on. The accent at anthropologists of Boas’s traditions were the individual cultures, their specificities and differences instead of their similarities. During his work at the Smithsonian in Washington, Boas had the opportunity to implement his theoretical postulates towards organizing of the exhibition. The evolutionist Mason, in his attempt to accentuate the general development of the culture and evolutionary stages, had organized archaeological material he had at his disposal into classes (pottery, weapons, musical instruments), without considering their geographical or cultural origin. On the contrary, Boas wanted to organize the exhibition in an order which allows every visitor to identify characteristic styles of a certain ethnic group or culture, since finds were exhibited according to the context they belong to (Palavestra 2011, 122-113).

Diffusionism that Boas considered as the main theoretical frame in explaining cultural changes had solid foundation in Wien’s ethnological school and theory of “cultural circles”. According to them, some cultural features can be created only once, since humans by nature are unimaginative, and they would be distributed from one social group to another because humans are predisposed to support, whereas culture is “epidemic”. This statement represents the foundation on which reconstruction of the history of culture is based, following the diffusion of material and non-material culture between different groups (Murray 2007, 287, 290, 29; Tostvein 2012, 25). Based on identical principles the basic European cultural history is created, represented by the most influential archaeologist of the first half of the 20th century, Gordon Childe. Contrary to his theoretical models

ološki materijal. Njegov poseban doprinos, međutim, ogleda se u uspostavljanju dominacije kulturno-istorijskog metoda u praiistorijskoj arheologiji kao i u izgradnji čvrstog teorijskog i hronološkog okvira praistorije Evrope i Bliskog istoka. Istakao je i značaj arheološke kulture uspostavljajući vezu između nje i etnosa, omogućivši joj da postane osnovni instrument i jedinica arheološke interpretacije (Palavestra 2011, 128). U knjizi *Zora evropske civilizacije* koncept arheološke kulture sistematski je primjenjen u cilju definisanja svake kulture u geografskim i hronološkim okvirima koristeći se stratigrafijom i serijacijom artefakata. Uz ovakav pristup, Evropa je u bilo kojem trenutku tokom svoje praistorije za Čajlda predstavljala kompleksan mozaik arheoloških kultura (Murray 2007, 380).

Francuska tehnološka škola u etnologiji i arheologiji

Tokom XIX i u prvoj polovini XX vijeka nije postojao opšti i široko prihvaćeni metod za izdvajanje tipoloških cijelina pri obradi praistorijskih kamenih artefakata. Kao posljedica takve situacije nastao je veliki broj tradicija (škola), tako da je isti predmet u zavisnosti od pristupa istraživača mogao biti opredjeljen u nekoliko tipoloških grupa. Tek je Francois Bord sredinom XX vijeka jasno izložio svoj metodološki pristup litičkim analizama baveći se tipologijom artefakata iz srednjeg i donjeg paleolita Evrope. Tu je posebnu pažnju posvetio musterijenu, izdvojivši četiri tehnološka kompleksa od kojih je svaki atribuirao ljudskim zajednicama sa zasebnom kulturnom tradicijom, koje su naseljavale isto područje u sličnom vremenskom periodu. U skladu sa tadašnjim teorijskim shvatanjima, razlike u arheološkom materijalu između dva sloja nužno su dovodile do njihovog razdvajanja u kulturnom smislu. Svoje zaključke Bord je temeljio na brižljivim kvantifikativnim analizama učestalo-

from ethnology and anthropology, Childe gave special attention to archaeological material. However, his major achievement is noted for establishing the dominance of cultural-historical method in prehistoric archaeology, as well as the creation of solid theoretical and chronological frame of prehistoric Europe and the Near East. He accentuated the importance of archeological culture, establishing a connection between her and the ethnoses, enabling it to become the basic instrument and unit in archaeological interpretation (Palavestra 2011, 128). In the book *The Dawn of European Civilization* the concept of archeological culture it systematically introduced in order to define every culture in its geographical and chronological framework, using stratigraphy and seriation of artifacts. Through this approach, for Childe, any period of Europe's history presents a complex mosaic of archaeological cultures (Murray 2007, 380).

French technological school in ethnology and archaeology

During the 19th and the first half of the 20th century a widely accepted method for separating typological deposits in prehistoric lithic artifacts did not exist. As a consequence of this situation there was a number of schools, so the same subject differed in accordance with the approach of the scholar. Francois Bordes during the middle of the 20th century clearly explained his methodological approach toward lithic finds from the Middle and Late Paleolithic in Europe. He dedicated special attention to the Mousterian, separating four technological complexes out of which each one was attributed to human communities with a distinct cultural tradition, settling the same area and in the similar time period. According to the thinking at the time, the differences in archaeological material between two layers had to lead

sti pojave nekih tipova alatki, na taj način dobivši podatke pomoću kojih je prepoznao navedene cijeline unutar musterijenskog tehnokompleksa. Međutim, i pored dobro razvijenog metoda, karakter pitanja na koja je tražio odgovor kao i nemogućnost da svoj rad proširi i na druge grupe nalaza pored paleolitskih, izolovao je Borda i sljedbenike od nekih modernijih trendova u francuskoj sociologiji i etnologiji (Soressi, Geneste 2011: 334,335; Džonson 2008: 76).

Francuski antropolog i začetnik etnografije u toj zemlji Marsel Mos, autor je članka *O tjelesnim tehnikama (Les techniques du corps, 1936)* koji se danas smatra pionirskim radom na temu socijologije tijela jer je u tekstu autor pokazao da ono može biti predmet sociološkog istraživanja. Način na koji ljudska bića korsite svoje tijelo (način hodanja, jedenja, držanja alatki) nije uvijek isti, i mijenja se u zavisnosti od godina, pola i kulture (Lemonnier 1986: 149,150). To bi značilo da su navedene tehnike tradicionalne, i da se tokom vremena uče kao vrlo bitan element kulture jedne društvene zajednice. Ne čudi što su Mosovi sljedbenici dosta pažnje posvećivali posmatranju ovih tehnika prilikom istraživanja ljudskih društava. Andre Leroa Guran, sa pozicija etnologije bavio se tehnologijom vidjevši u njoj odraz socio-ekonomskog ponašanja zajednice, a ne samo nivo njenog tehnološkog razvoja. Kroz knjige *Čovek i materija (L'homme e la matiere 1943)* te *Sredina i tehnika (Milieu et techniques 1945)* snažno je doprinio arheološkoj teoriji tog vremena, da bi se kasnije u potpunosti posvetio izučavanju praistorijskog čovjeka. U nekim od kasnijih radova po prvi put upotrijebio je izraz operativni lanac (*chaîne opératoire*), iako ga nije precizno definisao, otvorio je prostor za njegovu široku upotrebu u etnologiji i arheologiji (Lemonnier 1986: 150,151; Sorresi, Geneste 2011: 335-336).

Analiza operativnog lanca podra-

to their distinction in a cultural sense. Bordes based his conclusions on a detailed quantificational analysis of frequency of appearance of some types of tools, fostering data through which he recognized the aforementioned deposits in the Mousterien techno-complex. Even with a well-developed method, the character of the questions to which he wanted answers, as well as the incapability to expand his work to other groups of finds other than the Paleolithic, isolated Bordes and his followers from more modern trends in French sociology and ethnology (Soressi, Geneste 2011: 334, 335; Džonson 2008: 76).

The French anthropologist and one of the first ethnographers in this country, Marcel Mauss, is the author of the article *Les techniques du corps, 1936*, today considered pioneer work in the field of sociology of the body; in the text, the author proved that the body can be subject of sociological research. The way in which human beings use their bodies (the way they walk, eat, hold tools, etc.) is not always the same, and changes proportionally with age, gender and culture (Lemonnier 1986: 149,150). That would imply that the techniques are traditional, and during time they are learned as an important element of the culture of the community. Thus, it is expected for Mauss' followers dedicated a lot of attention to these techniques during the research on human communities. André Leroi-Gourhan worked on technology from an ethnological point of view seeing in it the reflection of the socio-economical behavior in communities, and not only the level of technological development. Through the book *L'homme e la matiere (1943)* and *Milieu et techniques (1945)*, he profoundly contributed towards archaeological theory of the time; he spent the rest of his career analyzing prehistoric man. In some of his older work, he used the expression *chaîne opératoire* for the first time, and although he did not precisely define it, he opened

zumjeva naučni postupak koji ima za cilj rekonstrukciju tehnološkog sistema kojim je raspolagala jneka praistorijska zajednica. To se odnosi na razumjevanje lanca povezanih mentalnih i tjelesnih operacija potrebnih da se od komada sirovine napravi funkcionalna alatka. Ove operacije su trebali biti prepoznate kroz analizu specifičnih morfoloških atributa nalaza (retuš; oblik, debljina i ugao platforme; poprečni i izdužni presjek itd.) uzimajući u obzir i sirovinu od koje je izrađen. Na osnovu pravilnosti u grupisanju ovih karakteristika na pojedinačnom artefaktu postalo je moguće odrediti njegovo mjesto u pomenutom lancu proizvodnje. Čitava ideja počiva na pretpostavci da sve tehnološke manifestacije u jednoj zajednici moraju biti odraz njene kulturne tradicije, drugim riječima, predstavljaju jedan vid misaone ekspresije društva. Iz tog razloga, operativni lanac za francusku tehnološku školu predstavlja osnovnu metodološku jedinicu za dobijanje informacija za opisivanje različitih "tehnika" upražnjavanih od strane ljudi i pručavanje njihove kulture (Sellet 1993: 106; Soresi, Geneste 2011: 336,337; Tostevin 2012: 42,43).

Naučni pristup procesne arheologije

Američki arheolog Luis Binford objavio je 1962. godine članak pod nazivom *Arheologija kao Antropologija* u kome je pored neslaganja sa tradicionalnim arheološkim metodom iznio svoje viđenje i osnovne smjernice razvoja „nove arheologije“. Ujedno je time označen početak paradigme koja će tokom šezdesetih i sedamdesetih godina XX vijeka dominirati anglo-američkom antropologijom. U osnovi čitavog pokreta nijesu stajala zajednička uvjerenja, njegove pristalice bili su arheolozi različitih interesovanja međusobno povezani nezadovoljstvom koje su osjećali prema stanju u tadašnjoj arheologiji. Gomilanje materijala i informacija za njih

the field for its wide usage in ethnology and archaeology (Lemonnier 1986: 150,151; Soresi, Geneste 2011: 335-336).

Analysis of the operational chain implies a scientific method which has the goal to reconstruct the technological system which a prehistoric community had at their disposal. It refers to understanding the chains connecting mental and body operations needed in order to make a functional tool out of a piece of raw material. These operations were supposed to be recognized through analysis of specific morphological attributes of the finds (retouching, shape, thickness, platform angle, section, etc), as well as the raw material out of which it was made of. On the basis of grouping these characteristics of a single artefact, it became possible to determine its place in the chain of production. The whole idea rests on the assumption that all technological manifestations in a community must be an expression of its cultural tradition; they represent a societal thought expression. Because of this, the operational chain in the eyes of the French technological school represents the basic methodological unit for obtaining information to describe different "techniques" used by people (humans) and studying their culture (Sellet 1993: 106; Soresi, Geneste 2011: 336,337; Tostevin 2012: 42,43).

Scientific approach of processual archaeology

American archaeologist Lewis Binford published an article in 1962 titled *Archaeology as Anthropology*, in which he shared his ideas and disagreements with traditional archaeological method, as well as the directions in which he believed "new archaeology" should develop. This marks the beginning of the paradigm which will dominate anglo-american anthropology in the 60s and 70s of the 20th century. The entire movement wasn't based on mutual

nije dovodilo do korisnih zaključaka, stoga je bilo okarakterisano kao fetišizam a čitav naučni pristup u potpunosti lišen antropološke dimenzije (Binford 1962, 218-219; Džonson 2008, 39). Binfordov izvanredan doprinos u utemeljenju nove arheologije ogleda se u pokretanju polemike u vezi ključnih teorijskih pitanja. Smatrao je da su pobornici deskriptivnog arheološkog pristupa svjesno ili nesvjesno sebi postavili ograničenja prilikom bavljenja naukom; arheolozi mogu i moraju otići dalje od jednostavnih konstrukcija prošlosti i osmjeliti se da počnu da postavljaju ključna pitanja. Riješenje za navedene probleme Binford je vidio u približavanju antropologiji i interdisciplinarnom pristupu koji bi arheologiju učinio više naučnom (Sabloff 2005, 160; Palavestra 2011, 171). Naročito su bili direktni i zahtjevi u vezi preciznog definisanja ciljeva istraživanja. Za razliku od tradicionalnog pristupa materijalu koji je rezultirao samo njegovim gomilanjem u muzejskim depoima, predstavnici nove arheologije su insistirali na tome da svako istraživanje prethodno mora imati definisan cilj, odnosno, da se svaki istraživač u svom radu fokusira na određen problem ili grupu problema. Sa promjenom paradigme preispituju se i metode uzorkovanja, u razmatranje prilikom analiza počinju se uzimati svi nalazi a ne samo oni „tipični“, „egzotični“ i „lijepi“ (Džonson 2008, 45-46; Sabloff 2005, 161).

Dok je tokom šesdesetih godina Binford sa svojim istomišljenicima radio na formulisanju novog shvatanja kulture i kulturnih procesa, proračunato se posvetio potrazi sa slučajevima gdje metodološki pristup tradicionalnih arheologa nije pružio kvalitetne interpretacije arheološkog materijala. Upoznat sa pitanjem evropskog srednjeg paleolita kroz nekoliko studijskih boravaka u Francuskoj, otvoreno je iskazao neslaganje sa Bordovim objašnjenjem varijabilnosti musterijenskih industrija. Njegova ideja o različitim ali sinhronim

beliefs; the followers were archaeologists with different backgrounds and interests that were dissatisfied with the state of archaeology at the time. Hoarding material and information did not lead to useful conclusions, thus characterized as fetishism, while the whole scientific approach was completely bereft of an anthropological dimension (Binford 1962, 218-219; Džonson 2008, 39). Binford's remarkable contribution in founding a new archaeology can be identified in the movement of the argument concerning key theoretical questions. He considered that the supporters of the descriptive archaeological approach consciously or unconsciously set themselves limitations during their research; archaeologists can and must go further than simple constructions of the past and dare to start asking key questions. The solution for the aforementioned problems Binford saw in the approximation of anthropology and the interdisciplinary approach which would make archaeology more scientific (Sabloff 2005, 160; Palavestra 2011, 171). The requirements for precisely defining the goal of research were singled out as most important. Instead of the traditional approach to material which resulted in its hoarding in the museum depots, the followers of new archaeology insisted that each and every research must have a previously set goal, i.e. every scholar in his work must focus on a certain problem or a group of problems. With the paradigm shift the methods of sampling were also questioned, as well as the analytical observation in the sense that it had to include all the finds and not only the “typical”, “exotic” and “beautiful” ones (Džonson 2008, 45-46; Sabloff 2005, 161).

Throughout the 60s Binford and his followers worked on formulating a new understanding of culture and cultural processes, he extensively sought cases where the methodological method of the traditional archaeologists did not give qualitative interpretations regarding ar-

kulturnim tradicijama manjih ljudskih grupa Binfordu nije bila dovoljno ubjedljiva, on je smatrao da se iza različitih tipoloških grupa artefakata kriju različiti "kompleti alata" od kojih svaki ima posebnu ulogu u ljudskoj interakciji sa prirodnim okruženjem (Džonson 2008, 76). Ovakvo tumačenje proizilazi iz posebne pažnje koju su procesni arheolozi posvećivali istraživanju odnosa između životne sredine i kulture, koja se sada zajedno sa tehnologijom počinje posmatrati kao čovjekov ekstrasomatski instrument za prilagođavanje životnoj sredini (Binford 1962, 218; Džonson 2008, 42). Binford je uskoro postao svjestan da ne postoji način da provjeri svoju pretpostavku i suprostavi je Bordovoj ideji⁵. Nemoгуćnost povezivanja dešavanja u prošlosti sa statičnim arheološkim materijalom predstavljao je suštinski problem za procesne arheologe, čiji je početni optimizam i vjera u nauku počeo postepeno da se urušava. Snažna retorika usmjerena protiv kulturno-istoijske arheologije u značajnoj mjeri podigla je očekivanja izazivajući u jednom momentu razočarenje zbog izostanka velikih rezultata. Da bi premostili jaz između dvije udaljene hronološke dimenzije, arheolozi su osmislili teoriju srednjeg opsega koja predstavlja metodološki alat pomoću koga je moguće povezati aktivnosti sprovedene u prošlosti sa njihovim tragovima na koje nailazimo tokom iskopavanja (Sabloff 2005, 161-162; Palavestra 2011, 206).

Kao rezultat procesnog pristupa 70-ih godina u Americi osmišljen je niz metodoloških postupaka koji omogućavaju sistematsko sprovođenje velikog broja analiza

5 Kako bi riješio ovaj problem Binford se posvetio etnografskom radu sa Nunamijutima, polunomadskim plemenom čija se ekonomija zasnivala na lovu na jelene i to u uslovima vrlo sličnim onim u južnoj Francuskoj tokom srednjeg paleolita. U želji da među modrenim lovcima sakupljačima pronađe inspiraciju za formiranje teorija srednjeg opsega, postao je pionir u etnografskom radu među procesnim arheolozima.

archaeological material. Familiar with the question of the European Middle Paleolithic as a consequence of his time spent in France, he openly expressed his disagreement with Bords explanation of variability of the Mousterian industries. His idea about different but synchronous cultural traditions of smaller human communities (groups) was not convincing enough for Binford; he considered that behind the different typological groups of artifacts there are various "tool kits", each and every one with a different role in human interaction with their natural surroundings (Džonson 2008, 76). This interpretation came out of the special attention that processual archaeologists dedicated to figuring out the relation between the natural environment and culture, which, in turn, together with technology is being identified as humans extra somatic instrument of adaptation (Binford 1962, 218; Džonson 2008, 42). Binford soon became aware that there is no way to check his assumption and put it against Bords idea⁵. The impossibility of connecting moments in the past with static archaeological material represented an essential problem for processual archaeologists, whose optimism and faith in science started deteriorating. The strong rhetoric towards cultural-historical archaeology significantly raised the expectations, and eventually led to disappointment because of the lack of appropriate results. To bridge this gap between two distant chronological dimensions, archaeologists developed a middle range theory representing a methodological tool with whom they connected

5 In order to solve this problem Binford dedicated himself to ethnographic work with the Nunamiut, a seminomadic tribe whose economy was based on deer hunting in conditions very similar to the ones in southern France during the Middle Paleolithic. In his desire to find an inspiration for forming a theory of the middle range through learning about modern hunter gatherers, he became a pioneer in ethnographic work in the field of processual archaeologists.

na kremenim artefaktima. Bihevioralni arheolozi ustanovili su specifične modele ponašanja grupisane u bihevioralne lance pomoću kojih je moguće pratiti proces nastanka artefakta kroz faze nabavke sirovine, izrade, upotrebe, održavanja i odbacivanja tj. njegove depozicije u arheološkom sloju. Poseban akcenat dat je na prepoznavanju i analizi prirodnih i post-depozicionih procesa izazvanim ljudskom aktivnošću, te njihovom uticaju na kontekst i eventualne promjene na nalazima. (Bleede 2001, 108).

Postprocesni relativizam i interpretativna arheologija

Najjača organizovana kritika usmjerena protiv naučnog pristupa nove arheologije uslijedila je tokom poslednjih decenija XX vijeka sa postmodernističkih stanovišta. Slično talasu poslijeratnog optimizma koji je zahvatio prirodne i društvene nauke, postmodernističke tendencije uvele su relativizam kao polaznu osnovu za naučna istraživanja negirajući njihovu objektivnost. Ove tendencije u arheologiji razvijale su se pod uticajem marksizma, poststrukturalizma, feminizma i drugih kritičkih teorija, što je rezultiralo stvaranjem postprocesnog pokreta (Hodder 1992, 77).

Postprocesna arheologija nastala je kao odgovor kritičara na uočene nedostatke nove arheologije. Suštinska zamjerka leži u tome što su se arheolozi koristili empirizmom i pozitivizmom da bi testirali svoje pretpostavke koje se tiču fizičkog svijeta, ali su isti metod prenijeli i na područje gdje on nije bio primjenjiv. U želji da se bave pitanjima koja se tiču ljudskog ponašanja, ekonomskih i socijalnih struktura, prebregnuti su ograničenja podataka koji im ne daju za pravo da davaju dinamička objašnjenja. Tokom poslednje decenije XX vijeka jedan broj postprocesnih arheologa sa kritike se okrenuo ka uspostavljanju

activities in the past with their traces which we find during excavations (Sabloff 2005, 161-162; Palavestra 2011, 206).

As a result of processual approach of the 70s in America, a string of methodological procedures enabling systematic implementation of numerous analyses on flint artifacts. Behavioral archaeologists came up with specific models of behavior grouped in behavioral chains; with their help, they enabled following the process of making the artifacts through phases of getting raw material, working sustaining and eventually rejecting and depositing it in an archaeological layer. Special attention was put on recognizing and analyzing natural and post-deposit processes fostered by human activity, and their influence on the context and eventual change on the finds themselves (Bleede 2001, 108).

Post processual relativism and interpretative archaeology

The strongest organized criticism against the scientific approach of new archaeology followed, mainly from postmodernist society, throughout the last decades of the 20th century. Similar as the wave of post-war optimism in natural and humanistic sciences, postmodernist tendencies brought relativism as a stepping stone for scientific research, at the same time denying their objectivity. These tendencies in archaeology developed under the influences of Marxism, post-structuralism, feminism and other critical theories, resulting in the creation of the post processual movement (Hodder 1992, 77).

Post processual archaeology developed as an answer to critics towards the deficiencies of new archaeology. The essential remark was that the archaeologists used empiricism and positivism to test their assumptions regarding the physical world, but they transferred the same method to an area where it simply was not applicable.

nove teorije i metoda u arheološkoj nau- ci, istovremeno podstičući raznovrsnost ideja. Umjesto na objašnjenjima fokus je bio na tumačenjima jer se vjerovalo da će različiti ljudi sa različitim društvenim interesovanjima na različit način i vidjeti prošlost. Ovako relativistički pristup postao je u toj mjeri karakterističan da se čitav pokret počeo nazivati interpretativna arheologija (Hodder 2005; 156-157). Procesualisti ohrabruju pokušaje istraživanja misli i vrijednosti u prošlosti, odnosno na istraživanje kultura preko empatije, razumjevanja i objašnjavanja ljudskih postupaka. Pored sistema, arheologija dakle treba da se bavi i pojedincem pokušavajući da ga posmatra iz konteksta društva u kome živi, dakle, „odozdo“ a ne „odozgo“. Dok insistira na razumijevanju konteksta u kojem se nalazi čovjek ili društvena zajednica, postprocesni arheolog mora da bude svjestan i svojih teorijskih i ideoloških pozicija. To je neophodno zbog toga što se svi nalazimo u nekoj političkoj sadašnjosti, tako da se i svi pokušaji tumačenja prošlosti ne mogu osloboditi političkog prizvuka. Jedna od temeljnih tačaka koju sa sobom donosi novi teorijski pristup jeste i to da je materijalna kultura poput teksta koji se treba pročitati. Ovdje se opet dotičemo hermeneutike, jer u zavisnosti od gledišta čitaoca, jedan isti tekst može imati više tumačenja od kojih ni jedno ne mora biti ono pravo (Džonson 2008, 133-134). Ovakav način shvatanja arheoloških nalaza udara direktno u temelje naučnog metoda nove arheologije, posebno ako imamo u vidu objektivnost koja je za njihove pristalice bila neupitna.

Početakom XXI vijeka značenje termina postprocesna arheologija dobilo je dvostruko značenje. Prvo bi se moglo izjednačiti sa interpretativnom arheologijom, a drugo se drugo može povezati sa raznim pokretima nastalim kao reakcija na novu arheologiju, uključujući feminističku i autohtonu arheologiju. Takođe, procesna arheologija je prihvatila neke od kritika na

In the desire to answer questions regarding human behavior, economic and social structures, they overlooked the limitations of data which does not give them the right to dynamic explanations. Throughout the last decade of the 20th century a number of post processual archaeologists moved from criticism to establishing a new theory and method in archaeology, at the same time encouraging diversity of ideas. Instead of explanations, the focus was on interpretation because it was believed that different people with different social interest would see history in a different manner. This relativistic approach became so characteristic that the entire movement was called interpretative archaeology (Hodder 2005; 156-157). Processualists encourage attempts of research of thought and values in the past, i.e. exploration of cultures through empathy, understanding and explaining of human actions. According to the system, archaeology should be processing the individual as well, attempting to view him through the context of the society (community) in which he lived in, i.e. “underneath” and not “above”. While insisting on understanding the context in which the individual or a community is in, the post processual archaeologist must be aware of his own theoretical and ideological positions. It is necessary because we all belong in a political present, and as a consequence all attempts of interpreting the past cannot be relieved of political note. One of the bases of the new theoretical approach was that material culture should be like a text that should be read. Here we touch on hermeneutics, depending on the views of the reader, one text can be interpreted differently and still none of these interpretations have to be right (Džonson 2008, 133-134). This way of understanding archaeological finds hit directly in the foundation of scientific method of new archaeology, especially if we have in mind the objectivity which, to their follow-

taj način apsorbujući ideje interpretativnih arheologa, čak i u Americi gdje je nova arheologija bila dominantna paradigma.

Zaključna razmatranja

Period od XVI do početka XIX vijeka obilježen je dominantnim uticajem religijskih dogmi na gotovo sve segmente društva. Crkva je direktno nametala svoje shvatanje svijeta široj javnosti i na taj način ograničila prostor za djelovanje nauke kojom su se u to vrijeme bavili prirodnjaci i entuzijasti različitih zanimanja. Rezultati njihovog rada rijetko su dovodili u pitanje crkvena ubjeđenja, a kada bi se to desilo tražili su se načini da suprostavljeni stavovi pomire. Istraživačeva sloboda bila je ograničena strahom od kazne, a uz to ni obrazovanje koje se temeljilo na Bibliji i drugim religijskim knjigama nije pogodovalo razvijanju slobodne misli. Iz tog razloga nije iznenađujuće to što su kameni artefakti kao takvi prepoznati od strane ljudi bliskih značajnijim centrima znanja i čije se obrazovanje temeljilo na klasičnim uzorima. Tadašnje biblioteke i kabineti rijetkosti čuvali su znanja o prošlosti kao i svjedočanstva o davnim kontaktima sa udaljenim civilizacijama tako da su prirodnjacima predstavljali nepresušne izvore informacija. Shvatiti keraunijuse kao produkt čovjekovog djelovanja bio je osoben problem, koji je sa sobom povlačio nova pitanja i ukazivao na znatno veću starost čovječanstva nego što je to bilo prihvatljivo. Za preovlađujuće evrocentičnu javnost, posebno teško je bilo preći preko činjenice da evropljani nijesu oduvijek bili na tadašnjem nivou tehnološkog razvoja, te da je postojao period kada su se njihovi preci, u nedostatku metala, služili tako rudimentarnim oruđem kojim inače raspolažu "divljači" na drugim kontinentima.

Uprkos otporu, ove alatke promjenile su način gledanja na samu čovjekovu prošlost, uticale na njeno redefinisanje i

ers, was undisputed.

The beginning of the 21st century the term post processual archaeology acquired a double meaning. The first could be equated to interpretative archaeology, while the second could be connected to different movements as a reaction to new archaeology, including feminist and indigenous archaeology. Processual archaeology also accepted some of the critic in that way absorbing various ideas of interpretative archaeologists, even in America where new archaeology was the dominant paradigm.

Conclusions

The period from the 16th do the beginning of the 19th century was marked by a dominant influence of religious dogmas on almost all parts of society. The church directly imposed its understanding of the world to the public and in that way limited the space for activity of sciences which were undertaken by naturalists and enthusiasts of different interests. The results of their work rarely brought into question the churches beliefs, and when something like that occurred, a middle ground was sought after in order to please both sides. The scholars' freedom was limited to fear of punishment, and education, already based on the Bible and other religious books, was not suitable for development of free thought. Because of this it is not at all surprising that stone artifacts as such were identified by people close to the centers of knowledge and whose education was based on classical models. The libraries and cabinets of rarities contained knowledge of the past as well as testimonies of forgotten contacts with distant civilizations, so the naturalists had an inexhaustible source of information. To understand *cerunia* as a product of human activity was a basic problem, which brought new questions and pointed towards a much older

izdavanje hronološke cjeline koju danas nazivamo kamenim dobom. Istraživači koji su se u to vrijeme interesovali za arheološke nalaze, svoj rad su u najvećoj mjeri usmjerili na sistematizaciju i prezentaciju dostupnog materijala. U oba slučaja važnu ulogu je imala klasifikacija tj. podjela nalaza u grupe prema funkciji, materijalu od kojih su izrađeni ili prema nekim drugim fizičkim karakteristikama. Evolucionisti, potom, nijesu morali da ulože veliki napor kako bi ovako razvijen metod sistematizacije prilagodili svom već razvijenom teorijskom okviru. Kompleksnije manifestacije materijalne kulture vezivane su za ljudske zajednice više odmakle na zamišljenoj skali civilizacije bez obzira da li je riječ o savremenim ili zajednicama iz prošlosti. O manjkavostima naučnog metoda socijaldarvinista govori i to što u obzir nijesu uzimani uslovi u kojima je nastala kultura koja je predmet istraživanja, zanemarujući na taj način brojne unutrašnje i spoljašnje agense⁶. Zbog posljedica ovakvog pristupa uslijedila je reakcija liberalnijih krugova bliskih bečkoj i berlinskoj antropološkoj školi, gdje evolucionistička misao nije doživjela tako snažnu ekspanziju kao u Velikoj Britaniji ili Americi. Njihova antropološka misao u potpunosti je lišena jednolonijskog evolucionizma i ozloglašenog koncepta "opstanka najsposobnijih" prilikom istraživanja ljudskih društava. Arheološki nalazi dobili su novu ulogu, postali su ključ za definisanje kulturnih područja čije je geografsko i vremensko rasprostiranje postala glavna briga naučne epohe koja će u arheološkoj teoriji ostati zapamćena kao kulturno – istorijska. Arheološka kultura posmatrana je kao zaseban entitet koji se kroz protok vremena razvija i kulturnom difuzijom širi na susjedna područja gdje ostavlja tragove

6 O tome koliko spoljašnji uticaji (geografski položaj, klima, reljef, raspored flore i faune, pravac pružanja kontinenanata, izolovanost itd.) mogu usmjeriti razvoj jedne kulture i uticati na sudbinu ljudskih društava govori knjiga Džareda Dajmonda – *Mikrobi puške i čelik*

age of humanity that it was acceptable at the time. For the most of the Eurocentric public, it was especially difficult to go over the fact that Europeans have not always been on a certain level of technological development, and that there was a time when their ancestors, in the lack of metals, used rudimentary tools more suitable to "savages" on other continents.

Despite the resistance, these tools changed the way of viewing human history itself, influenced its redefining and separating of a chronological whole which we today call Stone Age. The scholars who were interested in this type of archaeological finds, worked mostly towards systematization and presentation of already available material. In both cases classification had a very important role; more precisely, the division of finds in groups according to function, raw material or other physical characteristics. Evolutionists did not have to put in a big effort to adjust this method of systematization to their already developed theoretical framework. The more complex manifestations of material culture were connected to more developed human communities on the civilization scale, be contemporary or prehistoric communities. The scientific methods of Social-Darwinism and its flaws are well recognizable in that the conditions in which the cultures which were studied developed weren't taken into consideration, thus neglecting numerous internal and external implications⁶. Because of the consequences of this approach a reaction of the more liberal anthropological schools of Vienna and Berlin followed, where evolutionistic thought did not go through such a drastic expansion as in Britain and America. Their anthropological thought was completely deprived of the

6 On how much external influences (geographic position, climate, flora and fauna, continental setup, isolation, etc) can give direction to a development of a culture and influence the destiny of human communities (societies) see the book of Jared Diamond - *Microbes, guns and steel*

svog uticaja. Interpretacija prošlosti sljedbenika nove paradigme stoga se zasnivala na hronološkim analizama i deskripciji materijala fokusiranoj na formiranje različitih tipoloških grupa (Palavestra 2011, 132). Iako je ova ideja za posljedicu imala selekciju materijala koji je tipološki i stratigrafski "osjetljiv" i zanemarivanje svih drugih nalaza, kulturno-istorijski pristup karakterisao je arheološki metod sve do pojave nove paradigme pokrenute talasom optimizma u nauci tokom druge polovine XX vijeka. Prethodno je Francois Bord do detalja razradio tipologiju kamenih alatki iz srednjeg i donjeg paleolita direktno izloživši svoj metodološki pristup. Tom prilikom su ovi nalazi po prvi put tretirani na naučno sistematizovan način, što je rezultiralo izdvajanjem velikog broja tipoloških jedinica čiji su nazivi i danas u upotrebi. Ovaj metod, međutim, nije mogao zadovoljiti visoke zahtjeve procesnih arheologa, pokazao se sterilnim zbog malog broja objašnjenja koja je bio u mogućnosti da pruži.

U to vrijeme, na dva kontinenta, razvijani su novi pristupi analizi kamenih alatki, ovog puta koncentrisani na rekonstrukciji tehnološkog postupka u skladu sa modernim trendovima u arheologiji i nauci uopšte. Činjenica je da su oba pogleda na tehnološke sisteme nastali i razvijali se odvojeno, jedan iz etnologije dok drugi ima korijene u procesnoj arheologiji. Istraživanje operativnog lanca u Francuskoj, za procesualiste lišeno je značajnije teorijske pozadine jer je sprovedeno iz potrebe da se rekonstruiše dinamika razvoja pojedinačne praistorijske alatke, kao reakcija na relativno statičan metod Bordove tipologije. Za razliku od svojih evropskih kolega, američki arheolozi su ohrabrivani da posebnu pažnju obraćaju na prirodne i postdepozicionalne transformacije za koje se smatra da imaju presudan uticaj na formiranje arheološkog zapisa. Oni su iz tog razloga metod francuske tehnološke škole vidjeli kao ograničen u odnosu na

linear evolutionism and the notorious concept of "survival of the fittest" while doing research on human societies. Archaeological finds gained a new role, becoming key to defining cultural areas whose geographic and historic area of concern became the main point of interest of a scientific epoch which will in archaeological theory be remembered as culture - historical. Archaeological culture is seen as a separate entity which through time and cultural diffusion develops to neighboring (adjacent) areas where it leaves its mark. The interpretation of the past by followers of the new paradigm was based on chronological analysis and description of material focusing on forming of different typological groups (Palavestra 2011, 132). Although this idea had its consequences in material selection - working only on the material which is typologically and stratigraphically "identifiable" and thus neglecting all other finds - the cultural-historical approach characterized the archaeological method until the appearance of a new paradigm boosted by the wave of optimism in science during the second half of the 20th century. Previously Francois Bordes developed the typology of stone tools from the Middle and Lower Paleolithic in detail, exposing his methodological approach directly. These finds were treated in a scientifically systematized method for the first time, resulting in dividing numerous typological units whose names are still in use today. This method, however, could not satisfy the high expectations of processual archaeologists, and was exposed for being sterile because of the small amount of explanations which it could provide.

Meanwhile, on two continents, new approaches towards analyzing stone tools were developed, this time concentrating on reconstructing technological process in accordance to modern trends in archaeology and science in general. The fact is that both approaches on the technological systems were created and developed

koncept bihevioralnih lanaca, koji je imao drugačija konceptualna polazišta ali i teorijske ciljeve (Sellet 1993, 107; Bleede 2001, 107).

separately, one through ethnology while the other rooted in processual archaeology. The research on the operation chain in France, for the procesualists, was deprived of the meaningful theoretical background because it was conducted out of need to reconstruct dynamics of development of certain prehistoric tools, as a reaction to a relatively static method of Bordes' typology. Unlike their European colleagues, American archaeologists were encouraged to dedicate special attention to natural and post-deposit transformations which could have a crucial influence on forming of archaeological data. As a consequence they saw the method of the French technological school as limited in concordance to the concept of behavioral chains, which had a different conceptual starting point, as well as theoretical goals (Sellet 1993, 107; Bleede 2001, 107).

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