Keramika iz razdoblja kineske dinastije Song u Muzeju Mimara

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Song Ceramics in the Mimara Museum

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U zbirci kineske umjetnosti i drugih azijskih umjetnosti Muzeja Mimara ističe se skupina od devet keramičkih posuda. Šest od njih mogu se prema obliku tijela od kamenine i caklini pripisati proizvodnji kineskih keramičkih radionica iz razdoblja vladavine dinastije Song (960. – 1279. g.). Unutar te skupine razlikuju se dvije podskupine: podskupina od dvije posude ocakljene u tonovima zelene i plavo-zelene boje poznate pod nazivom celadon i podskupina od četiri smeđe-crno ocakljene posude. Uz podskupinu posuda ocakljenih u boji celadona povezana je veća zdjela lošije kvalitete izrade, prethodno pripisana keramici iz Longquana, a koja se prema obliku tijela i caklini može pripisati proizvodnji tajlandskih keramičkih radionica Si Sachanalai (Sawankhalok), te dvije plitke zdjelice kasnije kineske proizvodnje iz razdoblja dinastije Ming (1368. – 1644. g.).

In the collection of Chinese and other Asian art of the Mimara Museum a group of nine glazed stoneware vessels stand out. According to their body shapes and glazes six of them are attributed to the production of Chinese kilns from the period of the Song dynasty (960 – 1279). In this group two subgroups can be distinguished: a subgroup of two vessels glazed in shades of green and bluish-green colour known as celadon and a subgroup of four brown-black glazed vessels. Connected to the celadon glazed subgroup of vessels is a celadon glazed bowl of a lesser quality previously attributed to the Longquan kilns which, according to its shape and glaze, can be attributed to the production of the Thai Si Satchanalai (Sawankhalok) kilns and two shallow bowls produced later in the Ming dynasty period (1368 – 1644).

Kina u razdoblju vladavine dinastije Song

Razdoblje vladavine dinastije Song u Kini se smatra najznačajnim u povijesti kasnijeg carstva. Bilo je to vrijeme velikih društvenih i gospodarskih promjena koje su oblikovale i presudno utjecale na daljnje duhovno i političko usmjerenje Kine kroz razdoblja vladavine dinastija Ming i Qing (1644. – 1911. g.) sve do pada carstva. Prvi car iz dinastije Song Taizu (vladao 960. - 976. g.) ujedinio je carstvo nakon politički nestabilnog razdoblja poznatog kao razdoblje Pet dinastija i Deset kraljevstva (907. – 960. g.). Osnovao je novu prijestolnicu u gradu Bijanjing (danas

China during the Song Dynasty

The reign of the Song dynasty in China is considered the most significant in the history of the later empire. It was a time of great social and economic changes that shaped and decisively influenced the spiritual and political orientation of China through the periods of the Ming and Qing (1644 – 1911) dynasties until the fall of the empire. The first emperor of the Song dynasty Taizu (reigned 960 - 976) unified the empire after a politically unstable period known as the Five Dynasties and the Ten Kingdoms period (907 – 960). He founded a new capital in the city of Bianjing (today Kaifeng) on the banks of the Yellow River in Henan

Kaifeng) na obalama Žute rijeke u pokrajini Henan. Gospodarstvo novog carstva Songa doživjelo je brzi napredak oslanjajući se na niz novina poput plaćanja novčanicama, a stabilnost državnih prihoda osiguravao je monopol u trgovanju solju, čajem, alkoholom i svilom. Zahvaljujući napretku u uzgoju riže i bogatim žetvama broj stanovnika naglo je rastao pa se može pretpostaviti da je u XI. st. broj tadašnjih podanika carstva dosegnuo 100 milijuna. Razvili su se gradovi kao bogata središta trgovine i slobodnog poduzetništva.

Bogato carstvo zahtijevalo je i novu učinkovitiju upravu. Po naredbi cara tada su izrađene prve kartografske mape regija i gradova. Zahvaljujući napretku u tiskanju drvenim pločama knjige su postale svakodnevno dostupne velikom broju ljudi što je unaprijedilo pismenost i omogućilo procvat književnosti. Brojni izumi unaprijedili su poznavanje prirodnih znanosti, osobito matematike i astronomije što je dovelo do konstrukcije prvih astronomskih mehaničkih naprava.

Umjesto uobičajenog izbora državnih dužnosnika iz redova vojnog plemstva koji se primjenjivao u razdoblju vladavine dinastije Tang (Schwartz-Arenales et al. 2018: str. 26) uspostavljen je novi način upravljanja uz pomoć državnih činovnika. Odabir i sposobnost pojedinaca za činovničko zvanje stogo se nadziralo kroz sustav državnih ispita, a ti novi carski činovnici počeli su se u velikoj mjeri oslanjati na predstavnike lokalne vlasti.

Carstvo nije podupirala i snažna vojska što su iskoristili dotadašnji saveznici, polunomadski turkijski narod Džurdži, koji su porazili carsku vojsku, zauzeli glavni grad Bianjing i tamo osnovali svoju dinastiju Jin (1115. – 1234. g.). Carski dvor tada se preselio u južni dio dotadašnje države i osnovao novu prijestolnicu u gradu Lin'anu (danas Hangzhou) u pokrajini Zheijang. Država poznata pod nazivom Južni Song trajala je do 1279. g. kada su je osvojili Mongoli koji su osnovali svoju dinastiju Yuan (1279. – 1368. g.).

Nakon prvih teških dvadeset godina razdoblja Južnog Songa kojeg su obilježili potresi, urušavanja tla, poplave i

Province. The economy of the new empire of Song experienced a rapid progress relying on a range of innovations such as banknote payments. The stability of state revenues was ensured by a monopoly in the trade in salt, tea, alcohol and silk. Thanks to the progress in rice cultivation and rich harvests, the number of inhabitants grew sharply, so it can be assumed that in the 11th century the number of the subjects of the empire reached 100 million. Cities developed as rich centres of trade and free enterprise.

The rich empire also demanded a new and more efficient administration. By the order of the emperor, the first cartographic maps of regions and cities were made at that time. Thanks to advances in printing using wooden blocks, books have become available to a large number of people on a daily basis, which has improved literacy and enabled the flourishing of literature. Numerous inventions improved the insights in the natural sciences, especially mathematics and astronomy, which led to the construction of first astronomical mechanical devices.

Instead of the usual election of state officials from the ranks of the military nobility that was applied during the reign of the Tang dynasty (Schwartz-Arenales et al.: 2018: p. 26), a new way of governing was established with the help of state officials. The selection and ability of individuals for administrative profession was controlled through the system of state exams, and these new imperial officials began to rely heavily on local government representatives.

The empire was not supported by a strong army, a situation taken advantage of by the semi-nomadic Tungusic Jurchen people, who defeated the imperial army, conquered the capital Bianjing and founded their Jin dynasty there (1115 – 1234). The imperial court then moved to the southern part of the former state and established a new capital in the city of Lin'an (present-day Hangzhou) in Zheijang province. The state known as the Southern Song lasted until 1279, when it was conquered by the Mongols who founded their Yuan dynasty (1279 – 1368).

After the first difficult twenty years of the Southern Song period marked by earthquakes, landslides, floods and famines (Kerr 2018: p. 76) the life of the inhabitants slowly returned to normal activities. Settling in the security of the new capital, the imperial court and social elite continued their elegant life enjoying the beauties of the hilly en-

glad kao posljedica tih prirodnih nepogoda (Kerr 2018: str. 76) život stanovnika polako se vratio uobičajenim djelatnostima. Smjestivši se u sigurnost nove prijestolnice carski dvor i društvena elita nastavili su svoj otmjeni život uživajući u ljepotama brdovitog okoliša i obližnjeg Zapadnog jezera čije su obronke uljepšali palačama, vrtovima i buddhističkim hramovima.

Društveni život toga razdoblja bio je visoko organiziran i odvijao se u nizu dnevnih, mjesečnih, sezonskih i godišnjih obreda koji su se jednakim ritmom smjenjivali tijekom godine odražavajući uljudno i tolerantno društvo. Festivali su označavali promjenu godišnjih doba, carske rođendane, zahvalnice, određene buddhističke blagdane poput Buddhina rođendana na 8. dan 4. mjeseca u lunarnom kalendaru. Druge svetkovine bile su povezane s prirodnim pojavama kao što je primjerice bilo promatranje plimnih valova na rijeci Zhe. Štovali su se brojni duhovi, preci, lokalni junaci i povijesne ličnosti od znamenitih vojnika do uglednih znanstvenika. Izražavalo se divljenje ljepoti slaganja cvijeća i vještini posluživanja čaja (Kerr 2018: str. 74-75).

Građani su rado trgovali umjetninama i procjenjivali njihovu ljepotu i sklad oblika. U filozofiji obnovljena su drevna načela Konfucija koja su se s vremenom stopila s buddhističkim vrijednostima u neo-konfucijanizam primjeren nastalim promjenama u kineskom društvu.

Pripadnici nove vladajuće elite u skladu s neo-konfucijanskim duhovnim učenjem rado su se u slobodno vrijeme bavili slikanjem i kaligrafijom u stilu slobodnijem od propisanog stila Carske slikarske akademije koja je okupljala nadarene umjetnike iz svih dijelova Kine. Stil akademije zasnovan na naturalističkom pogledu na svijet imao je krajolik kao središnju temu.[1]

Ispijanje čaja u razdoblju dinastije Song

Uživanje u ispijanju čaja u Kini ima dugu tradiciju. U početku smatran tek ljekovitim napitkom, u doba dinastije Tang (618. – 907. g.) čaj se već posluživao kao napitak za

vironment and the slopes of the nearby West Lake, embellished with palaces, gardens and Buddhist temples.

The social life of the period was highly organized and took place in a series of daily, monthly, seasonal, and annual rites that alternated at the same pace throughout the year reflecting a polite and tolerant society. Festivals marked the change of seasons, imperial birthdays, gratitude rituals, certain Buddhist holidays like Buddha's birthday on the 8th day of the 4th month in the lunar calendar. Other festivals were associated with natural phenomena such as the observation of tidal waves on the Zhe River. Numerous spirits, ancestors, local heroes and historical figures from famous soldiers to eminent scientists were worshiped. Admiration was expressed for the beauty of arranging flowers and the skill of serving tea (Kerr 2018: pp. 74-75).

Citizens were happy to trade in works of art and appreciate their beauty and harmony of form. In philosophy, the ancient principles of Confucius were restored, which over time merged with Buddhist values into neo-Confucianism appropriate to the resulting changes in Chinese society.

Members of the new ruling elite, in accordance with the neo-Confucian spiritual teachings, were happy to engage in painting and calligraphy in their free time in a style freer than the one prescribed by The Imperial Painting Academy which brought together talented artists from all parts of China. The academy style based on a naturalistic view of the world had landscape as its central theme.[1]

Tea drinking in the period of Song Dynasty

Tea drinking has a long tradition in China. Initially considered only a medicinal beverage, during the Tang dynasty (618-907) tea was already served as beverage for enjoyment. This was done by extracting a small amount of dried leaves from a pressed larger piece the size of a brick and placing it in a teapot with hot water. Other fragrant spices were gladly added - ginger, orange peel, mint, various berries, etc. The tea prepared in this way was reddish in colour, which, in the opinion of the sophisticated consumers of that time, stood out best against the light green glazed Yue stoneware.

During the Song dynasty period, tea preparation changed. Instead of brewing whole

ugodu na način da se iz prešanog većeg komada veličine opeke izdvajala manja količina sušenog lišća i stavljala u čajnik s vrućom vodom. Rado su se dodavali i drugi mirisni začini –džumbir, narančina kora, metvica, različite bobice i sl. Tako pripremljeni čaj bio je crvenkaste boje koja se, prema mišljenju tadašnjih otmjenih uživatelja, najbolje isticala u svijetlozeleno ocakljenoj kamenjači *Yue*.

U razdoblju dinastije Song način pripremanja čaja se promijenio. Umjesto da se kuhaju cijeli listići čaja sada se čaj najprije samljeo u prah, potom se manja količina toga praha stavljala na dno zdjelice i prelijevala vrućom vodom, a zatim se uz pomoć male bambusove metlice tukla dok se ne bi bijelo zapjenila (Kerr 2009: str. 65).

Car Huizong (vladao 1101. – 1125. g.), osmi i posljednji vladar ujedinjene države, razdoblja poznatog u kineskoj povijesti kao Sjeverni Song (960. – 1126. g.), i sam je bio vješt slikar, kaligraf i glazbenik. Omiljena tema njegovog slikarstva bili su motivi krajolika s pticama. Bio je i strastveni uživatelj čaja i poznavatelj čajne ceremonije što je i pokazao u svom djelu pod naslovom „Zapis o čaju u razdoblju Daguan".[2]
Bijeli čaj za carev užitak uzgajao se na posebnoj plantaži Beuyain u pokrajini Fujian koju je vodio visoki carski činovnik-znanstvenik Cai Xiang (1012. – 1067. g.) i smatrao se najfinijim čajem na tržištu, vrijednijim od zlata. Cai je napisao i studiju „Zapis o čaju" i prema mišljenju tog otmjenog znalca za njegovo ispijanje najpogodnije su bile zdjelice od kamenjače Jian s uzorkom „zečjeg krzna" u caklini koje su lijepo isticale bijelu pjenu (Barnes 2014: str. 18).
Čaj pod nazivom „zmaj i feniks" iz pokrajine Fujian podijeljen u dvanaest podvrsta smatrao se najkvalitetnijim premda su se pile i druge vrste čajeva dopremljene iz središnje Kine i pokrajine Sichuan. Brojne čajane bile su raspoređene uzduž Carske avenije, središnje ulice u glavnom gradu koja je vodila prema palači. Otvarale su vrata u pet sati popodne i ostajale otvorene dugo u noć kao omiljeno okupljalište bogatijih građana koji su u ugodnom ambientu, okruženi cvijećem i *bonsai* drvećem ((Kerr 2018: str. 76), rado sklapali unosne poslove usput pokazujući svoje znanje o čajevima i otmjenost u njihovom u ispijanju (Kerr 2018: str. 78).

leaves, tea was now ground into powder and then a small amount of that powder was placed on the bottom of the bowl, poured over with hot water and then beaten with a small bamboo whisk until it foamed white (Kerr: 2009: p. 65).

Emperor Huizong (reigned 1101 – 1125), the eighth and last ruler of the united state, a period known in Chinese history as the Northern Song (960 – 1126), was himself a skilled painter, calligrapher, and musician. He liked to paint landscape motifs with birds. He was also a passionate connoisseur of tea and tea ceremonies and displayed his knowledge in the text entitled "Record of Tea in the Daguan Period".[2]
White tea for the emperor's pleasure was grown on a special Beiyuan plantation in Fujian province run by a high-ranking imperial official-scientist Cai Xiang (1012 – 1067) and was considered the finest tea on the market, more valuable than gold. Cai also wrote the treatise "Record of Tea" and according to this elegant expert the most suitable bowls for drinking it were Jian stoneware with a "hare's fur" pattern in glaze which brought out nicely the white foam (Barnes 2014: p. 18).
Tea called "dragon and phoenix" from Fujian province, divided into twelve sub-types, was considered to be of highest quality, although other types of tea were also imported from central China and Sichuan province. Numerous teahouses were arranged along the Imperial Avenue, the central street in the capital leading to the palace. They opened their doors at five o'clock in the afternoon and remained open long into the night as a favourite gathering place of wealthier citizens who, in a pleasant ambience, surrounded by flowers and bonsai trees (Kerr 2018: p. 76), gladly made lucrative deals all the while demonstrating their knowledge of teas and elegance in drinking (Kerr 2018: p. 78).

Tea drinkers from high society gathered to compete in a tea game known as doucha *which was actively promoted by Cai in which the colour of tea and the duration of froth were judged (Barnes 2014: p. 18).*

Ceramics in the period of Song Dynasty

Many experts still consider the ceramics from the reign of the Song dynasty to be the most beautiful artistic achievement of Chi-

Uživatelji čaja iz visokog društva okupljali su se i radi natjecanja u igri ocjenjivanja boje čaja i trajnosti pjene poznatoj pod nazivom *doucha* koju je promicao Cai (Barnes 2014: str. 18).

Keramika iz razdoblja dinastije Song

Keramiku iz razdoblja vladavine dinastije Song i danas mnogi stručnjaci smatraju najljepšim umjetničkim postignućem kineskih keramičara. Podjela na carsku i ne-carsku ili pučku keramiku tipična je za kineski i općenito azijski pristup procjeni kvalitete pojedinih predmeta sukladno uvjerenju da je keramika namijenjena carskom dvoru kvalitetnija od one pučke, dok se stručnjaci na zapadu više oslanjaju na osobni estetski dojam. U Kini ta se tradicionalna procjena vrijednosti osobito razvila u kasnijem carskom razdoblju vladavine dinastija Ming i Qing kada su prosvijećeni znalci ustanovili tradiciju „Pet klasičnih vrsta keramike dinastije Song" premda se ona ne zasniva na povijesnim činjenicama. Pet radionica čine Ru[3] Guan[4], Ge[5], Ding[6] i Jun[7] (Kerr 2004: str. 26).
Prema povijesnim činjenicama u razdoblju dinastije Song nisu postojale radionice za proizvodnju keramike namijenjenu isključivo za carski dvor nego su državni činovnici posjećivali radionice da bi tamo među proizvedenom keramikom izabrali najljepše primjerke za dvorsku upotrebu. Činjenica je da se keramika proizvedena u nekim radionicama[8] više cijenila nego keramika iz drugih radionica[9] koje bi se prema toj podjeli mogle smatrati pučkim radionicama premda su i cjenjene radionice proizvodile kamenjaču za slobodno tržište. Njihovi kupci bili su iz redova nove društvene klase državnih činovnika koji su keramičke posude sakupljali radi divljenja njihovoj ljepoti na isti način na koji su uživali u ljepoti predmeta od žada, kamena ili bronce (Tregear 1982: str. 14).
Za potrebe ostalih slojeva društva postojale su velike keramičke radionice s pećima u gradovima Longquan, Yaozhou i Cizhou koje su proizvodile velike količine raznovrsne kamenjače različite razine kvalitete i stila ukrašavanja. Brojni oblici posuda ukrašeni obojenom caklinom koristili su se u svakodnevnom životu od vjerskih obreda i grobnih priloga do posuda za hranu i piće, te za ukrašavanje doma.

nese potters. The division into imperial and non-imperial or popular wares is typical of the Chinese and generally Asian approach to assessing the quality of individual objects in accordance with the belief that pottery intended for the imperial court is better than popular pottery, while experts in the West rely more on personal aesthetic impression. In China, this traditional valuation developed especially in the later imperial period of the Ming and Qing dynasties when enlightened scholars established the tradition of the "Five Classic Wares of Song Dynasty" although it is not based on historical facts. Five ware types were Ru[3], Guan[4], Ge[5], Ding[6], and Jun[7] (Kerr 2004: p. 26).
According to historical facts, during the Song Dynasty there were no kilns for the production of pottery intended exclusively for the imperial court, but state officials visited the kilns to choose the most beautiful items for the court use. The fact is that pottery produced in some kilns[8] was valued more than pottery from other kilns[9] (Kerr 2004: p. 26) which, according to this division, could be considered popular kilns, although the esteemed kilns also produced stoneware for the free market. Their customers were from the ranks of a new social class of government officials who collected ceramic vessels to admire their beauty in the same way they enjoyed the beauty of jade, stone, or bronze objects (Tregear 1982: p. 14). For the needs of other levels of society, there were large ceramic workshops with kilns in the cities of Longquan, Yaozhou and Cizhou, which produced large quantities of stoneware of different levels of quality and style of decoration. Vessels of various shapes decorated with coloured glazes were used in everyday life, in religious rites and as burial goods as well as wares for food and drink, and as decorative items for the home.

Longquan celadon

The city of Longquan is located in the southwestern part of the Southern Chinese province of Zhejiang. A peculiarity of the Longquan stoneware is the glaze in green and green-blue tones known in Europe as celadon, named after the young shepherd boy Céladon who wore a costume with misty green ribbons on his sleeves in the pastoral play L'Astrée by the French writer Honoré d'Urfé (1568 – 1625).[10]

Rich deposits of clay suitable for making stoneware in the valley of the Ou River (Ou-

jiang) along which the city of Longquan is located, were the basis for the opening of numerous ceramic workshops with large kilns. The pottery produced there was transported by the river to the centre for sale, and the surrounding mountain forests provided large quantities of firewood.
The production of pottery in Longquan began in the short period of the Western Jin dynasty (265 – 306) long before the reign of the Song dynasty. Few kilns at the time made pottery for the needs of local population. In the period of the Five Dynasties (907 – 960), kilns already produced stoneware with light green glaze, which continued into the reign of the Song dynasty.

From the end of the 12th century, potters from Longquan used kaolinite clay as their basic material and because it does not contain iron oxide in firing produces a white clay body. For the clay body to take on the desired pale-grey colour, and unglazed bottom of a vessel to turn to a rusty colour after firing and re-oxidation that blends harmoniously with the celadon glaze, the potters deliberately added clay with an iron oxide content of about two percent (Wood 2007: p.76; Kerr 2004: p. 90).

On Longquan celadon, the glaze was applied in multiple layers to a thickness of 1 to 1.5 mm (Kerr, Wood 2004: p. 575) thus completely covering the clay body.[11] The glaze was applied by immersing the object in the diluted mixture. The porous unfired clay body would absorb the water while the dried tiny solid particles remained on the surface in a uniform layer. The layer applied in this way was too thin for the desired effect, so the potters repeated the procedure from three up to eight times until the glaze layers would take on the required thickness. Each new layer was fixed with lower temperature firing (Kerr 2004: p. 92) of about 1150°C (Celadon *2005: p. 28). Interestingly, during the last firing at a high temperature of about 1220-1280°C there was no complete chemical bonding of individually applied glaze layers into a homogeneous layer, but each of these layers retained its chemical arrangement of different crystalline structure of calcium and silica both on the outer as well as in the inner part of each individual layer (Kerr, Wood 2004: p. 576). This can be explained as a consequence of the agency of tiny insoluble pieces inside the diluted glaze which at the time of drying left a mixture of limestone and quartz particles on*

Celadon iz Longquana

Grad Longquan smješten je u jugozapadnom dijelu južnokineske pokrajine Zheijang. Osobitost kamenjače iz Longquana je caklina u zelenim i zelenoplavim tonovima koja je u Europi poznata pod nazivom celadon, nazvana prema liku mladog pastira Céladona iz pastoralne predstave *L'Astrée* francuskog pisca Honoré d'Urféa (1568. – 1625.) koji je nosio kostim s trakama svijetlozelene boje na rukavima.[10]

Bogate naslage gline pogodne za izradu kamenjače u dolini rijeke Ou (Oujiang) uz koju se smjestio grad Longquan, bile su osnova za otvaranje brojnih keramičkih radionica s velikim pećima. Proizvedena keramika rijekom se prevozila do središta za prodaju, a okolne planinske šume osiguravale su velike količine drva za loženje.
Proizvodnja keramike u Longquanu započela je davno prije dinastije Song u kratkom razdoblju vladavine dinastije Zapadni Jin (265. – 306. g.). Malobrojne tadašnje radionice izrađivale su keramiku za potrebe lokalnog stanovništva. U razdoblju Pet dinastija (907. – 960. g.) radionice su već proizvodile kamenjaču sa svijetlozelenom calkinom – celadon koja se nastavila i s dolaskom na vlast dinastije Song.

Od kraja XII. st. keramičari iz Longquana koristili su kao osnovni materijal kaolinitnu glinu koja ne sadrži željezni oksid pa u pečenju daje bijelo glineno tijelo. U želji da glineno tijelo poprimi željenu svijetlosivu boju, a neocakljeni rub dna posude nakon pečenja i reoksidacije dobije topli željeznocrveni ton koji se skladno stapa s caklinom zelenoplavih tonova, keramičari su u smjesu morali dodavati glinu s udjelom željeznog oksida od oko 2% (Wood 2007: str. 76; Kerr 2004: str. 90).

Na celadonu iz Longquana caklina se nanosila u više slojeva do debljine od 1 do 1,5 mm (Kerr, Wood 2004: str. 575) čime se potpuno prekrivalo glineno tijelo.[11] Caklina se nanosila potapanjem predmeta u razvodnjenu smjesu. Porozno nepečeno glineno tijelo upilo bi vodu dok su se na površini zadržali osušeni sitni kruti sastojci u jednolikom sloju. Tako naneseni sloj bio je pretanak za željeni dojam pa su keramičari ponavljali isti postupak i

do četiri puta da bi sloj cakline poprimio traženu debljinu. Zanimljivo je da prilikom pečenja na temperaturi od oko 1230°C koje je potom slijedilo nije došlo do taljenja i potpunog kemijskog vezivanja pojedinačno nanesenih slojeva cakline u homogeni sloj već je svaki od tih slojeva zadržao svoj kemijski raspored različite kristalične strukture kalcija i silicija kako u vanjskom dijelu tako i u unutarnjem dijelu svakog pojedinog sloja (Kerr, Wood 2004: str. 576). To se može objasniti kao posljedica djelovanja sitnih netopivih komadića unutar razvodnjene cakine koji su u trenutku sušenja na površini ostavili mješavinu vapnenenačkih i kvarcnih čestica dok su dijelovi glinenca potonuli dublje u caklinu. Prilikom pečenja te naslage bogate kvarcom i kalcijem potaknule su rast kristala volastonita na površini sloja, dok su naslage čestica od glinenca i glina bogatih aluminijem u pečenju potakle rast minerala anortita (Kerr, Wood 2004: str. 576-577). To svojstvo uz prisutnost finih mjehurića plina zarobljenih unutar cakline i nerastopljenih čestica daje puno složeniju mikrostrukturu višeslojnoj caklini keramike iz Longquana nego što bi se postiglo prekrivanjem samo s jednim slojem cakline.
Ovisno o redukcijskim uvjetima u peći i udjelu željeznog oksida (0,5 – 2,5%) (Wood 2007: str. 165) boja cakline mijenjala se u tonovima plavozelene boje. Dodatkom male količine titanijevog dioksida (TiO_2, 0,2 - 0,5%) keramičari su boju cakline mogli promijeniti od plavog spektra prema zelenom spektru tonova (Kerr, Wood 2004, str. 578 - 579; Wood 2007: str. 160). Diveći se ljepoti cakline celadon Kinezi su je uspoređivali sa žadom, svojim najcjenjenijim poludragim kamenom.[12]

Najveći izazov kineskim keramičarima bio je kako održati stabilnim redukcijsko okruženje unutar peći na visokoj temperaturi pečenja o kojem je ovisila kvaliteta kamenjače celadon. U postupku redukcijskog pečenja namjerno se smanjuje dotok zraka u peć. Pri smanjenom dotoku zraka radi nedostatka kisika gorivo ne izgara u cjelosti već se razvija ugljični monoksid i manja količina vodika. Oba plina kemijski su nestabilna i vezuju na sebe kisik iz najlakšeg izvora, što je u peći kisik iz oksida u glinenom tijelu i caklini lomeći pri tom u njima dotadašnje molekularne veze. Time se mijenja kemijski sastav glinenog tijela i cakline što se odražava u njihovoj teksturi i bojama. Keramičari na jugu

the surface while parts of feldspar sank deeper into the glaze. During firing, these deposits rich in quartz and calcium stimulated the growth of wollastonite crystals on the surface of the layer, while deposits of feldspar particles and clay rich in aluminium stimulated the growth of anorthite minerals during firing (Kerr, Wood 2004: pp. 576-577). This property along with the presence of fine gas bubbles trapped inside the glaze together with undissolved particles gives a much more complex microstructure to the multilayered glaze of Longquan ceramics than could be achieved by coating it with only one layer of glaze.
Depending on the reduction environment in the kiln and the proportion of iron oxide (0.5-2.5%) (Wood 2007: p. 165), the colour of the glaze took different blue-green tones. By adding a small amount of titanium oxide (0.2-0.5%), potters could vary the colour of the glaze from the blue to the green spectrum of tones (Kerr, Wood 2004, pp. 578 - 579; Wood 2007: p. 160). Admiring the beauty of celadon glaze, the Chinese compared it to jade, their most prized semi-precious stone.[12]

The biggest challenge for Chinese potters was how to maintain a stable reduction environment inside the kiln at a high firing temperature on which the quality of the celadon stoneware depended. In the reduction firing process, the air supply to the kiln is reduced on purpose. With reduced air supply due to the lack of oxygen, the fuel does not burn completely but carbon monoxide and a smaller amount of hydrogen are developed. Both gases are chemically unstable and steal oxygen from the easiest source, i.e. the oxygen from oxides in the clay body and glaze in the kiln, thus breaking their previous molecular bonds. This changes the chemical composition of the clay body and glaze, which is reflected in their texture and colours. Potters in southern China have developed a new type of long ceramic kiln known as the "dragon kiln" that uses the slope's natural slant so that hot air rises through chambers from the hearth at the base to the chimney at the top of the slope. First such kilns appeared in Zhejiang Province long ago, during the Shang dynasty (16th to 11th century BC), and were technologically perfected until the Southern Song period (1127 – 1279), when they became 50 to 80 meters long and divided by up to 12 chambers. Inside the 50-meter kiln, about 20,000 pieces of pottery could be fired at the same time. The kiln in the shape of a long tunnel of a semi-circular vault was

Kine razvili su novi tip duge keramičke peći poznatu pod kineskim nazivom „zmajeva peć“ koja koristi prirodnu kosinu padine tako da se vrući zrak izdiže kroz komore od ložišta u podnožju do dimnjaka na vrhu padine. Prve takve peći pojavile su se u pokrajini Zhejiang davno, u razdoblju dinastije Shang (XVI. do XI. st. pr. Kr.), a tehnološki su se usavršile do razdoblja Južnog Songa (1127. – 1279. g.) kada su postale duge 50 do 80 metara i podijeljene do 12 komora. Unutar peći od 50 metara moglo se istovremeno peći oko 20.000 komada keramike. Peć u obliku dugog tunela polukružnog svoda bila je sazidana od opeka otpornih na visoku temperaturu. Svod je izvana bio zaštićen krovom protiv kiše koja je mogla rashladiti peć. Pri gradnji peći keramičari su osobitu pozornost posvetili kosom nagibu peći koji je u podnožju odmah iza ložišta bio oko 20°, a potom se prema gornjim komorama kosina smanjivala na oko 10° kako bi se osiguralo da se vreli zrak brzo, ali ne i prebrzo uzdiže prema gornjim komorama. Na kraju peći nalazio se zid s otvorima čija uloga je bila da vreli zrak i plamen usmjere i izbace kroz dimnjak upravo onoliko koliko je potrebno da komore ostanu dovoljno tople za pečenje (*Celadon* 2005: str. 33).

Provedena arheološka istraživanja na lokalitetima pokazala su da su se u blizini peći nalazile keramičke radionice i stambeni prostori, te da su se u proizvodnji koristili i strojevi tjerani vodom (*Celadon* 2005: str. 35; Kerr, Wood 2004: str. 439). Brojnost pronađenih lončarskih kola također ukazuje da se u razdoblju Južnog Songa proizvodnja znatno povećala, te da je vjerojatno postojala podjela rada pri kojoj su keramičari bili specijalizirani za izradu pojedinih dijelova posuda (Kerr, Wood 2004: str 440).

Nepečena keramika raspoređivala se unutar komora prema kvaliteti izrade koji su keramičari željeli postići. Najkvalitetnije komade stavljali su u gornje komore koje su se najduže postupno zagrijavale tako da su se željene kemijske promjene u tijelu i caklini mogle u potpunosti razviti. To pojašnjava i veliki raspon zelenih i plavih tonova u caklini celadona ovisno o uvjetima koji su vladali u pojedinoj komori, a koje ni pored prilagođavanja omjera željeznog oksida i titanijevog oksida u caklini keramičari nisu u potpunosti mogli predvidjeti.

1. Grobna vaza, Muzej Mimara, Zagreb, Inv. br. ATM 84
Funerary vase, Mimara Museum, Inv. no. ATM 84

built of bricks resistant to high temperature. The vault was protected against rain that could cool the kiln by a roof. When building the kiln, potters paid special attention to the slanting slope of the kiln, which was about 20 degrees at the base just behind the firebox, and then the slope towards the upper chambers was reduced to about ten degrees to ensure that hot air in the front rose towards the upper chambers fast but not too fast. At the end of the kiln there was a wall with openings which direct the hot air and expel it through the chimney just enough to keep the chambers warm for firing (Celadon *2005: p. 33).*

Archaeological excavations at the sites have shown that there were ceramic workshops and living quarters near the kiln, and that water-powered machines were also used in the production (Celadon *2005: p. 35; Kerr, Wood 2004: p. 439). The number of potter's wheels found also indicates that production increased significantly during the Southern Song period, and that there was probably a division of labour in which potters specialized in making individual parts of vessels (Kerr, Wood 2004: p. 440).*

Unfired pottery was arranged inside the chambers according to the quality of workmanship that the potters wanted to achieve. The highest quality pieces were placed in the upper chambers which were gradually heated for the longest time so that the desired chemical changes in the body and glaze could fully develop. This explains the large range of green and blue tones in the glaze of celadon depending on the conditions prevailing in each chamber, which, despite adjusting the ratio of iron oxide and titanium oxide in the glaze, ceramists could not fully predict.

The firing process began with the burning of wood in the firebox at the base, most often conifers from the surrounding hills, which naturally burn in the reduction manner. The hot air rising through the chambers towards the chimney gradually cooled, so to maintain the high temperature there were openings on the sides along the kiln through

2. Grobna vaza, detalj, dno, Muzej Mimara, Zagreb, Inv. br. ATM 84
Funerary vase, detail, bottom, Mimara Museum, Inv. no. ATM 84

Postupak pečenja započinjao je paljenjem drva na ložištu u podnožju, najčešće crnogorice s okolnih brda koja prirodno redukcijski sagorjeva. Vreli zrak koji se pri tome dizao kroz komore prema dimnjaku postupno se hladio, pa su radi očuvanja visoke temperature na bočnim stranama uzduž peći postojali otvori kroz koje su keramičari mogli umetnuti dodatno gorivo, a bočne rupe omogućavale su im pogled na stanje u komorama. Učinkovitost „zmajeve peći" izrazito je visoka i težina proizvedene keramike ravna je težini utrošenog goriva.

Radi zaštite od izravne topline i pepela kojeg je nosio vreli zrak posude su se najprije slagale u zaštitne kutije od pečene gline otporne na visoku temperaturu koje su se potom jedna na drugu polagale na pod peći prekriven pijeskom. Pečenje fine keramike u zaštitnim kutijama bilo je poznato u južnoj Kini još od razdoblja dinastije Istočni Han (25. – 225. g.). Unaprijedilo se u razdoblju dinastije Tang (618. – 907. g.), a do doba dinastije Song već je bilo posve tehnološki razvijeno s različitim sustavima slaganja posuda uz uporebu razdjelnika između svake pojedine posude ako su posude, primjerice zdjelice, bile namijenjene svakodnevnoj upotrebi. Veliki i osobito ukrašeni primjerci stavljali su se pojedinačno u kutiju i zatvarali protiv dima i pepela. Najjeftinija keramika pekla se bez zaštite na podlošcima koji su sprječavali da se dno posude ne zalijepi za dno peći.

U razdoblju Sjeverni Song u Longquanu izrađivale su se vaze s poklopcem, vrčevi i posudice s poklopcem. Prevladavajući ukras bio je urezani stilizirani cvjetni preplet. Cvjetovi božura, te latice i lišće lotosa i drugih vodenih biljaka bili su osobito popularni motivi. Sloj cakline bio je još bojom neujednačen i relativno tanak na dijelovima reljefnih ukrasa. Brojni primjerci takvih posuda pronađeni su u grobnicama kao uobičajeni grobni prilog s namjenom da, prema tadašnjem vjerovanju, pokojniku osiguraju lagodan život i nakon smrti (*Celadon* 2005: str. 150). Ponavljanje istih oblika i ukrasa na grobnim posudama navodi na zaključak da su se proizvodile u većim količinama. Vaza Inv. br. ATM 84 iz Muzeja Mimara (vis. 22,1 ; promjer otvora 8,5 cm) (sl. 1) pripada toj vrsti posuda. Ima trbušasto tijelo ukrašeno urezanim stiliziranim biljnim motivima. Uz vrat i ispod trbuha prema bazi (sl. 2) ukrašena je stiliziranim uz-

which the potters could insert additional fuel, and the side holes allowed them to monitor the condition in the chambers. The efficiency of the "dragon kiln" is extremely high and the weight of the produced ceramics equals the weight of the fuel used in the process.

To protect against direct fire and ash carried by the hot air, the vessels were first stacked in saggars made of high temperature-resistant fired clay, which were then laid one on top of the other on the sand-covered floor of the kiln. The firing of fine pottery in saggars has been known in southern China since the period of the Eastern Han dynasty (25 – 225). It was improved during the Tang dynasty (618 – 907), and by the time of the Song dynasty it was already technologically fully developed with different systems of stacking vessels and the use of dividers between each vessel if they were intended for everyday use, such as bowls. Large and specially decorated items were placed individually in a box and closed against smoke and ash. The cheapest ceramics were fired unprotected, on spurs that prevented the bottom of the vessel from sticking to the bottom of the kiln.

In the Northern Song period, funerary vases with lids, jugs, and boxes with lids were made in Longquan. The predominant decoration was an engraved stylized floral

dignutim listovima lotosa koji se mjestimično preklapaju dok je u središtu tijela široka vrpca unutar koje se povijaju stilizirani cvjetovi božura. Vrat joj završava proširenim rubom na kojem se vidi nedostatak cakline što navodi na zaključak da je vaza nekada imala i pripadajući poklopac tipičan za tu vrstu posuda.[13]
Pažljivo urezani središnji cvjetni motiv na vazi Inv. br. ATM 84 kvalitetom izrade nadmašuje tipične ukrase na sličnim vazama i može se usporediti s najljepšim primjercima te vrste grobne keramike kao što je primjerice vaza tipa *meiping* iz Grassi Museum für Angewandte Kunst, Leipzig (Inv. Nr. 2017.98) (*Frühchinesische Keramik*, str. 209, kat. 115) i vaza *meiping* prodana na dražbi u kući Sotheby's, New York (17. 03. 2015.; N09338; dražbovni broj 64).[14]

U razdoblju Južni Song (1127. – 1279. g.) keramičke radionice oko Longquana dosegnule su vrhunac proizvodnje. Ovisno o obliku, tijelo posude oblikovalo se na lončarskom kolu ili u dijelovima u kalupima i sastavljalo. Nakon sušenja na nepečeno tijelo nanosila se caklina. Sadržavala je glinenac, biljni pepeo i kalcijev karbonat dobiven od razmrvljenih stijena. Prisutnost glinenca u caklini povećala je razinu kalijevog oksida naspram razine kalcijevog oksida i kemijski promijenila sastav cakline čime se snizio udjel željeznog oksida i titanijevog oksida na oko 1% (*Celadon* 2005: str. 28) pa se boja cakline u pečenju promijenila od zelenih prema plavim tonovima (Kerr 2004: str. 92). Caklina se također nije se nehotično slijevala niz posude što je keramičarima omogućilo višestruko ocakljivanje s pečenjem svakog novog nanosa cakline na nižoj temperaturi od oko 1150°C (*Celadon* 2005: str. 28). Sitni mjehurići zraka zarobljeni visokom temperaturom ispod površine davali su joj sjaj.

Iz tog razdoblja potječe i zdjelica Inv. br. ATM 82 (vis. 8 cm: promjer 12,2 cm) (sl. 3) iz Muzeja Mimara. Zdjelicu jednostavnog oblika prekriva, za kamenjaču iz Longquana, relativno tanka neprozirna caklina u zelenoplavoj boji ispod koje se nazire plitko urezani ukras. Oko dna posude on je u obliku jednostavno stiliziranih latica lotosa dok uz rob otvora ukras tvore usporedno urezane vodoravne crte sa stiliziranim cvjetovima. U unutarnjem

design. Motifs of peony flowers and lotus petals and leaves, and other aquatic plants were particularly popular. The glaze layer was still uneven in colour and relatively thin on the relief ornaments. Numerous specimens of such vessels were found in tombs as common grave goods, with the intention of, according to the belief of the time, providing the deceased with a comfortable life even after death (Celadon *2005: p. 150). The repetition of the same shapes and decorations on the funerary vessels points to the conclusion that they were produced in larger quantities. Vase Inv. no. ATM 84 (height 22.1; opening diameter 8.5 cm) from the Mimara Museum (fig. 1) belongs to this type of vessel. It has a globular body decorated with engraved stylized plant motifs. Along the neck and below the body towards the base (fig. 2), it is decorated with stylized raised lotus leaves that overlap in places, while in the centre of the body there is a wide band inside which stylized peony flowers bend. Its neck ends with an extended edge showing a lack of glaze, which leads to the conclusion that the vase once had a corresponding lid typical of this type of vessel.[13]*
Carefully engraved central floral motif on the vase Inv. no. ATM 84 surpass the quality of workmanship typical for ornaments on similar vases and can be compared to the most beautiful examples of this type of funerary ceramics, such as the meiping *vase from the Grassi Museum für Angewandte Kunst, Leipzig, (Inv. No. 2017.98)* (Frühchinesische Keramik *2017: p. 209, cat. 115) and a* meiping *vase sold at auction in Sotheby's, New York (17 March 2015; N09338; lot 64).[14]*

In the Southern Song period (1127 – 1279), kilns around Longquan reached the peak of their production. Depending on the shape, the body of the vessel was made on a potter's wheel or in parts in moulds, and then assembled. After drying, glaze was applied to the unfired body. It contained porcelain stone (petuntse), *plant ash, and calcium carbonate obtained from crushed rocks. The presence of feldspar in the glaze increased the level of potassium oxide compared to the level of calcium oxide and chemically changed the composition of the glaze, reducing the content of iron oxide and titanium oxide to about 1 percent* (Celadon *2005: p. 28). This changed the colour of the glaze from greener to bluer tones (Kerr 2004: p. 92). The glaze in*

several layers, and tiny air bubbles trapped by the high temperature below the surface made it lustrous.

Bowl Inv. no. ATM 82 (height 8 cm; diameter 12.2 cm) from the Mimara Museum (fig. 3) also originates from that period. This simply shaped dish is covered by a relatively thin – for a piece of Longquan stoneware – opaque green-blue glaze under which a shallowly incised decoration can be seen. Around the bottom of the vessel, this decoration takes the shape of simple stylized lotus petals while along the edge of the opening, the decoration is formed by parallel incised horizontal lines with stylized flowers. In the inner part, defects caused by air bubbles in a thin layer of glaze that burst to the surface during firing can be noticed (fig. 4), which is a feature of items intended for everyday use that were placed in chambers in the frontal chambers of the kiln closer to the firebox where chemical processes unfolded at a higher speed due to the high temperature of firing. It can be compared to a number of similar bowls of this type, for example those in the Victoria and Albert Museum.[15]

With the fall of the Song dynasty in 1279, the Mongol Yuan dynasty (1279 – 1368), which took power, reunited northern and southern China. The new rulers supported the development of trade and export of Chinese ceramics, so the kilns in Longquan successfully continued and increased the production of celadon to meet the needs of the expanded market. In doing so, they have adapted to the tastes of Mongolian and foreign buyers. Simple shapes of vessels that emphasized the beauty and lustre of the glaze from the Song dynasty era were replaced by larger vessels made in moulds with decoration in relief.[16]

At the beginning of the Ming dynasty (1368 – 1644), kilns in Longquan continued to produce high-quality celadon for the court as well as large quantities of a wide variety of everyday vessels that were exported by sea across Asia to the Persian Gulf. Numerous items found in archaeological excavations of shipwrecks[17] *often within mixed cargoes with pottery from other Asian countries such as Vietnam and Thailand, as well as in inland excavations around ports or graveyards in Indonesia and Philippines, testify to the developed maritime trade through the centuries before the arrival of the Portuguese in the 16th century.*

dijelu mogu se primjetiti nedostaci u tankom sloju cakline izazvani mjehurićima zraka koji su se u pečenju probili do površine (sl. 4) što je odlika predmeta namijenjenih za svakodnevnu upotrebu koji su se smještali u prednje komore peći bliže ložištu gdje su se kemijski procesi radi visoke temperature zagrijavanja ubrzano odvijali. Može se usporediti sa brojnim sličnim zdjelicama toga tipa, primjerice onima u Victoria and Albert Museumu.[15]

S padom dinastije Song 1279. g. mongolska dinastija Yuan (1279. – 1368. g.) koja je preuzela vlast ponovo je ujedinila sjevernu i južnu Kinu. Novi vladari podržavali su razvoj trgovine i izvoz kineske keramike, pa su radionice u Longquanu uspješno nastavile i povećale proizvodnju celadona kako bi zadovoljile potrebe proširenog tržišta. Pri tome su se uspješno prilagodile ukusu mongolskih i stranih kupaca. Jedostavne forme posuda koje su isticale ljepotu i sjaj cakline iz doba dinastije Song zamijenile su veće posude izrađene u kalupu s ukrasom u reljefu.[16]

Početkom razdoblja vladavine dinastije Ming (1368. – 1644. g.) radionice u Longquanu i nadalje su proizvodile celadon visoke kvalitete namijenjen dvoru kao i velike količine najraznovrsnijih posuda za svakodnevnu upotrebu koje su se morem izvozile po Aziji sve do Perzijskog zaljeva. Brojni primjerci nađeni u arheološkim istraživanjima olupina brodova[17] često unutar miješanoga tereta s keramikom iz drugih azijskih zemalja poput Vijetnama i Tajlanda, kao i u kopnenenim iskopavanjima oko lučkih središta ili grobova u Indoneziji i Filipinima, svjedoče o razvijenoj pomorskoj trgovini kroz stoljeća i prije dolaska Portugalaca u XVI. st.

Dolaskom na vlast dinastije Ming, prvi car Hongwu (vladao 1368. - 1398.) već je 1371. g. zabranio izravnu trgovinu i zatvorio luke želeći tako odvojiti Kinu od, prema konfucijanskom učenju, štetnih izvanjskih utjecaja. Sva trgovina bila je od tada pod upravom dvora i odvijala se po sustavu razmjene dobara sa zemljama koje su na dvor slale izaslanike i poštovale protokol. Izgubivši unosno tržište celadon iz Longquana postupno je postao keramika namijenjena svakodnevnoj upotrebi (Kerr, Wood 2004: str. 581). Dvije plitke zdjelice Inv. br. ATM 2391 (vis. 4,8

3. Zdjelica, Muzej Mimara, Zagreb, Inv. br. ATM82
Bowl, Mimara Museum, Zagreb, Inv. no. ATM 82

When Ming dynasty came to power, the first emperor Hongwu (reigned 1368 – 1398) banned direct trade as early as 1371 and closed ports in order to separate China from, according to Confucian teachings, harmful external influences. All trade has since been administered by the court and took place according to the system of exchange of goods with the countries that sent envoys to the court and respected the protocol. Having lost its lucrative market, Longquan celadon gradually became pottery intended for everyday use (Kerr, Wood 2004: p. 581). Two small shallow bowls Inv. no. ATM 2391 (height 4.8 cm; diameter 16.3 cm)

4. Zdjelica, Muzej Mimara, unutarnja strana, Zagreb, Inv. br. ATM82
Bowl, Mimara Museum, inner side, Zagreb, Inv. no. ATM 82

5. Plitka zdjela, Muzej Mimara, Zagreb, Inv. br. 2391
Shallow bowl, Mimara Museum, Zagreb, Inv. no. 2391

6. Plitka zdjela, detalj, dno, Muzej Mimara, Zagreb, Inv. br. 2391
Shallow bowl, detail, bottom, Mimara Museum, Zagreb, Inv. no. 2391

7. Plitka zdjela, Muzej Mimara, Zagreb, Inv. br. 2393
Shallow bowl, Mimara Museum, Zagreb, Inv. no. ATM 2392

8. Plitka zdjela, detalj, dno, Muzej Mimara, Zagreb, Inv. br. 2393
Shallow bowl, detail bottom, Mimara Museum, Zagreb, Inv. no. ATM 2392

cm ; promjer 16,3 cm) (sl. 5, sl. 6) i Inv. br. ATM 2392 (vis. 4 cm; promjer 17 cm) (sl. 7, sl. 8) iz Muzeja Mimara jednostavnog oblika s narebrenim rubom kao jedinim ukrasom i prekrivene gustom tamnozelenom caklinom, primjeri su te kasnije proizvodnje.

Zatvaranje Kine i nedostatak uvozne keramike u Jugoistočnoj Aziji uspješno su za razvoj proizvodnje iskoristili keramičari iz Tajlanda i Vijetnama. Središte tajlandske keramičke proizvodnje bilo je smješteno u blizini gradova Sukhotai, središta tadašnjeg kraljevstva Sukhotai, i 50 km sjevernije smještenog grada Si Satchanalai (poznat i pod nazivom Sawankhalok).[18] Suvremena arheološka iskopavanja nekadašnjih keramičkih peći pokazala su da su one oko grada Si Sachanalai tehnološki bile naprednije od peći oko grada Sukhotaija, te da su proizvodile ocakljenu kamenjaču za izvoz u oblicima poznatim s podmorskih i grobnih arheoloških nalazišta diljem Jugoistočne Azije. Proizvodnja ocakljene kamenjače u Tajlandu dosegnula je svoj vrhunac u XV. st.

(fig. 5, fig. 6) and Inv. no. ATM 2392 (height 4 cm; diameter 17 cm) (fig7, fig. 8) from the Mimara Museum, of a simple shape with ribbed edge as the only decoration and covered with thick dark-green glaze, are examples of this later production.

The closing of China and the lack of imported pottery in Southeast Asia have been successfully exploited for the development of production by potters from Thailand and Vietnam. The centres of Thai ceramic production were located near the town of Sukhotai, the capital of the kingdom of Sukhotai, and 50 km to the north near the town of Si Satchanalai (also known as Sawankhalok).[18] Modern archaeological excavations of former kilns have shown that those around Si Sachanalai were technologically more advanced than kilns around Sukhotai, and produced glazed stoneware

9. Zdjela, Muzej Mimara, Zagreb, Inv. br. ATM 2390
Bowl, Mimara Museum, Zagreb, Inv. no. ATM 2390

10. Zdjela, unutarnja strana, Muzej Mimara, Zagreb, Inv. br. ATM 2390
Bowl, inner side, Mimara, Museum, Zagreb, Inv. no. ATM 2390

11. Zdjela, detalj, dno, Muzej Mimara, Zagreb, Inv. br. ATM 2390
Bowl, detail, bottom, Mimara Museum, Zagreb, Inv. no. ATM 2390

for export in forms best known from underwater and archaeological burial sites throughout Southeast Asia. The production of glazed stoneware in Thailand reached its peak in the 15th century.
Numerous brick kilns discovered in archaeological excavations around Si Satchanalai used the slope of the ground of about 3.5 meters for the flow of hot air from the firebox to the chimney but unlike "dragon kilns" they were only about 9 meters long with one chamber (Guy 1986: p. 129). Inside the chamber, each piece of pottery stood on a high tubular stand because the glaze of Thai potters was unstable and during firing it flowed down the wall of the vessel and without the stand it would stick to the bottom of the kiln (Guy 1986. p. 128). This is especially present on celadon-style vessels and can be seen on the Inv. no. ATM 2390 (height 9 cm; diameter 27.5 cm) from the Mimara Museum (fig. 9). The body of the vessel is made of fine yellow-grey clay. Modelled after the Longquan celadon, it is ribbed on the outside, and on the inside, besides the incised circle at the bottom, the only decoration is an incised geometric pattern in the form of a

Brojne keramičke peći od zidane opeke otkrivene u arheološkim istraživanjima oko Si Satchanalaija koristile su nagib tla od oko 3,5 metra za protok vrućeg zraka od ložišta do dimnjaka ali su za razliku od "zmajevih peći" bile duge tek oko 9 metara s jednom komorom (Guy 1986: str. 129). Unutar komore svaki komad keramike stajao je na visokom cjevastom stalku jer je caklina tajlandskih keramičara bila nestabilna te se tijekom pečenja slijevala niz stijenke posude i bez stalka posuda bi se zalijepila za dno peći (Guy 1986: str. 128). To je osobito prisutno na posudama u stilu celadona što se može vidjeti i na zdjeli Inv. br. ATM 2390 (vis. 9 cm; promjer 27,5 cm) iz Muzeja Mimara (sl. 9). Tijelo posude izrađeno je od fine žutosive gline. Po uzoru na celadon iz Longquana izvana je narebrena, a u unutrašnosti uz urezani krug na dnu jedini ukras je urezani geometrijski uzorak u obliku uske vrpce smještene ispod izvijenog ruba otvora (sl. 10). Caklina žutozelene boje nejednoliko prekriva unutarnju i vanjsku stijenku posude mjestimično se slijevajući prema dnu. Na vanjskoj neocakljenoj strani dna vidi se tamni kružni otisak cjevastog stalka za pečenje (sl. 11).

12. Zdjelica za čaj, Muzej Mimara, Zagreb, Inv. br. ATM 85
Teabowl, Mimara Museum, Zagreb, Inv. no. ATM 85

13. Zdjelica za čaj, unutarnja strana, Muzej Mimara, Zagreb, Inv. br. ATM 85
Teabowl, inner side, Mimara Museum, Zagreb, Inv. no. ATM 85

14. Zdjelica za čaj, detalj, dno, Muzej Mimara, Zagreb, Inv. br. ATM 85
Teabowl, detail, bottom, Mimara Museum, Zagreb, Inv. no. ATM 85

narrow band located below the curved edge of the opening (fig. 10). The yellow-green glaze covers the inner and outer walls of the vessel unevenly, flowing in places towards the bottom. On the outer unglazed side of the bottom, a dark circular imprint of a tubular firing stand can be seen (fig. 11).

Brown and "black" glazed stoneware

In contrast to celadon coloured glaze which is produced in a reduction environment inside the kiln if the amount of iron oxide in the glaze is below 0.8 percent, the production of Chinese stoneware glazed in brown tones requires an oxidation environment and the presence of a higher proportion of iron oxide in the glaze. Iron oxide in a ratio of 0.8 percent to 5 percent will colour the glaze in tones from light brown to dark brown, while for a distinctly dark brown colour that appears black, the proportion of iron oxide should be greater than 5 percent. Special patterns such as silver or spilled dark red stains are achieved by saturating the glaze with iron oxide which then separates from the rest of the glaze at high temperatures and collects on the surface while cooling, thus forming a separate layer. Like celadon ware, the most beautiful specimens of brown-glazed Chinese stoneware date from the Song dynasty period. Although it is called "black glazed", it should be emphasized that on its own, the iron oxide in the glaze will not produce a real black colour but a very dark brown colour which can be seen in bright light. True black glaze appeared later in 17th century on porcelain from Jingdezhen, and was made by adding cobalt oxide and manganese oxide to iron oxide.

At the time, sophisticated tea drinkers thought white foam stood out better in dark-glazed bowls, so kilns in Jian (near Jianyang, Fujian Province) and Jizhou (Jiangxi Province) specialized in making tea bowls with various decorative details in brown glaze.

Ceramic workshops with kilns in Jian had a developed production of stoneware from the Tang Dynasty period and later during the turbulent period known as the Five Dynasties (907 – 960) in the style of the then sought-after Yue stoneware. During the Song dynasty, they began producing dark-glazed tea bowls.

Smeđe i „crno“ ocakljena kamenjača

Suprotno kamenjači ocakljenoj u bojama celadona koja nastaje u redukcijskom okruženju unutar peći ako je količina željeznog oksida u caklini iznad 0,8 %, za proizvodnju kineske kamenjače ocakljene u smeđim tonovima potrebno je oksidacijsko okruženje i prisutnost većeg udjela željeznog oksida u caklini. Željezni oksid u omjeru od 0,8% do 5% obojat će caklinu u tonovima od svijetlosmeđe do tamnosmeđe boje, dok za izrazito tamnosmeđu boju koja se doima crnom udjel željeznog oksida treba biti veći od 5%. Posebni uzorci poput srebrnih ili razlivenih tamnocrvenih mrlja postižu se zasićenjem cakline željeznim oksidom koji se potom na visokim temperaturama odvaja od ostatka cakline i u hlađenju sakuplja na površini tvoreći zasebni sloj. Poput celadona i najljepši primjerci smeđe ocakljene kineske kamenjače potječu iz razdoblja dinastije Song. Premda se naziva „crno“ ocakljena, treba naglasiti da samo željezni oksid u caklini neće dati pravu crnu boju već izrazito tamno smeđu boju što se može uočiti pod jakim svjetlom. Caklina crne boje pojavila se tek krajem XVII. st. na porculanu iz Jingdezhena, a nastaje dodavanjem kobaltnog i manganovog oksida željeznom oksidu.

U to doba otmjeni uživatelji čaja smatrali su da se bijela pjena bolje ističe u tamno ocakljenim zdjelicama pa su se keramičke radionice u Jianu (pokraj grada Jianyanga u, pokrajini Fujian) i Jizhouu (pokrajina Jiangxi) specijalizirale za izradu zdjelica za čaj s različitim ukrasnim detaljima u smeđoj caklini.

Keramičke radionice s pećima u Jianu imale su razvijenu proizvodnju kamenjače već od razdoblja dinastije Tang i kasnije tijekom nemirnog razdoblja poznatog kao Pet dinastija (907. – 960. g.) u stilu tada tražene kamenjače *Yue*. U razdoblju dinastije Song započele su proizvodnju tamno ocakljenih zdjelica za čaj.

Prema sačuvanim primjercima i suvremenim istraživanjima stručnjaci danas razlikuju sedam osnovnih oblika zdjelica (Wood 2007. str. 147). Najveći dio ih pripada tipu s više ili manje izraženim uvučenim dijelom ispod ruba savršeno prilagođenim za lagano ispijanje vrućeg čaja u ma-

15. Zdjelica za čaj, Muzej Mimara, Zagreb, Inv. br. ATM 86
Teabowl, Mimara Museum, Zagreb, Inv. no. ATM 86

16. Zdjelica za čaj, unutarnja strana, Muzej Mimara, Zagreb, Inv. br. ATM 86
Teabowl, inner side, Mimara Museum, Zagreb, Inv. no. ATM 86

17. Zdjelica za čaj, detalj, dno, Muzej Mimara, Zagreb, Inv. br. ATM 86
Teabowl, detail, bottom, Mimara Museum, Zagreb, Inv. no. ATM 86

18. Zdjelica za čaj, Muzej Mimara, Zagreb, Inv. br. ATM 87
Teabowl, Mimara Museum, Zagreb, Inv. no. ATM 87

According to preserved tea bowls experts today distinguish seven basic shapes (Wood 2007 p. 147). Most of them belong to the type with a more or less pronounced indented part beneath the rim, perfectly adapted for sipping hot tea (Kerr 2004: p. 112; Wood 2007: p. 147). The Mimara Museum has three such bowls: Inv. no. ATM 85 (height 6.4 cm; diameter 11.8 cm) (fig. 12, fig. 13, fig. 14), Inv. no. ATM 86 (height 6.6 cm; diameter 12.3 cm) (fig. 15, fig. 16, fig. 17), and Inv. no. ATM 87 (height 5.9 cm; diameter 12.5 cm) (fig. 18, fig. 19, fig. 20, fig. 21). At first glance, it is noticeable that the vessels are not shaped perfectly. The clay from which the body is made is of a rough sandy texture rich in iron oxide whose property is to retain heat for a long time, and the inner wall of the vessel thickens from the opening to the bottom to protect a hand from the heat of tea.

lim gutljajima (Kerr 2004: str. 112; Wood 2007: str. 147). Muzej Mimara posjeduje tri takve zdjelice Inv. br. ATM 85 (vis. 6,4 cm; promjer 11,8 cm) (sl. 12, sl. 13, sl. 14), Inv. br. ATM 86 (vis. 6,6 cm; promjer 12,3 cm) (sl. 15, sl. 16, sl. 17) i Inv. br. ATM 87 (vis. 5,9 cm; promjer 12,5 cm) (sl. 18, sl. 19, sl. 20, sl. 21). Na prvi pogled uočava se da zdjelice nisu savršenog oblika. Glina od koje je izrađeno tijelo grube je pjeskaste strukture bogate željeznim oksidom čije je svojstvo da dugo zadržava toplinu, a unutarnja stijenka posude širi se od otvora prema dnu kako bi dodatno zaštitila prste uživatelja od vrućine čaja.

Nakon oblikovanja zdjelice na lončarskom kolu keramičar bi odstranjivanjem viška gline oblikovao nogu posude. Potom bi na zdjelicu nanosio gustu caklinu od razvodnjene gline s dodatkom pepela tako da bi najprije ulio caklinu u unutrašnost i potom izlio višak. Zdjelicu bi zatim okrenuo naopako i jednom rukom nalijevao caklinu na vanjsku površinu stijenke, a drugom ju je polako okretao kako bi se caklina ravnomjerno rasporedila. Zbog sklonosti cakline

19. Zdjelica za čaj, suprotna strana, Muzej Mimara, Zagreb, Inv. br. ATM 87
Teabowl, opposite side, Mimara Museum, Zagreb, Inv. no. ATM 87

20. Zdjelica za čaj, unutarnja strana, uzorak „zečje dlake", Muzej Mimara, Zagreb, Inv. br. ATM 87
Teabowl, inner side, „Hare's fur" pattern, Mimara Museum, Zagreb, Inv. no. ATM 87

21. Zdjelica za čaj, detalj, dno, Muzej Mimara, Zagreb, Inv. br. ATM 87
Teabowl, detail, bottom, Mimara Museum, Zagreb, Inv. no. ATM 87

After shaping the vessel on the potter's wheel, the potter would shape the foot of the vessel by removing the excess clay. A thick glaze of diluted clay mixed with ash would be applied to the vessel by first pouring the glaze inside and then pouring out the excess. The vessel would then be turned upside down and glaze poured onto the outer surface of the wall with one hand and turned slowly with the other to distribute it evenly. Due to the fluidity of the glaze which was prone to dripping during firing, the potter left the lower part of the vessel and foot unglazed (Wood 2007: pp. 147-148). After drying, the finished vessel would be placed on small clay supports at the bottom of a saggar. The filled saggars were stacked on top of each other in the chambers of the "dragon kiln". Like celadon, dark-glazed stoneware was fired in a "dragon kiln" (Kerr, Wood 2004: p. 267) at a temperature of about 1300°C to 1330°C (Wood 2007: p. 148), but in an oxidizing to neutral environment. Saggars placed closer to the firebox heated up faster and when the heat in the kiln reached its peak, the potters would open a passage for fresh air that abruptly cooled the saggars in the front of the kiln while at the same time that heated air, with the help of fuel thrown in through the openings on the sides, warmed the upper chambers.

The high-temperature induced chemical changes produced a varied overflow of brown tones within the shiny glaze, admired by tea lovers during the Song dynasty. According to their shape, three basic glaze patterns are distinguished known as: the "hare's fur", the "oil-spot" and the "partridge-feather". The most common glaze pattern of "hare's fur" is recognizable on the tea bowl Inv. no. 87 (fig. 20) from the Mimara Museum. In a complex chemical process within the molten glaze, at some point iron oxide was released in the form of iron-rich droplets that bonded together into a thin layer. Gas bubbles then brought some of this material to the surface where brown spots of iron-rich glassy mass formed on the dark glaze. Under the influence of gravity, the molten stains flowed down the wall of the vessel, forming a pattern of "hare's fur". Once cooled, these iron-rich crystals spill over in tones ranging from grey-silver to yellow-red and yellow-brown. Bowls with yellow-red and yellow-brown lines formed during the complete oxidation of the kiln, such as the bowl Inv. no. ATM 87 (figs. 18-

prema razlijevanju u procesu pečenja keramičar je unaprijed ostavljao donji dio zdjelice i nogu neocakljenima (Wood 2007: str. 147 - 148.). Nakon sušenja gotovu zdjelicu stavljao je na male glinene nosače u dnu zaštitne posude. Napunjene zaštitne posude slagale su se jedna na drugu u komore "zmajeve peći". Poput celadona i tamno ocakljena kamenjača pekla se u "zmajevoj peći" (Kerr, Wood 2004: str. 267) na temperaturi od oko 1300° C do 1330°C (Wood 2007: str. 148), ali u oksidirajućem do neutralnom okruženju. One postavljene bliže ložištu brže su se zagrijavale i kada bi toplina u peći dosegnula vrhunac, keramičari bi otvarali prolaz za svježi zrak koji je naglo hladio zaštitne posude u prednjem dijelu peći i istovremeno se zagrijavao i tako uz pomoć goriva ubačenog kroz otvore na stranama peći stvarao dodatnu toplinu koja je zagrijavala gornje komore.

Visokom temperaturom potaknute kemijske promjene proizvele su raznoliko prelijevanje smeđih tonova unutar sjajne cakline kojima su se divili ljubitelji čaja u doba dinastije Song. Prema obliku tih preljeva razlikovali su tri osnovna uzorka: uzorak „zečjeg krzna", uzorak „mrlje ulja" i uzorak „prepeličjih prsnih pera". Najčešći je uzorak „zečjeg krzna" prepoznatljiv na zdjelici Inv. br, ATM 87 (sl. 20) iz Muzeja Mimara. U složenom kemijskom procesu unutar rastaljene cakline došlo je u jednoj fazi do izdvajanja željeznog oksida u obliku željezom bogatih kapi koje su se međusobno povezale u tanki sloj. Mjehurići plinova potom su dio toga materijala iznijeli na površinu gdje su se oblikovale smeđe mrlje željezom bogate staklaste mase na tamnoj površini cakline. Pod utjecajem sile teže rastopljene mrlje slijevale su se niz stijenku posude oblikujući uzorak „zečjeg krzna". Jednom ohlađeni, ti željezom bogati kristali prelijevaju se u tonovima od sivosrebrne do žutocrvene i žutosmeđe boje. Najčešće su zdjelice sa žutocrvenim i žutosmeđim crtama nastalim pri punoj oksidaciji peći poput zdjelice Inv. br. ATM 87 (sl. 18-20). Premda je postupak proizvodnje bio isti, svaka zdjelica je različita ovisno o manjim razlikama u kemijskom sastavu cakline, dijelu peći u kojem se nalazila, o položaju unutar zaštitne posude (Kerr, Wood 2004: str. 270, sl. 56), te o temperaturi pečenja i uvjetima u peći koje tadašnji kineski keramičari nisu u potpunosti mogli nadzirati. Nakon dvodnevnog hlađenja peć se otvarala i keramičari su mogli

procijeniti kvalitetu pojednih primjeraka. One najljepše odvajali su za potrebe dvora (*Hare's Fur* 1996: str. 31, Kerr 2004: str. 114), a ostale su ovisno o kvaliteti dobivenog ukrasnog uzorka slobodno prodavali na tržištu. Neuspjeli primjerci iskrivljeni ili zalijepljeni u zaštitnoj posudi odmah su se bacali (Medley 2000: str. 163).

Ispijanje čaja osobito je bilo rašireno u buddhističkim hramovima gdje se osvježavajuće svojstvo čaja koristilo za oporavak redovnika tijekom dugih meditacija. Buddhistički redovnici sljedbe *chan* (jap. *zen*) u planinama Tianmu sjeverno od Jiana također su rado koristili te zdjelice, pa se one često nazivaju i Tianmu zdjelicama (jap. *tenmoku* ili *temmoku*). Japanski buddhistički redovnici koji su posjećivali Tianmu (jap. Temmoku) radi učenja odnijeli su te zdjelice u domovinu gdje su zbog svoga nesavršenog oblika ubrzo postale cijenjene u japanskoj čajnoj cremoniji (jap. *chanoyu*) za pripremu čaja od zelenog praha (jap. *macha*) (Kerr 2004: str. 114). Osobito rijetki primjerci i danas se smatraju dragocjenim naslijeđem u japanskim obiteljima. (Medley 2000: str. 162, *Hare's Fur* 1996: str. 49).

Kamenjača iz sjevernokineskih keramičkih radionica pod vlašću dinastije Jin

Nakon pada Kaifenga, Džurđži, doseljeno nomadsko stanovništvo, a osobito njihova vladajuća klasa rado su prihvatili kinesku kulturu. Vladari iz dinastije Jin promicali su proizvodnju i trgovinu, pa su i brojne keramičke radionice iz sjevernih pokrajina ubrzo nastavile proizvoditi ocakljenu kamenjaču koja se naziva *cizhou* prema već spomenutom gradu Cizhouu, poznatom središtu keramičke proizvodnje. Danas se pod nazivom *cizhou* podrazumijeva kamenjača proizvedena u brojnim obiteljskim radionicama u pokrajinama Shandong, Hebei, Henan, Shanxi i Shaanxi u razdoblju od vladavine dinastije Tang (618. – 907. g.) do kraja vladavine dinastije Yuan dok je nekoliko radionica nastavilo proizvodnju do razdoblja dinastije Ming (McElney 1998: str. 21-22).

Suprotno celadonu koji se izvozio diljem Azije, kamenjača sa sjevera Kine bila je namijenjena potrebama lokalnog

*20), are the most common ones. Although the production process was the same, each bowl is different depending on minor variations in the chemical composition of the glaze, the part of the kiln in which it was placed, its position inside the saggar (Kerr, Wood 2004: p. 270, Fig. 56) and on the firing temperature and conditions in the kiln, which the Chinese potters of that time could not fully control. After two days of cooling, the kiln was opened and the potters were able to assess the quality of individual pieces. The most beautiful ones were set aside for the needs of the court (*Hare's Fur *1996: p. 31, Kerr 2004: p. 114), and the others were freely sold on the market depending on the quality of the obtained decorative pattern. Flawed items distorted or stuck in a saggar were immediately discarded (Medley 2000: p. 163).*

Tea drinking was especially widespread in Buddhist temples where the refreshing property of tea was used to restore monks during long meditations. Buddhist monks of the chan *(Japanese:* zen*) sect in the Tianmu Mountains north of Jian also enjoyed using these tea bowls, so they are often called Tianmu bowls (Japanese:* tenmoku *or* temmoku*). Japanese Buddhist monks who visited Tianmu (Japanese: Temmoku) to study, took these bowls to their homeland where, due to their imperfect shape, they soon became prized in the Japanese tea ceremony (jap.* chanoyu*) for the preparation of powdered green tea (jap.* macha*) (Kerr 2004: p.114). Particularly rare specimens are still considered as precious heirloom in Japanese families (Medley 2000: p. 162,* Hare's Fur *1996: p. 49).*

Stoneware from North Chinese kilns under the rule of the Jin Dynasty

After the fall of Kaifeng, the Jurchen, immigrant nomadic population, especially their ruling class, gladly accepted Chinese culture. The rulers of the Jin Dynasty promoted production and trade, which is why numerous independent kilns from the Northern provinces soon continued to produce glazed stoneware called Cizhou after the city of Cizhou, a famous centre of pottery production. Today, the name Cizhou refers to stoneware produced in Shandong, Hebei, Henan, Shanxi and Shaanxi provinces in the period from the rule of the Tang dynas-

22. Posuda, Muzej Mimara, Zagreb, Inv. br. ATM 80
Jar, Mimara Museum, Zagreb, Inv. no. ATM 80

stanovništva u svakodnevnom životu. Oslobođeni ukusa i zahtjeva carskog dvora, keramičari radionica *cizhou* izrađivali su kameninu prekrivenu jednim ili više slojeva slipa (razvodnjena mješavina gline i boje) ispod cakline i slobodno ju ukrašavali graviranim, urezanim i oslikanim motivima. Izrađivali su i smeđe i crno ocakljenu kamenjaču (*Hare's Fur* 1996: str. 31).

Dodatnu poteškoću u proizvodnji keramike na sjeveru Kine stvarala je i sastavom nepovoljna lokalna glina prapornog porijekla tako da su keramičko tijelo i caklina različitog kemijskog sastava što je zahtijevalo višu temperaturu pečenja oko 1370° C i sukladno tome duže razdoblje hlađenja peći (Kerr 2004: str. 78). Suprotno dugim "zmajevim pećima" loženim drvom koje su keramičari koristili u južnoj Kini, na sjeveru Kine u razdoblju vladavine dinastije Song razvio se tip keramičke peći ložen ugljenom kojeg je u okolici bilo u izobilju. Prednost ugljena kao goriva je njegova visoka kalorična vrijednost te u sagorijevanju razvija višu temperaturu pečenja, dok su kratak plamen i veća količina pepela njegova mana. Radi kratkoće plamena keramička peć ložena ugljenom ne može biti dugačka poput "zmajeve peći" ložene drvom i imati veći broj komora. U razdoblju dinastije Song tipična sjevernokineska keramička peć imala je oblik potkove s jednom komorom kružnog oblika veličine 2 do 3 metra u promjeru nadsvođenom niskom kupolom. Ložište se nalazilo s prednje strane, a najčešće dva široka ali niska dimnjaka sa stražnje strane. Prednost para dimnjaka nad jednim dimnjakom je u boljoj mogućnosti nadzora nad kretanjem topline te u lakšem postizanju uvjeta reduktivnog paljenja unutar komore (Kerr, Wood 2004: str. 323). Poznata je pod nazivom *mantou* koji proizilazi od kineskog naziva za pecivo sličnog oblika. Pripada tipu keramičkih peći u kojima se plamen širi vodoravno. Peći *mantou* bile su izgrađene od cigle dok im je unutrašnjost zaštićena glinenom oblogom otpornom na visoke temperature. Keramika se pekla unutar posuda od pečene gline zaštićena od velike količine teškog pepela koji se proizvodi sagorjevanjem ugljena.

Radi grube gline koja se koristila u proizvodnji keramike *cizhou,* tijela posuda bila su teška i imala su debele stijenke. Osobito popularna bila je "crno" ocakljena kamenjača

ty (618 – 907) until the end of the rule of the Yuan dynasty with several kilns continuing into the Ming dynasty (Mc. Elney 1998: pp. 21-22).

*Unlike celadon, which was exported throughout Asia, stoneware from northern China was intended for use in daily needs of local population. Liberated from the tastes and demands of the imperial court, potters of the Cizhou kilns produced stoneware coated with one or more layers of underglaze slip and freely decorated it with incised, carved and painted designs. They also produced brown and brown-black monochrome-glazed stoneware (*Hare's Fur *1996: p. 31).*

An additional difficulty in the production of ceramics in the north of China was created by unfavourable local clay of loess origin. Because of this the ceramic body and the glaze differed in composition, which required higher firing temperature of about 1370°C and accordingly a longer kiln-cooling period (Kerr 2004: p. 78). In contrast to the long wood-burning "dragon kilns" used by potters in southern China, a type of coal-fired kiln developed in northern China during the Song dynasty, since this area was abundant in coal. The advantage of coal as fuel is its high calorific value that develops a higher firing temperature during combustion while the short flame and a large amount of ash are its disadvantages. Due to the shortness of the flame, a kiln fired with coal cannot be as long as a "dragon kiln" burning wood nor have a large number of chambers. In the Song dynasty period, a typical North Chinese ceramic kiln was of a horseshoe shape with a single circular chamber measuring 2 to 3 meters in diameter vaulted with a low dome. The firebox was located at the front, and two wide but low chimneys were most often found at the rear. The advantage of a chimney pair over a single chimney is in the better ability to control the flow of heated air and the conditions of firing inside the chamber (Kerr, Wood 2004: p. 323). This type of kiln is known as mantou*, which derives from the Chinese name for a roll of a similar*

23. Posuda, detalj, dno, Muzej Mimara, Zagreb, Inv. br. ATM 80
Jar, detail, bottom, Mimara Museum, Zagreb, Inv. no. ATM 80

s udjelom željeznog oksida u caklini višim od 6% . Potkraj XII. st. u brojnim radionicama *cizhou* keramičari su počeli izrađivati i kamenjaču s ukrasom urezanim u tamnu caklinu. Na nepečeno keramičko tijelo nanijeli bi gusti sloj cakline, pričekali da se slegne i potom duboko urezali obrise stiliziranog, najčešće cvjetnog ukrasa kroz caklinu sve do keramičkog tijela. Uklonili bi odrezani dio cakline i ogolili keramičko tijelo čime bi postigli da se nakon pečenja ističe suprotnost između sjajnih dijelova tamno ocakljene površine i grube sivkaste površine ogoljelih dijelova keramičkog tijela. Takav način ukrašavanja potekao je od tehnike u kojoj se na bijeli sloj slipa nanosio crni sloj slipa ispod prozirne cakline. U nastojanju da sakriju grubo glineno tijelo keramičari su posudu premazivali bijelim slipom. Potom su nanijeli gusti sloj crnog slipa. Duboko su urezali obrise ukrasnog motiva do sloja bijelog slipa i uklonili dijelove crnog slipa čime su dijelove bijelog slipa ogoljeli kao pozadinu. Tehnika izrezivanja cakline pojednostavljena je inačica tehnike slipa izmišljena u svrhu povećanja proizvodnje (*Hare's fur* 1996 str. 35 - 36).

Posuda Inv. br. ATM 80 (vis. 22,5 cm; šir. 14 cm) iz Muzeja Mimara (sl. 22) pripada toj skupini kamenjače *cizhou*. Ima trbušasto tijelo s dvije nasuprot postavljene drškice u obliku prstena smještene ispod kratkog vrata. Unutar ukrasne vrpce smještene u gornjoj polovici tijela odmah ispod ramena posude ističe se urezani ukras u obliku stiliziranog biljnog prepleta tipičan za tehniku izrezivanja dijelova cakline. Ponešto izduženi donji dio tijela posude uz dno ostavljen je neocakljen (sl. 23) što se često može vidjeti i na brojnim drugim primjercima kamenjače *cizhou* bez obzira na boju cakline i na tehniku kojom su ukrašeni. Posude sličnog oblika kao što je posuda Inv. br. ATM 80 mogu se naći i u zbirkama drugih muzeja kao što je primjerice posuda iz Victoria and Albert Museuma.[19] Prema obliku i načinu ukrašavanja posuda Inv. br. ATM 80 može se datirati u XIII. st. u kasno razdoblje vladavine dinastije Jin.

Mala skupina od šest posuda od kamenine u zbirci Muzeja Mimara odražava težnju za skladnim spajanjem oblika glinenog tijela i cakline tipičan za razdoblje dinastije Song i dinastije Jin. Ljepota detalja ukrasa na grobnoj vazi Inv. br.

shape. It belongs to the type of kilns in which the flame spreads horizontally. Mantou *kilns were built of brick while their interior was protected by a high-temperature resistant clay lining. The pottery was fired inside saggars protected from the large amount of heavy ash produced by burning coal.*

The clay used in production of Cizhou ware was coarse making the bodies of the vessels thick and heavy. The "black" glazed stoneware with iron oxide content in the glaze higher than six percent was very popular. At the end of the 12th century potters in numerous Cizhou kilns began to make stoneware with decoration cut into dark glaze. They applied a thick layer of glaze to the unfired ceramic body, waited for it to settle, and then deeply engraved the outlines of the stylized, usually floral decoration through the glaze all the way to the ceramic body. Then they removed the cut parts of the glaze and exposed the ceramic body to enhance the contrast between the shiny dark glazed parts of the decoration and the rough greyish surface of the clay body after firing. This type of decoration derived from the technique which combined black slip over white slip under clear glaze. To conceal poor quality clay body a vessel was covered with a layer of white slip. Then it was coated with a thick layer of black slip. The outlines of the decoration were deeply incised and parts of the

ATM 84 i jednostavnost oblika zdjelice Inv. br. ATM 82 istaknuti su sjajnom caklinom u boji celadona. Suprotno njima, ljepota triju čajnih zdjelica iz Jiana Inv. br. ATM 85, Inv. ATM 86 i Inv. br. ATM 87 nije se ocjenjivala prema savršenstvu izrade. Mjehurići zraka, nakupine kristala, nerastaljeni komadići i nestabilne boje u caklini učinili su svaku od njih jedinstvenim keramičkim djelom.
Oblikovana za svakodnevnu upotrebu, posuda keramičkog tipa *cizhou* Inv. br. ATM 80 iz sjevernokineskih radionica izgledom je manje profinjena nego kamenjača iz južnokineskih radionica, ali ju složeno stilizirani urezani biljni ukras čini suvremenom gledatelju vrlo privlačnom.

*black slip removed exposing the white slip as a background. Cut-glaze method, a simplified version of this technique, was invented to increase the efficiency of production (*Hare's fur *1996: pp. 35-36).*

Jar Inv. no. ATM 80 (height 22.5 cm; width 14 cm) from the Mimara Museum (fig. 22) belongs to this group of Cizhou stoneware. It has a rounded body with two small ring handles placed opposite below the short neck. Inside the decorative band located around the belly of the vessel below the shoulder a carved design in the form of a stylized floral decoration typical for the cut-glaze technique stands out. The slightly elongated lower part of the body along the bottom was left unglazed (fig. 23), which is a feature also found on other pieces of Cizhou stoneware, regardless of the glaze colour and the decoration technique. Vessels of similar shape and decoration can also be found in the collections of other museums such as the jar from the Victoria and Albert Museum.[19] According to its shape and decoration the jar Inv. no. ATM 80 could be dated to the beginning of the 13th century at the end of the reign of the Jin Dynasty.

A small group of six Song and Jin stoneware vessels in the collection of the Mimara Museum reflects the tendency of the period towards harmony between the shape of the clay body and the glaze. Beautiful details of decoration on the funerary vase Inv. no. ATM 84 and a simple shape of the bowl Inv. no. ATM 82, are enhanced by the celadon colour of the glossy glaze. The three Jian tea bowls Inv. no. ATM 85, Inv. no. ATM 86, Inv. no. ATM 87, on the contrary, were not evaluated according to the perfection of craftsmanship. Air bubbles, accumulation of crystals, unmelted particles and unstable colours in the glaze made each of them a unique piece of ceramic work. Shaped for everyday use, the Cizhou-type jar Inv. no. ATM 80 from the Northern kilns looks much less refined than the pieces from the Southern kilns but the intricately designed carved floral decoration makes it very appealing to the contemporary viewer.

Notes:

1 *A typical Song landscape painting can be seen on http://www.metmuseum.org/toah/works-of-art/1973.120.1*

2 *Daguan is the period of Huizong's reign.*

3 *The rarest are the examples of Ru pottery with glaze in shades of light blue and cracked. The crackles can vary in shape from shallow and irregular to accentuated ice-shaped ones (Kerr 2004: p. 29). The largest collection of Ru stoneware containing 21 pieces is in the National Palace Museum in Taipei (Taiwan).*

4 *After the relocation of the Song dynasty court to the new capital in the year 1138, new imperial stoneware kilns were immediately established near the palace on the outskirts of the city. This is where the production of Guan stoneware began, which replaced the previous imperial pottery Ru (*Celadon *2005: p. 29).*

5 *A feature of the stoneware called Ge is its densely cracked glaze. Some modern experts identify the Ge stoneware with the Guan stoneware (Kerr 2004: pp. 86-87, p. 86, Fig. 86).*

6 *Ding stoneware has a particularly fine white thin ceramic body covered with yellowish-white transparent glaze that emphasizes finely incised stylized plant ornaments. Due to their fragility, the wares were fired turned upside down with the edge of the opening facing downwards, which left a thin unglazed part that was often decorated with a metal ring or gilded in the imperial workshop after firing. In addition to the yellowish-white glazed ware, the workshops also made dark-glazed ceramics in black, brown and green (Kerr 2004: p. 47).*

7 *Jun stoneware has a somewhat coarser ceramic body, and exceptionally beautiful glaze, the colour of which can change from milky blue to brilliant purple. It was fired in reduction at temperatures from 1280 to 1300°C (Kerr 2004: p. 31).*

8 *Yue, Ru, Ding, Yaozhou and Guan kilns (Kerr 2004: p. 26).*

9 *Longquan, Jun, Chizou, Jizhou and Jian kilns (Kerr 2004: p. 26).*

10 *This shade of light green called celadon was especially popular in France in the 18th century, when elegant people wore clothes in this colour and decorated luxurious interiors of their homes with paint and furnishings in the same colour which also included imported Chinese ceramics (Kerr 2019: p. 69).*

Bilješke:

1 Primjer slike s prikazom krajolika na http://www.metmuseum.org/toah/works-of-art/1973.120.1

2 Daguan je naziv za razdoblje vladavine cara Huizonga.

3 Najrjeđi su primjerci keramike *Ru* u tonovima plavozelene boje cakline prekrivene prepletom finih krakelira koje mogu varirati od gotovo jedva vidljivih paučinastih do naglašenih krakelira u obliku leda (Kerr 2004: str. 29). Najveća zbirka keramike *Ru* (21 predmet) nalazi se u National Palace Museumu u Taipeiju (Taiwan).

4 Nakon preseljenja dvora dinastije Song u novu prijestolnicu 1138. g. odmah su osnovane nove carske radionice kamenjače koje su bile smještene u blizini palače na rubnom dijelu grada. Tu je započela proizvodnja kamenjače *Guan* koja je zamijenila dotadašnju carsku keramiku *Ru* (*Celadon* 2005: str. 29).

5 Odlika kamenjače pod nazivom *Ge* je gusto krakelirana caklina. Suvremeni stručnjaci poistovjećuju kamenjaču pod nazivom *Ge* s kamenjačom *Guan* (Kerr 2004: str. str. 86-87, str. 86, sl. 86).

6 Kamenjača *Ding* ima osobito fino bijelo keramičko tijelo tankih stijenki koje prekriva žučkastobijela providna caklina koja ističe fino urezane stilizirane biljne ukrase. Radi svoje osjetljivosti pekla se preokrenuta s rubom otvora prema dolje što je ostavilo tanki neocakljeni dio koji se poslije pečenja često ukrašavao prekrivanjem metalnim prstenom ili se pozlatio u carskoj radionici. Uz caklinu žutobijele boje radionice su izrađivale i tamno ocakljenu keramiku crne, smeđe i zelene boje. (Kerr 2004: str. 47).

7 Kamenjaču *Jun* odlikuje ponešto grublje keramičko tijelo, a ljepotom se ističe caklina čija boja se može mijenjati od mliječno plave do sjajne grimizne kao posljedica većeg udjela silicija nego aluminija u caklini. Pekla se u redukcijskom okruženju na temperaturi od 1280 do 1300°C (Kerr 2004: str. 31).

8 To su keramičke radionice Yue, Ru, Ding, Yaozhou i Guan (Kerr 2004: str. 26).

9 Manje cijenjene keramičke radionice su Longquan, Jun, Chizou, Jizhou i Jian (Kerr 2004: str, 26).

10 Pod nazivom celadon ta nijansa svijetlozelene boje bila je osobito popularna u Francuskoj u XVIII. st. kada su se otmjeni ljudi u nju odijevali i upotpunjavali raskošne unutarnje prostore svojih domova ukrasnim predmetima u istoj boji među kojima je bila i izvozna kineska keramika (Kerr 2019: str. 69).

11 *The basic constituent of glaze is silicon oxide (67-69%) (Wood 2007: p. 76, Table 26) in crystalline form (quartz sand formed by rock decay). Its other main ingredients, in various smaller ratios, are aluminium oxide (Al_2O_3), calcium oxide (CaO) and magnesium oxide (MgO) while some other oxides are present in a ratio of 1% or less than 1%.*

12 *In Chinese applied arts, a type of semi-precious stone called jade usually implies two different minerals. Most Chinese jade until the 18th century was made of nephrite ($NaAlSi_2O_6$) pale green in colour, while dark green jadeite ($Ca_2Mg_5Si_8O_{22}(OH)_2$) prevails after the year 1780 (Kerr, Wood 2004; 577). Ever since the periods of earliest Chinese dynasties, nephrite has been extracted from river alluvium in the Khotan region, in the western county of Xixiang in the Shaanxi province. Jadeite was imported from Burma.*

13 *Similar funerary vase with lid from the Victoria and Albert Museum on https://collections.vam.ac.uk/item/O133222/lidded-vase-unknown*

14 *This vase can be seen on http://www.sothebys.com/en/auctions/ecatalogue/2015/song-ceramics-yang-de-tang-collection-n09338/lot.64.html*

15 *Similar Longquan bowls from the Victoria and Albert Museum on https://collections.vam.ac.uk/item/O181201/bowl-unknown/ and on http://collections.vam.ac.uk/item/O181047/bowl-unknown*

16 *In relief decoration traditional Chinese floral motifs predominate - chrysanthemum, camellia, peony, hibiscus, lotus to which the motifs of the Chinese dragon were added as well as those of the phoenix among the clouds, and the fish and turtles among the lotuses. Typically Chinese depictions were also popular, such as those of* The Eight Taoist Immortals *or symbols such as* The Eight Treasures*. The decoration in the form of dark brown spots on the surface of the vessel obtained by occasionally adding a thick mixture rich in iron oxide was also appreciated.*

17 *More information about Asian shipwrecks with Chinese ceramic cargoes available on http://www.mingwrecks.com/shipwrecks.html*

18 *The kingdom of Sukhotai was established in the middle of the 13th century after the rulers of that region in 1238 renounced obedience to the hitherto ruling Khmers.*

19 *Similar jar from the Victoria and Albert Museum https://collections.vam.ac.uk/item/O12715/jar-unknown*

11 Osnovni sastojak cakline je silicijev oksid (67 – 69 %) (Wood 2007: str. 76, tabela 26) u kristalnom obliku (kvarcni pijesak nastao raspadanjem stijena). Ostale sastojke u različitim manjim omjerima čine aluminijev oksid (Al_2O_3), kalcijev oksid (CaO) i magnezijev oksid (MgO) dok su neki drugi oksidi prisutni u omjeru od 1% ili manjem od 1%.

12 U kineskoj primijenjenoj umjetnosti za vrstu poludragog kamena pod nazivom žad podrazumijevaju se dva različita minerala. Većinu kineskog žada do XVIII. st. čini nefrit ($NaAlSi_2O_6$) koji je u zelenoj inačici blijedozelen, dok žadeit ($Ca_2Mg_5Si_8O_{22}(OH)_2$) tamnozelene boje prevladava nakon 1780. g. (Kerr, Wood 2004; str. 577). Od razdoblja najranijih kineskih dinastija nefrit se vadio iz riječnih naplavina u regiji Khotan, u zapadnokineskoj pokrajini Xixijang. Žadeit se uvozio iz Burme.

13 Slična grobna vaza s poklopcem iz Victoria and Albert Museuma na https://collections.vam.ac.uk/item/O133222/lidded-vase-unknown

14 Spomenuta vaza može se vidjeti na http://www.sothebys.com/en/auctions/ecatalogue/2015/song-ceramics-yang-de-tang-collection-n09338/lot.64.html

15 Slične zdjelice iz Victoria and Alber Museuma na https://collections.vam.ac.uk/item/O181201/bowl-unknown http://collections.vam.ac.uk/item/O181047/bowl-unknown

16 Prevladavaju tradicionalni kineski cvjetni motivi – krizantema, kamelija, božur, hibiskus, lotos kojima su pridodati motivi kineskog zmaja i feniksa među oblacima, te riba i kornjača među lotosima. Popularni su bili i tipično kineski prikazi, primjerice *Osam daoističkih besmrtnika* i simboli poput *Osam dragocjenosti*. Ukras u obliku tamnosmeđih mrlja na površini posude koji se dobivao mjestimičnim dodavanjem jako zgusnute smjese bogate željeznim oksidom također je bio cijenjen.

17 Novi podaci o istraživanjima brodskih olupina s teretom kineske izvozne keramike u Aziji dostupni su na http://www.mingwrecks.com/shipwrecks.html

18 Kraljevstvo Sukhotai nastalo je sredinom XIII. st. nakon što su vladari te regije 1238. g. otkazali poslušnost dotada vladajućim Khmerima.

19 Primjer posude istog oblika i iste tehnike ukrašavanja iz Victoria and Albert Museuma na https://collections.vam.ac.uk/item/O12715/jar-unknown

Literatura i izvori / *Literature and sources*

Fahr-Becker, Gabriele (ed.): *The Art of East Asia*, Könemann, Potsdam, 2006

Kerr, Rose: *Song Dynasty Ceramics*, V&A Museum Publications, London, 2004

Kerr, Rose, Wood Nigel.: *Science and Civilisation in China: Vol. 5, Chemistry and Chemical Technology: Ceramic Technology*, Part 12, Cambridge University Press (Illustrated edition), 2004

Medley, Margareth et al.: *The Chinese Potter: A Practical History of Chinese Ceramics*, Phaidon Press, 2000

Schwartz-Arenales Laure: *Mille Ans de Monochromes: Vaisselle sacrée et profane des empereurs de Chine*, Fondation Baur, Musée des arts d'Extréme-Orient, Genève, 2018

Tregear, Mary: *Song Ceramics*, Thames and Hudson Ltd., 1982

Wood, Nigel: *Chinese Glazes*, A & C Black, London/University of Pennsylvania Press, Philadelphia, 2007

Katalozi izložbi / *Exhibition catalogues*

Barns, Laurie E.: *High Tea, Glorious Manifestations – East and West*, Norton Museum of Art, West Palm Beach, Florida, 2014

Céladon - Grés des musées de la province de Zhejiang; Chine, Musée Cernuschi, Paris, 2005

Frühchinesische Keramik: Sammlung Heribert Meurer, Grassi Museum für Angewandte Kunst, Leipzig, 2017

Hare's Fur, Tortoiseshell, and Partridge Feathers: Chinese Brown and Black-glazed Ceramics, 400 – 1400, Harvard University Art Museums, Cambridge, Massachusetts, 1996

Članci u časopisima / *Magazine articles*

Kerr, Rose: *Ceramics and Society in the Song Dynasty*, Orientations, Vol. 40, No. 5, June 2009, str./pp. 63 - 68.

Kerr, Rose: *Refined, Aspiring and Cosmopolitan: Eating and Drinking in the Song Dynasty*, Arts of Asia, November – December 2018, str./pp. 74 - 80.

Kerr, Rose: *Luminous Colours of Celadon, The Ceramics of Yaozhou*, Arts of Asia, July-August 2019, str./pp. 69 – 78.

McElney, Brian: *Ceramics Black & Brown*, The Museum of Asian Art Journal, Volume IV, 1998, Bath, UK.

Dodatna literatura / *Additional literature*

Williams, C.A.S.: *Chinese Symbolism and Art Motifs*, Turtle Publishing, Hong Kong, 2006

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