T. C.
ULUDAĞ ÜNİVERSİTESİ
SOSYAL BİLİMLER ENSTİTÜSÜ
ARKEOLOJİ ANABİLİM DALI
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THE ANCIENT SOUTH MARMARA HARBORS

(DOKTORA TEZİ)

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.....Arkeoloji..... Anabilim/Anasanat Dalı, ...Arkeoloji..... Bilim Dalı'nda .....710947003..... numaralı .....Serkan Gündüz'ün.....'nın hazırladığı "....The Ancient South Marmara Harbors....." konulu .....Doktora..... (Yüksek Lisans/Doktora/Sanatta Yeterlik Tezi/Çalışması) ile ilgili tez savunma sınavı, 18/08/ 2015 günü 10.00 - 12.00 saatleri arasında yapılmış, sorulan sorulara alınan cevaplar sonunda adayın tezinin/çalışmasının .....başarılı..... (başarılı/başarısız) olduğuna .....oybirliği..... (oybirliği/oy çokluğu) ile karar verilmiştir.

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ANTİK GÜNEY MARMARA LİMANLARI

Anadolu, bin yıllar boyunca birçok medeniyete ev sahipliği yapmış, birçok kültürü, birçok dili bünyesinde barındırmış, prehistorik dönemlerden günümüze insanlara yurt olmuş toprak parçasıdır. XIX. yüzyılın başlarından itibaren Batılı arkeologların ilgisini çeken bu topraklar, XX. yüzyılın ortaları ile Sualtı Arkeologlarının ilgisini çekmeye başlamıştır. Özellikle sualtı araştırmaları Anadolu'nun güney ve batı kıyılarında yoğunlaşmıştır. Marmara Denizi'nde Marmara Adası etrafında, Küçükçekmece Gölü'nde sualtı araştırmaları yapılırken, Güney Marmara kıyılarında sadece 2008 yılında Kyzikos (Erdek)'te sualtı çalışmaları gerçekleştirilmiştir.

Marmara Denizi, özellikle günümüzden 7100 yıl önce Ege ve Karadeniz ile birleşmesinden sonra önemini arttırmıştır. Bu tarihten sonra, Karadeniz'in kuzeyindeki medeniyetler ile Akdeniz medeniyetleri arasında bir köprü vazifesi görmüştür. Neolitik dönemden itibaren çevresinde yaşam izleri tespit edilen Marmara Denizi, özellikle kolonizasyon hareketlerinden sonra bir çok kente ev sahipliği yapmıştır. Çanakkale Boğazı üzerinden Marmara Denizi'ne giren Akdeniz medeniyetleri Marmara Denizi kıyılarında koloni kentleri kurmuşlardır.

Marmara Denizi'nin güney kıyıları uzun yıllar araştırmacıların dikkatini çekmeyi beklemiştir. Anadolu topraklarının diğer bölümleri ile karşılaştırıldığında, Güney Marmara kıyılarının ne kadar boşlandığı daha net anlaşılmaktadır. Bu sebep ile, bu çalışmanın alanı olarak Güney Marmara bölgesinin antik limanları seçilmiştir. Güney Marmara kıyılarında dört farklı ilin (Çanakkale, Balıkesir, Bursa, Yalova) sınırları mevcuttur. Bakanlık her çalışma döneminde bir il için çalışma izni vermektedir. Bir dönemde bir ilin kıyı şeridinin araştırılması imkansız olduğu için çalışmamız yalnızca Bursa il sınırları içerisindeki antik limanlar ile sınırlandırılmıştır. Marmara Denizi'ndeki 135 kilometrelik Bursa kıyılarının yanı sıra İznik ve Uluabat göllerinin kıyıları da taranmıştır.

Çalışmalarımıza başlamadan önce tüm antik kaynaklar, geç dönem seyyahları ve modern araştırmacılardan bölge ile ilgili bilgiler derlenmiştir. Strabon, Herodotos, Pseudo-Skylaks, Apollonius Rhodius, Xenephon, Yaşlı Plinius, Dio Chysostum, Claudius Ptolemy, Stephanos Byzantinos, Pomponius Mela ve Gaius Plinius Caecilius Secundus gibi bölge hakkında bilgi veren antik yazarlar incelenmiştir. Ayrıca, Seyyid Muradi, İbn Battuta, Polonya'lı Simeon, Evliya Çelebi, Jean Thevenot, Richard Pockocke ve Charles Texier gibi seyyahların bölge limanları ve liman kentleri üzerlerine yazdığı bilgiler toplanmış ve araştırmalar esnasında yol gösterici olarak göz önünde tutulmuştur. Tüm bu kaynaklarda, özellikle kıyı kentleri ve liman yapıları üzerinde durulmuştur.

Özellikle deniz ticaretinin başladığı dönemlerden itibaren, antik limanlar kent bölünmesi içinde en önemli noktalar konumuna gelmişlerdir. Ticaretin kentte başladığı ilk yer olmaları nedeni ile yaşamın direkt içinde olmuşlardır. Limanlar, gemilerin barınmalarına, yük alıp boşaltmalarına, yolcu indirip bindirmelerine yarayan doğal veya yapay sığınaklardır. Kente gelen tüccarların ilk ve son gördükleri yer limanlardır. Fakat, bu kadar önemli bir konumda olmalarına rağmen, araştırmacılar tarafından hak ettiği önemi yıllar boyunca görmemişlerdir. Bugüne kadar Anadolu kıyılarında limanlar üzerine yapılan çalışmaların sayısı bunu göstermektedir. Çalışma konumuz olan Bursa ili kıyılarında bugüne kadar yapılmış bir çalışma bulunmamaktadır.

İnsan elinden çıkmış olan bilinen en eski su taşıtı M.Ö. 6000 yıllarına tarihlenirken, bilinen en eski liman yapısı M.Ö. 3000'lere tarihlenmektedir. İnsanoğlunun artan ihtiyaçları

doğrultusunda kullandıkları su taşıtlarının ebatlarının büyümesi neticesinde yerleşimlerde deniz taşıtlarını koruyacak güvenli alanlara ihtiyaç doğmuştur. Gemilerin karaya çekilemeyecek boyuta gelmelerinden ve sualtında inşa fırsatı veren hidrolik çimentonun kullanılması ile liman yapıları karşımıza çıkmaya başlamıştır.

Limanlar, kentlerin kuruldukları yerlere göre farklı şekillerde inşa edilmişlerdir. Bulundukları yere göre ve işlevlerine göre limanları iki ayrı başlık altında gruplamak mümkündür. Bulundukları yere göre, Deniz Limanları ve Tatlı Su Limanları olarak adlandırılmışlardır. Deniz Limanları ise yine kendi içinde, kıyı şeridinin farklılık göstermesi nedeni ile doğal veya yapay limanlar olarak ikiye ayrılırlar. Göl, nehir gibi tatlı suların kıyı şeritlerinin düz olması nedeniyle bilinen tüm tatlı su limanları yapaydır. Bir limanın yapay veya doğal liman olmasını belirleyen faktör liman havzasının inşa şeklidir. Doğal limanlar, koylarda inşa edildiği için liman olarak koyun su havzası kullanılmıştır. Yapay limanlarda ise, su havzası dalgakıran veya mendirekler yardımı ile yapılmaktadır. Ayrıca antik limanlar fonksiyonlarına göre askeri limanlar, ticari limanlar ve özel limanlar olarak üç başlık altında toplamak mümkündür.

Dünya üzerindeki liman araştırmaları XX. yüzyılın başlarında başlamıştır. Anadolu kıyılarında ilk araştırmalar ise 1960'dan sonra başlamaktadır. Anadolu kıyılarında bugüne kadar Phaselis, Limantepe, Myndos, Kyzikos ve Küçükçekmece göllerinde gerçekleştirilmiştir. Fakat son 20 yıl içerisinde üniversitelerde yüksek lisans ve doktora seviyelerinde liman araştırmalarının yapılması gelecek için umut vaat edicidir.

Bursa kıyıları, Anadolu toprakları gibi birçok medeniyete ev sahipliği yapmıştır. Antik kaynaklardan bildiğimiz kadarı ile bölgede oturan en eski medeniye Bebrklerdir. Bölgede genel olarak yaşayan halk Trak kökenli halklardır. Mysialılar, Frigyalılar ve Bithynialılar arasında bölgede bir hakimiyet savaşı söz konusudur. Kimi zaman Bursa kıyı şeridi Mysialıların kontrolüne geçerken, kimi zaman Bithynialılar kontrolünde olmuştur. Kimi antik kaynağa göre Kios (Gemlik) Mysia kenti iken, kimine göre Phygia, kimine göre ise Bithynia topraklarındadır. Persler M.Ö. 547 yılında Lidya Krallığı'nı yok edince bölgeye hakim olmuşlardır. Perslerin tüm Anadolu'da uzun yıllar hakimiyetlerinden söz etmek mümkündür. Fakat, M.Ö. V. yüzyılın ortasından sonra Bursa kıyıları da dahil olmak üzere, Marmara Denizi'nin güney kıyılarında

Yunanlıların hakim olduğu bilinmektedir. Büyük İskender'in M.Ö. 333 yılında Anadolu'ya girmesi ile Perslerin Anadolu'daki hakimiyetleri yok olmuştur. İskender, Bithynia üzerine saldırı yapsa da, burası ile fazla ilgilenmeyerek Anadolu içlerine yürüyüşüne devam etmiştir. M.Ö. 202 yılına kadar Bursa ilindeki Kios, Myrleia gibi önemli yerleşimler bu dönemde kent devletleri statüsünde gözükmektedir. M.Ö. 202 yılında Prusias tarafından yeniden inşa edilen şehirler Bithynia Krallığı hakimiyetine girmişlerdir. M.Ö. 75/74 yılında Bithynia toprakları miras yolu ile Roma İmparatorluğu'na devredilmiştir. Bu dönemde Mithradates ile Pompeius arasında bölge için önemli mücadeleler olmuştur. Bursa kıyılarında kısa bir süre Mithradates'in egemenliği söz konusu olsa da, M.Ö. 63 yılından sonra ise Roma İmparatorluğu hakimiyetindedir. M.S. 395 yılında Roma İmparatorluğu'nun ikiye bölünmesinden sonra Bursa ili kıyılarındaki yerleşimlerde Doğu Roma İmparatorluğu hakimiyetine girmişlerdir. Uzun yıllar Bizans (Doğu Roma) İmparatorluğu hakimiyetinde kalan kıyı şeridi yerleşimleri, M.S. 1320'den sonra Osmanlı İmparatorluğu hakimiyetine girmişlerdir.

Kolonizasyon hareketleri sonrası Marmara Denizi'nde ticari bir hareketlilik söz konusu olmuştur. Çanakkale Boğazı üzerinden Marmara Denizi'ne giren halklar yeni koloni kentleri kurmuşlardır. Bu kurulan kentler ve siyasi olaylar hakkındaki bilgiler deniz ticaret rotalarını çizmemize yardımcı olmuştur.

Antik dönemde denizciler istedikleri zaman sefer yapamıyorlardı. M.S. IV. yüzyılın sonlarında yaşamış olan antik yazar Vagetius denizcilerin sefer takvimi hakkında bilgi vermektedir. Vagetius'a göre Antik Dönem denizciliği için meteoroloji ve hakim rüzgarlar oldukça önemlidir. Gemilerin sefer yapmalarına uygun belirli tarihler mevcuttur. Denizin şiddeti ve durumu tüm yıl sefer yapılmasına imkan sağlamamaktadır. 27 Mayıs'tan 14 Eylül'e kadar sefer yapmak güvenli iken, bu tarihten itibaren yaklaşık 11 Kasım tarihlerine kadar sefer için hava şartları ve denizler şüpheli ve tehlikelidir. 11 Kasım'dan 10 Mart'a kadar ise denizlerin tamamen sefere uygun olmadığından bahsetmektedir. Denizciler, uygun hava şartları için sefer mevsimini beklemek zorundaydılar. M.S. XVII. yüzyılda da Vagetius'un verdiği tarihler sefer için geçerliliğini korumaktadır. 1775-1776 yılındaki Seyir Defteri'nde Osmanlı gemilerinin Nisan – Kasım ayları arasında sefer yaptığı anlaşılmaktadır. Vagetius'un bahsettiği tarihlerden günümüze yaklaşık 1500 yıl geçmesine ve gelişen gemi teknolojilerine rağmen, Marmara Denizi'nde Mudanya – İstanbul seferini yapan gemiler hava şartları nedeni ile en çok

Kasım - Mart aylarında iptal edilmektedir. M.S. IV. yüzyıl ile M.Ö. VII. yüzyıl arasında coğrafyada ve iklim kuşaklarında çok fazla değişiklik olmadığına göre, Vagetius'un vermiş olduğu dönemlerin VII. yüzyıldan itibaren geçerli olduğunu düşünmek yanlış olmayacaktır.

Antik kaynaklara göre, kurulan ilk koloni kentleri Marmara Denizi'nin güney kıyılarında kurulmuştur. M.Ö. 756 yılında Kyzikos, M.Ö. 709 yılında Parion, M.Ö. 712 yılında Astacus, Marmara Denizi'ndeki koloni kentlerinin ilk öncüleridir. Kios'un kuruluşu ise M.Ö. 627 yılına tarihlenmektedir. Marmara Denizi'nin kuzey kıyılarında yer alan, Chalkedon M.Ö. 685'te, Selymbria M.Ö. 668'den önce, Byzantium M.Ö. 668'te, Perinthos M.Ö. 602'de, Thracia Chersonesus (Gelibolu) M.Ö. 561'de kolonileştirilmişlerdir. Marmara Denizi'ndeki kolonizasyon hareketlerine baktığımızda Çanakkale Boğazı'ndan Marmara Denizi'ne girildikten sonra en erken koloni kentlerinin Marmara'nın güney kıyılarında kurulduğu görülmüştür. Bu da güney kıyılarında bir ticaretin olduğunu kabul etmemize nedendir.

M.Ö. V. yüzyılda dönemin önemli deniz gücü Atina liderliğinde, Perslere karşı ortak mücadele etmek amacı ile Delos Birliği kurulmuştur. Birliğin ilk işi Çanakkale Boğazı'nı ve Marmara kıyılarını Perslerden temizlemek olmuştur. M.Ö. V. Yüzyıldaki deniz ticareti ile ilgili elimizdeki en önemli arkeolojik verilerin başında Atina Vergi Listeleri gelmektedir. Bu listelerde Attika-Delos Deniz Birliği'ne vergi veren kentler ve vergi oranları gözükmektedir. Buna göre Marmara Denizi kıyısında vergi veren birçok kentin adı ile karşılaşmaktayız. Bu kentlerden bazılarının vergi oranları da gözükmektedir. Bu listelere göre, Marmara Denizi'nin güney kıyılarında kurulmuş olan Parion 1 talent, Procennesos 3 talent, Kyzikos 9 talent, Kios 1000 drahmi, Astacus 1 talent 300 drahmi vergi verir iken, kuzey kıyılarındaki Perinthos 10 talent, Selymbria 6 talent, Byzantium 15 talent, Chalcedon 7 talent vergi vermektedir. Vergi oranlarının şehirlerin ekonomik durumu ile doğru orantılı olduğu düşünülürse, M.Ö. V. yüzyılda kuzey kıyılardaki kentlerin güney kıyılarındaki kentlerden daha zengin olduğunu ortaya koymaktadır. Bu gelişmiş ekonomi bize dönemin deniz ticaret rotalarını da vermektedir. Marmara Denizi'nin ticaret rotaları M.Ö. VIII. yüzyıl içerisinde güney kıyılarında daha aktif iken, M.Ö. V. yüzyıl ile birlikte ana ticaret rotası kuzey kıyılarına kaymıştır. Bu dönemde, Marmara Denizi'nin hakimiyeti tamamen Perslerin elinde gözükmektedir. Bu dönem Persler ile Yunanlıların büyük mücadeleleri vardır. Marmara Denizi'nin bir Pers gölü haline gelmesi nedeni ile Pers satraplığına bağlı tüm kıyılarda özgürce bir dolaşımdan söz etmek olasıdır. M.Ö.

V. yüzyılın ortasından sonra Marmara Denizi de dahil olmak üzere Ege Denizi kıyılarında Attika Delos Deniz Birliği'nin etkisi gözükmektedir. Fakat Anadolu'daki Pers varlığı Marmara Denizi'ndeki ticaret yollarını güney kıyılarından uzak tutmuş olmalıdır.

M.Ö. IV. yüzyılın sonlarında özellikle Kios'un bastırdığı altın sikkeleri kentin ekonomisinin iyiliğine işaret etmektedir. Bu da, Bursa ili topraklarındaki kentlerinde bu dönemde ticaret yolları üzerinde bulunduğunu göstermektedir.

Roma Dönemi'nde tüm Marmara Denizi kıyıları Roma İmparatorluğu güvencesi altına alınmıştır. Kuzeyde Perinthos, bölgenin en önemli limanı ve Via Egnatia yolunun başlangıç noktasıdır. Ayrıca kent, Roma ordularının geçiş istasyonu ve toplanma noktası olarak oldukça önemli bir konumda bulunmaktadır. Roma dönemi kentlerine ve bölgedeki siyasi olaylara göz attığımızda Marmara'nın güney kıyıları çok daha problemlidir. Özellikle Mitridates VI'nın Bithynia kıyılarında Romalılara üstünlük kurması ve Nikaia (İznik), Mryleia (Mudanya) ve Kios (Gemlik) gibi kıyı kentlerini ele geçirmesi nedeni ile bu bölge Romalılar için ticarete elverişsiz duruma gelmiştir. M.Ö. 74 yılında Bithynia topaklarının vasiyet yolu ile Roma İmparatorluğuna bağlanmış ve M.Ö. I. yüzyılın ikinci yarısında Apameia, "Colonia Iulia Concordia Apamea" ismi ile bir Roma kolonisi olmuştur. Güney kıyıları da güvenlik altına alındıktan sonra tüm Marmara Denizi kıyıları ticarete elverişli duruma gelmiş olmalıdır. Perinthos'ta bulunan ve M.S. III. Yüzyıla tarihlenen bir yazıt Roma döneminde Perinthos ile Apameia'nın iyi ilişkiler içinde olduğunu, hatta Perinthos'ta "Apameia'yı Sevenler Cemiyeti" olduğunu göstermektedir. Bu dönemde bütün Marmara Denizi sınırları içerisinde bir ticaretin olduğu görülmektedir. Ayrıca Romalıların Marmara Denizi'nin iki yanında birer koloni kurması ve bu kolonilerin irtibatta olmaları bir tesadüf olmamalıdır. Perinthos'un Via Egnatia ile Roma ve Trakya kentlerine bağlandığı gibi, Colonia Iulia Concordia Apameia'nın da Anadolu içleri ile Prusa üzerinden bağlantısı vardır.

Tüm bu veriler ışığında, M.Ö. 6000'lerde insanoğlu Marmara Denizi'ni besin sağlama amacı ile kullanmaya başlamıştır. M.Ö. VIII. yüzyıl ile birlikte Marmara Denizi deniz ticaretinde ismini duyurmuştur. Arkaik, Klasik, Helenistik, Roma, Bizans ve Osmanlı dönemleri boyunca siyasi etkiler nedeni ile farklı deniz rotaları oluşmuştur. Her dönemde, değişen deniz rotaları kentlerin gelişmelerini etkilemiştir. Marmara Denizi deniz rotası

üzerindeki kentler, gelişmeye sürekli devam etmiştir.

Perinthos Antik Kenti ile Via Egnatia örneğinde olduğu gibi, limanlar bir yol ağı ile iç bölgelere ulaşıma sahip olmalıdırlar. Bu nedenle bölgede yol ağları üzerine de bir çalışma gerçekleştirilmiştir. Liman kentleri ile iç bölgeleri bağlayan yollar tespit edilmeye çalışılmıştır. Antik kaynaklardan bildiğimiz Prusa – Apameia bağlantısına ait arkeolojik bir veri ile karşılaşılmamıştır. Fakat yazıtlar ışığında Nicaea'dan Kios'a ulaşan bir yolun varlığı bilinmektedir.

Bursa ili kıyıları kıyı yapısı, kayaç ve toprak yapısı ile antik kentlerin konumları karşılaştırılmıştır. Bu karşılaştırma sonucunda kıyı şeridi, kayaç ve toprak yapısı ile antik kentlerin konumları arasında bir bağlantı bulunamamıştır. Tarım toprakları haritası incelendiğinde ise, tüm önemli antik kentlerin (Myrleia, Kios, Daskyleion ad Mare) günümüzde zeytin dikim alanlarında kurulduğu ve verimli topraklara sahip olduğu anlaşılmıştır.

Plakia Antik Kenti'nin konumu bazı antik kaynaklar tarafından verilse de, yeri hakkında soru işaretleri mevcuttur. Kent hakkında bilinenler, Rhyndakos Nehri'nin batısında, Pelasg kolonisi ve kıyı yerleşmesi olmasıdır. Yaptığımız araştırmalar esnasında, Kurşunlu/Karacabey'de sualtında oldukça tahrip edilmiş dalgakıran yapısı ile karşılaşılmıştır. Araştırma sahamızın başladığı alandan itibaren Rhyndakos Nehri'ne kadar tespit edilen tek liman kalıntısı burasıdır. Liman'ın üst kısmında bulunan manastır ve mimari parçalar bölgenin tarihini çok daha eskiye götürmektedir. Tespit ettiğimiz limanın, erken dönemlerde Plakia halkı tarafından kullanılan bir liman, Geç Antik Çağ'da ise Manastır Limanı olarak görev yaptığı düşünülmektedir. Burasının kesin olarak Plakia Antik Kenti'ne ait bir liman demek için en azından yazıtlar ile desteklenmesi gerekmektedir. Bu nedenle, bölgede başka bir liman kalıntısı bulunmamasından dolayı burasını Plakia Antik Kenti'nin limanı olarak tanımlamak uygun görülmüştür. Liman, iki dalgakıran yardımı oluşturulmuş, yapay deniz limanıdır. Dalgakıranlar iri düzensiz taşların yığılması ile meydana getirilmiştir.

Daskyleion ad Mare ile Eşkel Limanı eşleştirilmesi XX. yüzyılın başlarında yapılmıştır. Bu nedenle, kentin limanını aramaya yönelik çalışmalar yapılmıştır. Eski fotoğraflardan kentin limanı tespit edilmiş, modern yapılaşmanın dalgakıran ve liman üzerindeki tahribatı

belgelenmiştir. Kentin bir tek limanı olduğu ve bunun da koyun içinde inşa edildiği anlaşılmıştır. Dalgakıranı iri, düzensiz taşların yığması ile meydana getirilmiştir.

Ketendere'nin gerek konumu, gerekse buluntuları nedeni ile bir kent olarak algılanmaması gerektiği anlaşılmıştır. Ketendere deresinin batı kısmında iri düzensiz taşların yığılması ile meydana getirilmiş bir dalgakıran yapısı tespit edilmiştir. Antik limanlar ve tatlı su kaynaklarının bağlantısı göz önüne alınarak burasının çok küçük deniz taşıtları için kullanıldığı ve Caesarea Germanica kentine ait olması gerektiği görüşü bildirilmiştir.

Kapanca Limanı'nda yapılan çalışmalarda 2 adet dalgakıran yapısı tespit edilmiştir. Bu dalgakıranların, iri düzensiz taşların yığılması işe meydana getirildiği anlaşılmıştır. Yüzyıllardır yeri tartışma konusu olan Caesarea Germanica Antik Kenti ile Kapanca Limanı'nın ortak yönleri gösterilerek, burasının Caesarea Germanica olması gerektiği ifade edilmiştir.

Trilye kıyılarında yapılan araştırmalar neticesinde ne yazık ki antik döneme tarihleyebileceğimiz hiç bir liman yapısı ile karşılaşılmamıştır. Trilye kıyı şeridindeki modern yapılaşma ve liman tahribatın en büyük sorumlularıdır. Trilye'de yapılmış olan çalışmalar incelendiğinde, burasının bir yerleşim yerinden çok bir kült olanı olarak algılanması gerektiği anlaşılmıştır.

Mudanya sınırlarında yaptığımız araştırmalar daha önceden yeri tespit edilmiş olan akropol çevresinde yoğunlaştırılmıştır. Roma Dönemi'nden itibaren Bursa için çok önemli bir liman şehri olan Mudanya'da kıyı şeridinde antik döneme tarihlenebilecek herhangi bir liman kalıntısı tespit edilememiştir. Eşkel, Trilye gibi Mudanya kıyı şeridinin de yoğun olarak doldurulduğu ve yapılaşmaya gidildiği anlaşılmıştır. 1860'lı yıllarda kıyı şeridinde sözü edilen dalgakıran yapılarının bu yapılaşma nedeni yok olduğu tespit edilmiştir.

Mudanya – Gemlik arasındaki araştırmalar neticesinde Sırakayalar Mevkii'nde liman yapısı tespit edilmiştir. Dalgakıranlar iri düzensiz taşların dizilmesi ile meydana gelmiştir. Limanın fonksiyonunu anlamak için çevrede yaptığımız araştırmalarda limanın yamaçlarındaki tepe üzerinde yol yapımı ve taş ocağı nedeni ile yoğun tahribatın olduğu gözlenmiştir. Hangi kente ait olduğunu tespit etmek için yaptığımız araştırmalarda, ismi bilinen fakat yeri hakkında

soru işaretleri olan Bryllion Antik Kenti ile ortak noktaları tespit edilmiştir. Bu limanın yaklaşık olarak üç kilometre iç kısmında bulunan Gündoğdu'da bulunan antik kent ile bağlantısının olduğu anlaşılmıştır. Bazı bilimadamlarının Paladari olarak isimlendirdiği kentin erken dönemleri hakkında hiçbir bilgi yoktur. Antik yazarlardan bölgede olması muhtemel kentler araştırılmış ve eşlenen tek yerleşim ile filolojik eşleştirilme yapılmaya çalışılmıştır. Tüm veriler göz önünde tutulduğunda Gündoğdu'daki antik kentin Bryllion, limanın arkasındaki tepe üzerinde de Bryllion'un epineonu olan Tereia'nın bulunması gerektiği düşünülmüştür. Bu nedenle kayıp kent Bryllion ile Gündoğdu yakınındaki Çiftekayalar'ın aynı yer olduğu ifade edilmiştir.

Özellikle M.S. X. yüzyıldan sonra bölge için önemli bir gemi üretim merkezi olarak bilinen Gemlik'te yapılan araştırmalar neticesinde antik döneme tarihlenebilecek herhangi bir liman veya tersane yapısı ile karşılaşılmamıştır. Kıyı şeridinin tamamen dolduğu ve yeniden yapılaşmanın olduğu anlaşılmıştır.

İznik Gölü'nde yapılan araştırmalar esnasında dört farklı noktada iskele kazıkları tespit edilmiştir. Bu kazıkların yerleri ile, bölgede yerleri tahmin edilen antik kentler karşılaştırıldığında birebir örtüşme söz konusudur. Ahşapların tatlı sularda binyıllar boyunca bozulmadan kalabildiği bilinmektedir. Bodrum, Myndos, Antalya, Plakia, Eşkel, Gemlik örneklerinden de bildiğimiz gibi limanların olduğu yerler binyıllar boyunca aynı işlevde yaşamlarını sürdürmüşlerdir. Bu durum göllerde de söz konusu olmalıdır. İznik kenti çevresinde yaptığımız araştırmalarda dalgakıran benzeri bir yapı ile karşılaşılmamıştır. Kentin göl kısmında yoğun dolgu bulunmaktadır. Göl Kapı önünde tespit edilen kazıklar muhtemelen antik kentin iskelesini işaret ediyor olmalıdır. Yüzyıllar boyunca aynı mevki, eskiyen ahşapların yenilenmesi ile kullanılmış olmalıdır.

Uluabat Gölü'nde yaptığımız çalışmaların sonuçları İznik Gölü'nde yaptığımız çalışmaların sonuçları ile benzerlik göstermektedir. Her iki gölde de dalgakıran veya mendirek yapısına rastlanmamıştır. Gölyazı (Apollonia ad Rhydakos)'ta yaptığımız çalışmalar neticesinde insitu şeklinde bulunan bağlama taşı limanın tam yerini bize göstermektedir. Bağlama taşı gölden yaklaşık 16 metre içeride bulunmaktadır. Aradan geçen yol ile, olması muhtemel kalıntılar tahrip edilmiştir.

Antik kaynaklardan Miletopolitis Gölü kıyısında kurulduğunu bildiğimiz Miletopolis kenti günümüzde tamamen karasal bir alandadır. En yakın göl Uluabat Gölü olup, arasındaki mesafe kuş uçuşu 20 kilometredir. Strabon'un bahsettiği gölü bulmak için çevre topografyası ve coğrafyası üzerine yapılan araştırmalar ile kuruyan gölün sınırları tespit edilmiştir. Müze Müdürlüğü'nün yaptırdığı kazılar neticesinde ortaya çıkan yapılar ve topografya ışığında limanın nerede olması gerektiği açıklanmıştır.

Rhyndakos Nehri'nin Uluabat Gölü ve Marmara Denizi arasında kalan kısımdaki çalışmalarda herhangi bir liman yapısı bulunamamıştır. Buradaki çalışmalarda orta boyda balıkçı teknelerinin bile günümüzde bu nehirde yolculuk ettiği ve kıyıda herhangi bir liman yapısına gereksinim duymadan demirleyebildiği anlaşılmıştır. Bu alandaki çalışmalara, herhangi bir buluntu olmaması nedeni ile ayrı bir başlık açılmamıştır.

Kıyı şeridindeki ve göllerdeki çalışmalar göstermiştir ki, Bursa il sınırlarında tespit edilen tüm deniz limanlarında dalgakıranlar iri, düzensiz taşlar yardımı inşa edilmiştir. Tatlı sularda ise, herhangi bir dalgakıran yapısı ile karşılaşılmamaktadır. Tatlı sularda liman için ekstra yapılaşma gerekmemektedir.

135 kilometrelik kıyı şeridinde üç adet dalgakıran yapısı tespit edilmiştir. Eşkel, Trilye, Mudanya, ve Gemlik gibi halen yaşamın sürdüğü yerleşim yerlerinde limanların tahrip ve yok edildiği anlaşılmıştır. Kıyı şeridinin düz olması nedeni ile doğal liman hiç yoktur. Tespit edilen limanların hepsi yapay deniz limanıdır.

M.Ö. VII. yüzyıldan itibaren deniz ticaretinde aktif olan Marmara Denizi kıyılarındaki limanları tarihlemek için yeterli veri mevcut değildir. Dalgakıranların yapım şeklinden tarihleme yapılamamaktadır. Fakat buluntular ışığında; Plakia Antik Kenti M.Ö. IV. yüzyıl; Daskyleion ad Mare M.Ö. IV. yüzyıl; Caesarea Germanica M.S. I. yüzyıl; Apameia/Myrleia M.Ö. IV. yüzyıl; Bryllion ve Kios M.Ö. V. yüzyıl'a tarihlendirilmektedirler.

Plakia – Daskyleion ad Mare arasındaki mesafe 33 kilometre; Daskyleion ad Mare –

Caesarea Germanica arası 5 km; Caesarea Germanica – Apamia/Myrleia arası 14 km; Apameia/Myrleia – Bryllion arası 9 km ve Bryllion – arası 17 kilometredir. Aralarındaki mesafeler bakımından bir ortaklık gözükmemektedir. Bu nedenle, bölgede liman kentleri kurulurken aralarındaki mesafeden çok coğrafya şartlarına dikkat edilmiştir.

Anahtar Sözcükler:

Bursa, Liman, Dalgakıran, Marmara Denizi Ticaret Rotaları, Bithynia

ABSTRACT

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THE ANCIENT SOUTH MARMARA HARBORS

From prehistoric times to modern times, Anatolia has been home to many civilizations. It has hosted many cultures and many different languages have been spoken on this very piece of land. Since the 19th century, these lands attracted the attention of western archaeologists. Then, in the middle of the 20th century, it started to attract the attention of underwater archaeologists. Underwater research is particularly concentrated on the south and west coasts of Anatolia. While underwater research has been carried out around Marmara Island, at the lake of Küçükçekmece at the Marmara Sea, the only underwater research carried out in 2008 happened at Kyzikos (Erdek) at the south coasts of Marmara Sea.

Around 7,100 years ago, after the Aegean Sea and the Black Sea connected, the importance of the Marmara Sea increased. After this period, it had officiated as a bridge between the civilization of the Northern Black Sea and the Mediterranean Sea. With the Neolithic Period, signs of life started to be detected around Marmara Sea and then with the colonization movements, the area hosted many cities. Mediterranean civilizations entering the Marmara Sea through the Dardanelles started to establish colonial cities at the coasts of Marmara.

The south coasts of the Marmara Sea waited to attract the attention of researchers for long years. This can be seen clearly when, compared with the other parts of the Anatolian lands, the Marmara coasts were neglected. For this reason, the southern Marmara region's harbors were chosen as the area of this research. Four different provinces (Çanakkale, Balıkesir, Bursa, Yalova) had borders at the coasts of the Marmara Sea. The Turkish Ministry is providing a working permission for each province, at each period. As it was impossible to investigate the coastline of a province at a period, the research was limited to ancient harbors with the border of Bursa Province. Apart from the 135m areas at the coastline of Marmara Sea, the coasts of İznik and Uluabat lakes were also investigated.

Information about the area was gathered from ancient resources, late antique travelers and modern research. The writing of the ancient authors, who gave information about the harbors of the region and harbor cities (including Strabo, Herodotus, Pseudo-Skylaks, Apollonius Rhodius, Xenophon, Pliny the Elder, Dio Chrysostom, Claudius Ptolemy, Stephanos Byzantinos, Pomponius Mela and Gaius Plinius Caecilius Secundus) were examined. Moreover, writing of the travelers such as Seyyid Muradi, İbn Battuta, Polish Simeon, Evliya Çelebi, Jean Thevenot, Richard Pockocke and Charles Texier were collected and considered as an adviser during the research. In all these resources, particular emphasis was laid on coastal cities and harbor structures.

Since the period when maritime trade began, harbors become the most important points in the segmentation of the cities. Because they are the places where trade originated in the city, they were directly integrated into daily life. Harbors are natural or artificial places where the ships find shelter, load and unload goods, and board and drop off passengers. The first and last thing that a merchant coming to the city saw was the harbor. However, despite being in such an important position, they have not received enough attention from researchers over the years. The number of studies on the harbors of Anatolian coasts demonstrates that thus far. At the Bursa Province coastline, no research was held until today.

The earliest sea-faring vessel made by humans dates back to 6000 BC, and the earliest harbor structure dates back to 3000 BC. According to the growing needs of people, water vessels also grew in size, and people needed places to protect these vessels. As a result of the

size of the vessels becoming too big to be pulled to the coast easily, as well as the invention of hydrophilic cement allowing constructions underwater, harbors structures were constructed.

Harbors were constructed in different ways depending on where they were found in the city. It is possible to divide harbors in two groups, according to the places where harbors were constructed and their respective functions. According to location, harbors are divided into sea harbors and freshwater harbors. Because of the diversity of coastline, sea harbors can be further categorized into natural and artificial harbors. Because lake and river coastlines are flat, all the freshwaters harbors are artificial. The main factor that determines whether the harbor is artificial or natural is the construction form of harbor's basin. Because natural harbors were constructed at bays, the natural basin of the bay would be used to form the harbor. Artificial harbors are constructed with the support of water basins, breakwaters and moles. Additionally, ancient harbors are divided even further, according to their functions: military harbors, trade harbors and private harbors.

Harbor research around the world started in the 20th century AD. The first research at the coasts of Anatolia started after the 1960s. Research at the Anatolian coastlines was held in Phaselis, Limantepe, Myndos, Kyzikos and Küçükçekmece Lake. However, in last 20 years, masters and PhD level research has been carried out at the universities, and shows promise for the future.

Bursa coasts like Anatolian lands hosted many civilizations. As discovered from the ancient resources, the earliest civilization residing in this area was Bebryks. These people are thought to be of Thracian origins. Wars of dominance took place between Mysians, Phrygians and Bithynians. Sometimes, the Bursa coastline was under the rule of Mysians, sometimes the Bithynians. According to some ancient resources, Kios (Gemlik) was a Mysian city, but for some others it’s a Phrygian or Bithynian city. When the Persians destroyed Lydia Kingdom in 547 BC they became dominant in the region. It is possible to speak about Persian dominance during many years in Anatolia. But after the middle of the 5th century BC, it is known that Greeks dominated the Bursa coasts. In 333 BC, after the Alexander the Great entered Anatolia, Persian dominance had ended. Although Alexander attached to Bithynia, he did not get excessively involved and continued marching to inner Anatolia. Until 202 BC important

settlements in the Bursa Province such as Kios and Myrleia appeared as a polis. In 75/74 BC Bithynia lands were assigned to be Roman Empire lands by legacy. In this period, important battles for the area between Mithradates and Pompeius occurred. Although only a short period of time had elaps, dominance of Mithradates could be seen at the coasts of Bursa, and after 63 BC, it went under the rule of Roman Empire. By 395 AD with the division of Roman Empire in two, settlements at the Bursa Province coastline went under the dominance of East Roman Empire. The coastline, which remained under the rule of Byzantine Empire for a very long time, went under Ottoman rule by 1320.

After the colonization movements, commercial activities at the Marmara Sea increased. People entering the Marmara Sea throughthe Dardanelles had established new colonial cities. Information about these newly founded cities and political events helped us to understand more about the sea trade routes.

In the Ancient Period, sailors were not able to sail as freely as they wanted. Ancient author Vagetius, who lived at the end of the 4th Century AD, gives information about a sailing map. In his opinion, meteorology and winds were crucial for the ancient sailors. There were few dates, which were suitable for sailing. Because of the violence and the situation of the sea, it was not possible to sail very often in the year. While it was safe to sail from the 27th of May to the 14th of September, after this date, weather conditions and the condition of the sea were uncertain and dangerous until the 11th of October. Vagetius mentions that from the 11th of October to the 10thof March, the sea was entirely unsuitable for sailing, and thus sailors had to wait months again for sailing season. The navigation dates given by Vagetius remained valid until the 17th century AD. From the logbook between 1775-1776, it was understood that boats sailed between April and November.Throughout the 1500 years that passed from the dates Vagetius mentioned, the sea expeditions between Mudanya to Istanbul mostly halt between October and March. Between the 4th century AD and 7th century BC, as there hadn't been so many changes in geography and climate, the seasonal information Vagetius gives could definitely remain valid from 7th century BC.

According to the ancient resources, the first colonies were established at the southern coast of Marmara Sea: Kyzikos in 756 BC, Parion in 709 BC, Astacus in 712 BC.These were

colonial city pioneers at the coast of the Marmara Sea. And the foundation of Kios should be dated to 627 BC. Other cities includeChalkedon, colonized in 685 BC, Selymbria, colonized before 668 BC, Byzantium in 668 BC, Perinthos in 602 BC, and finally Thracia Chersonesus (Gelibolu) in 561 BC. When entering Marmara Sea through the Dardanelles, the earliest colonies were established at the southern coast of the Marmara Sea. This is sufficient reason to believe that there was a sea trade at the south coast of the Marmara Sea.

In the 5th century BC, under the leadership of Athens the strongest sea force of its period, the Delian League, was established to fight against the Persians. The first occupation of the league was to cleanthe Dardanelles (Çanakkale Boğazı) and the Marmara shores from Persians. One of the most important archaeological findings related to the maritime trade of the early 5th century BC is the Athenian Tribute Lists. In these lists, the pay ratings and cities that pay taxes to the Delian League can be seen. According to these lists, many cities at the shores of Marmara were taxpayers. The tax rate of some of these cities can also be examined through these lists. Cities at the southern coast of the Marmara Sea paid relatively small sums: Parion, 1 talent; Procennesos, 3 talent; Cyzicus, 9 talent; Kios, 1000 drahmi; Astacus, 1 talent 300 drahmi. Northern coastal cities paid larger amounts: Perinthos, 10 talent; Selymbria, 6 talent; Byzantium, 15 talent; Chalcedon, 7 talent. If the pay rate had direct proportion to the wealth of the cities, then, in 5th century BC, northern coastal cities were wealthier than their southern counterparts. The developed economies of these cities also give us information about maritime trade routes. While during the 8th century BC the maritime trade focused on the southern coast, during the 5th century BC, the focus of maritime route switched to the northern shores.

In the first half of the 5th century BC, the whole Marmara Sea was under Persian dominance. In this period, Persians and Greeks had big battles. As a result of the Marmara Sea becoming a Persian lake, it was possible to freely sail around the coast of the Marmara Sea. In the middle of the 5th century BC, the impact of the Delian League could be seen in both the Aegean Sea and the Marmara Sea. However, Persian assets in Anatolia would have kept Marmara trade routes away from south Marmara coasts.

At the end of the 4th century BC, the gold stater coinage from Kios showed the economy of the city had improved. This also showed that cities inside the Bursa Province were

established on the trade routes.

In the Roman period, the whole Marmara Coast entered the guarantee of the Roman Empire. At the north, Perinthos become the most important harbor of the area and it become starting point of the route of Via Egnatia. Moreover, the city had a very important location, as it also served as the transporting and summing points for the Roman army. When we take into consideration the Roman cities and the political circumstances of the period, it can be seen that southern coast of Marmara is much more problematic. Particularly, the supremacy of Mitridates VI over the Romans and captured cities such as Nikaia (İznik), Mryleia (Mudanya) and Kios (Gemlik) had caused the area to become unfavorable to the Roman trade. In 74 BC, Bithynian lands conjoined to the Roman Empire by legacy. At the second half of the 1st century BC, the city of Apameia had become a Roman colony under the name of "Colonia Iulia Concordia Apameia". After the southern coast of Marmara had become safe, the whole Marmara Coast became sufficient for trading. An inscription from Perinthos, dated to the 3rd century AD, shows that Perinthos had a good relationship with Apameia, and the association called "Apameia lovers" was established. In this period, trading all around the Marmara coastline could be examined. Furthermore, it shouldn't be a coincidence that the Romans had established two colonies at the two different sides of the Marmara Sea and that these two cities were in liaison. Perinthos had also joined the Via Egnatia to Thrace, and Colonia Iulia Concordia Apameia had liaison with inner Anatolia through Prusa.

Based on information from these trade routes, it appears that in 6000 BC, people started to use the Marmara Sea for providing food. Starting from the 8th century BC, the Marmara Sea becomes famous for sea trade. During the Archaic, Classical, Hellenistic, Roman, Byzantine and Ottoman periods, different sea routes occurred due to the political situations of the times. Through the ages, each period's sea routes affected the flourishing of the cities. Cities along the sea route of the Marmara Sea continued to develop.

Harbors should have provided access to the inner areas through road networks, like in the examples of the ancient city of Perinthos and Via Egnatia. For this reason, research was also carried out at the road networks of the area. Roads connecting the harbors to the continent were unable to be detected. No evidence was found regarding the connection of Prusa – Apameia,

which was known from the ancient resources. However, under the light of inscriptions, the presence of a road connecting Kios and Nicaea is known.

Soil, rocks, and the structure of the Bursa coastline were compared to the locations of the ancient cities. As a result of this comparison, no connection between soil, rocks and coastline structure and the location of the cities was found. When the farmland map was investigated, important ancient cities (such as Myrleia, Kios, Daskyleion ad Mare) were constructed at the fertile areas, which are presently used for olive cultivation.

Although the location of the ancient city of Plakia is given in some ancient resources, some doubts remained. Known information about the city included the fact that the city was located at the west of the Rhyndakos River, was a colony of Pelasgian,and located on the coastline. In Kurşunlu/Karacabey, a very destructed breakwater structure was discovered under the water. This is the only harbor remains discovered between Kurşunlu and Rhyndakos River. Monastery remains and architectural remains found at the upper side of the harbor date the history of the area to an even earlier period. Plakians most likely utilized this harbor in early periods, and in Late Ancient Period it fell to use as a monastery harbor. Defining this place as the harbor of Plakia should be at least supported by inscriptions. For this reason, as there is no other harbor in the region, it is appropriate to describe it as the harbor of Plakia. The harbor is an artificial harbor, constructed with two breakwaters. The breakwaters are constructed by the placement of irregularly piled stones.

Matching Daskyleion ad Mare and the harbor of Eşkel was done in 20th century AD. For this reason, research is carried out to find the harbor of the city. The location of the harbor was detected from old photos, and the effect of modern construction on the harbor and the breakwater was examined. It is understood that the city had only one harbor, and it was constructed at the bay, with a breakwater of irregularly piled stones.

It is understood that Kentendere should not be considered an ancient city because of its location and the archaeological evidence discovered. A breakwater structure of irregularly piled stones was discovered there. When the connection of ancient harbors and fresh water resources is taken into consideration, this structure is probably used for small vessels, and most likely

belonged to the Caesarea Germanica.

During the research at harbor of Kapanca, two breakwater structures were detected. It was understood these breakwaters were constructed with irregullar stone piles. Features of Kapanca harbor and Caesarea Germanica were compeared and it was stated that these two cities were the same city.

During the research carried out at the coast of Trilye, no archaeological evidence was found for dating the harbor to the Ancient Period. Modern construction at the coastis the worst enemy of ancient harbors. Modern structuring at the coastline of Trilye is thus most responsible for the destruction of the harbor. During the research carried in Trilye, it was understood that this area was not a settlement but a cult area.

The research carried out at the borders of Mudanya focused around the acropolis, which was detected previously. No harbor structure that could be dated to the Ancient Period was detected in Mudanya, which was an important harbor city for Prusa since the Roman Period. It is understood that in Mudanya, like in Eşkel and Trilye, coastlines were heavily filled and constructed. Breakwater structures, which were mentioned in 1860s, had been demolished.

As the result of the research carried out between Mudanya and Gemlik, a harbor located at Sarıkayalar was detected. Breakwaters were constructed with irregularly piled stones. During the research held to understand the function of the harbor, it was seen that the road constructions on the hillside of the harbor and stone mine had caused great destruction on the harbor. As a result of the studies held to detect the identity of the ancient city, similarities to the ancient city of Bryllion were found which had previously been known only from written sources. It also appeared to be related to the ancient city located in Gündoğdu, 3km inland from the harbor. There is no information about the earlier periods of this city, which some researchcalls Paladari. The cities that should have been located in the area were investigated from the works of ancient authors and with the matching result; philological pairing attempted to be applied. According to the evidence, the ancient city located in Gündoğdu was probably the ancient city of Bryllion, and the harbor structure located on the hill behind the epineion of Bryllion, where Tereia should have been located. For this reason, the lost city of Bryllion and

Çiftekayalar near Gündoğdu were probably the same place.

As a result of the research carried out, no harbor or dockyard structure was detected in Gemlik, where therehad been a very important ship production center, especially after the 10th century AD. It was found that the coastline was filled and was constructed.

During the research of the İznik Lake, pier piles were found in four different locations. When the piles and the ancient cities predicted to be in the area were compared, they were overlapping. It is known that the wood can stay intact in the freshwater. Like in the examples of Bodrum, Myndos, Antalya, Eşkel and Gemlik, harbors continued their functions for thousands of years. This situation should be the same in the lakes. At the investigation carried around the city of İznik, some evidence of breakwater structure was found. At the lake coast of the city, intensive filling could be seen. The piles detected in front of Göl Kapı could indicate the pile of the ancient city. The same area could be used for centuries by renewing the wood.

Results of the research carried out at the Uluabat Lake have similarities with İznik Lake. No breakwater or mole was found at either of the lakes. At the research carried out in Gölyazı (Apollonia ad Rhydakos) an *in situ* mooring stone was located which showed the location of the harbor. The mooring stone was located 16m more inland than the lake. The road passing between had destroyed the remains.

The area of the ancient city of Miletopolis, located at the coast of Miletopolis Lake, which was known from the ancient resources, is now entirely dry. The closest lake is Uluabat Lake and the distance from the air is 20km. To find the lake that Strabo mentioned, the area of the lake was detected during the research carried out on the topography and the geography of the area. The location of the harbor was estimated from the museum excavations and the topographical data.

During the studies carried out on the Rhyndakos River, between Uluabat Lake and Marmara Sea, no harbor was found. This study showed that even the small sized ships could travel and anchor at the river without needing a harbor structure (Pic. 134). As there was no evidence found in this area, no separate title for this subject was opened.

Research at the coastline and the lakes showed that all of the breakwater structures at the harbors and along the Bursa coastline were constructed with irregular stones. In the freshwater, no evidence of breakwaters was found. No additional structures are needed in freshwaters.

In the 135km coastline, three breakwaters were detected. At the location where the cities are still inhabited such as Eşkel, Trilye, Mudanya and Gemlik, harbor structures were destructed. Because the coastline is flat, no harbors were natural harbors. All the harbors detected were artificial sea harbors.

There isn't enough data to date the harbors at the coastline of the Marmara Sea, which were very active since the 7th century BC. The construction style of the breakwaters could not provide any date. However, through archeological evidence, the ancient city of Plakia has been dated back to the 4th century BC; Daskyleion ad Mare to the 4th century BC; Caesarea Germanica to the 1st century AD; Apameia/Myrleia to the 4th century BC; and finally Bryllion and Kios to the 5th century BC.

The distance between Plakia and Daskyleion ad Mare is 33km; Daskyleion ad Mare to Caesarea Germanica is 5km; Caesarea Germanica to Apameia/Myrleia, 14km; Apameia/Myrleia to Bryllion, 9km; and Bryllion to Kios, 17km. Common points in the distances between the harbors couldn't be seen. So, when the harbors were constructed, geographical conditions were considered more heavily than distance.

Keywords:

Bursa, harbor, breakwater, Marmara Sea trade routes, Bithynia

PREFACE

From prehistoric times to modern times, Anatolia has been home to many civilizations. It has hosted many cultures; many different languages have been spoken on this very piece of land. Since archeology arose as a science, Anatolia has drawn the attention of many western archaeologists since the 19th century. These studies mostly emphasizedwestern, southern and eastern Anatolia. The first archaeological studies were on ancient cities such as Troia, Bergama, Priene, Ephessos, Boğazköy and Alacahöyük.

While Anatolian acquaintance with archeology comes as late as the 19th century, acquaintance with underwater archeology comes even later, in the middle of 20th century. The first Anatolian underwater studies started when Anatolian sponge divers discovered wrecks and reported them to western travelers and journalists. Until now, most of the underwater research in Turkey comes from western and southern Turkey. Dr. Nergis Günsen carried out the only underwater study in the Marmara region between 1998 and 2004. Almost all of the underwater excavations are wreck excavations. The only excavation held on ancient harbors is located in Western Anatolian, at a settlement called Limantepe.

For a few seasons, underwater harbor excavations took place in the ancient city of Kelendris, butthey were discontinued. Moreover, our team held an excavation for two seasons at the mole of Hytos at the ancient city of Kyzikos. We also conducted an underwater survey for the ruins of the mole that remained underwater.

Anatolia is surrounded by sea on three sides. The Marmara Sea divides Europe and Asia. Despite the magnificently rich culture of the area, the importance given to underwater archeology is underwhelming. In recent years, studies on underwater archeology have increased, mostly at M.S. and Ph. D. levels. Yet even these studies can be counted on one hand.

The area named South Marmara is located in the southern part of the Marmara Sea. When compared to other regions of Anatolia, archaeological excavations and surveys by scientists held on the southern Marmara coast have been relatively few. Excavations have been

held in Parion and Kyzikos, and at the ancient cities of Mudanya and Gemilik—which are still occupied as modern cities—there are recovery excavations by museum experts from time to time. This area has a crucial position and historical significance, as it separates Asia and Europe. Despite its importance during many periods, yet there have been no studies on the harbors of the area.

For this reason, between 2009 and 2015, with the permission of Kültür ve Turizm Bakanlığı and Kültür Varlıkları (Turkish Ministry of Culture and Tourism) and Müzeler Genel Müdürlüğü (Headquarter of Material Culture and Museums) also with the guidance of Bursa Archeology Museums, our studies took place at the coastal line and inland waters (İznik and Ulubat Lakes and main river routes), within the borders of Bursa Province.

Specials thanks to those who supported me in my research:

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INTRODUCTION

1.1. RESEARCH AIM

Anatolia has been home to many civilizations for thousands of years. With its unique geography and a climate that lives four seasons equally, it draws attention from the rest of the world. With the general progress of mankind, people find their own lands insufficient, and this leads to communication with different people in different regions. In this context, the Marmara Region and the Marmara Sea tied West and North to East. Especially for those civilizations settled around the Black Sea, it has been the only transaction point to meet with great civilizations like Ancient Greece and Rome. Considering that in antiquity, trade took place on the seas, importance of the Marmara Sea could be better analyzed.

Ancient ships were weaker than their modern counterparts, so they had to remain close to the coastline. Ships passing from the Dardanelles and Bospoorus were not able to exceed Marmara Sea directly. Therefore, they had to follow the coastline. As a result of this, many settlements were established along the coastal routes followed by trade ships. The shortest route for civilizations near Karadeniz and Akdeniz to interact with each other required passing the Marmara Sea.

Because of the great length of the Marmara coastline, the fact that settlements are densely situated, and limiting deadlines and work permission, this research will be covering only freshwater and sea harbors and harbor structures in Bursa Province.

The aim of this research is to explore the articles given below, inside the Bursa Province borders at the coast of the Marmara Sea:

1. The number of ancient ruins at the coast of the Marmara Sea
2. Harbor construction techniques
3. Occupation periods and occupation reasons
4. How the distance between harbors were determined

5. How the modern constructions affected ancient harbors

6. How the winds affected harbor constructions

7. The research of the ancient sea routes at the Marmara Sea

8.Locating the ancient cities known only by name in consideration of archaeological finds

9. How and where the fresh water transportation vehicles anchored

10. The differences between fresh water harbors and sea harbors, if applicable

11. Description and evidencing of the detected harbors

1.2. BORDER OF THE RESEARCH

My research started in the Karacabey district of Bursa Province, at the shore of a town called Kurşunlu, which is located in the west of Bursa Province. My research ended at the eastern border of Bursa, between Armutlu (Yalova)-Narlı (Bursa). An area approximately 135km long was scanned inside the Bursa Province coastline (Drawing 1). As the permission from the Ministry of Culture and Tourism was limited to only one province, and the coastline was very long with not enough time to investigate three provinces,it has been decided to limit my study to the Bursa Province coastline. The Ministry has reported that only one province under the responsibility of a museum could be investigated in each term. So it was not possible to obtain general permission to investigate the whole area, as there were three different regions with three different museums responsible for each province. As there were constant problems, I had to give up my research at the Balıkesir and Yalova areas and limit my research to the Bursa area.

The research focused on the inland waters of Lake İznik, Ulubat and Çapraz Brooke, a tributaryof Rhyndakos. My study was held to find out if there are any harbor ruins or archaeological artifacts at the coast of these inland waters. We also carried out research at the area attempting to locate Miletopolitis Lake and the city of Miletopolis, mentioned in the ancient resources.

1.3 RESOURCES AND RESEARCH TECHNIQUES

1.3.1. RESOURCES

The region is very untouched when it comes to archaeological research. For this reason, our knowledge about the history of the region is limited to ancient historians and the few research expeditions held in the area.

The works of ancient authors mentioning the region include those ofStrabon, Herodotos, Pseudo-Skylaks, Apollonius Rhodius, Xenephon, Yaşlı Plinius, Claudius Ptolemy, Stephanos Byzantinos, Pomponius Melaand Gaius Plinius Caecilius Secunduswere examined. Moreover, while each harbor will be explained, information from the ancient resources will also be mentioned.

Strabon, in his work *Geographica*, gives information about İznik and Gemlik. The location of Gemlik was described clearly and the foundation stories of the city, as well as the dates, were given (Strab. XII.4.3; XII.4.7.). Furthermore, he mentions lakes in the region. Strabon locates Nikaia at the coast of Askania Lake, and also mentions the existing Daskylitis, Apolloniatis and Miletopolitis Lakes (Strab. XII.4.7.; Strab. XII.8.10). Although Daskylitis Lake (Manyas Gölü), Askani Lake (İznik Lake) and Appoloniatis Lake (Ulubat Lake) still exist, Miletopolitis Lake has completely evaporated.

Herodotusmentions Kios as a Mysian settlement. After Hymaias conquered Kios, he followed Darieos to Hellespontos (Hdt. V.122). The work of Herodotus is important as he documents that the borders of Mysia reach Kios.

Pseudo-Skylaks[1], mentions that Kios (Gemlik) was at the coast of Mysia, and the Mysia coastline started with Kios. The northern shores of Kios are described as belonging to Mysia lands, while thesouthern shores were belonging to Phrygia. Furthermore, he mentions the coastal settlements of Myrleia and Plakia, which are located inBursa Province (Ps. Skyl. 93, 94).

[1]As in this work called *Periplus*, the author mentions the cities founded in 4th century BC. This work is thought to be written by an unknown author. For this reason, the author of the book is mentioned as Pseudo Skylaks. (Arslan, 2012: 239).

Apollonius Rhodius, in his work *Argonautica*, mentions the journey of 50 heroes in quest for "the Golden Fleece" with an Argo ship. Their journey started at a harbor in Thessaly, and ended in Khalkis. During the journey, after leaving Kyzikos shovel of the ship breaks and Argonaut crew goes ashore near Kios stream, and Argauthonian Mountain. Heracles and Hylas leave in search of water, but they get lost and the rest of the crew leaves without them (Apol. Rhod. I, 1172 ff).

Xenephon, in his work, *Hellenica*, mentions that Athenian ambassadors, who come to meet Cyrus, were taken to Kios under the surveillance of Ariobarzanes, and then from here they have sailed away to join the Athenian navy (Xen. Hell. I.4).

Pliny (the Elder), in his work, *Natural History,* mentions the settlements at the shore of southern Marmara. He mentions settlements known to us, such as Myrleia and Kios, as well as Bryllion, which is known from Athenian Tribute Lists and Theodokoi cathologs (Corsten, 1987: 115). He also indicates the location of the rivers at the region (Plin. Nat. V.40).

Claudius Ptolemy, in his work, *Geography of Ptolemy*, mentionsthe coastal settlements. In the 5th Book, Chapter I, he mentions Pontus and Bithynia settlements, as well asthe rivers in the area in order, starting with Askania Rriver, Prusias, Apameia, Daskyleion and Rhyndacus (Ptol. V.I).

In the letters Gaius Plinius Caecilius Secundus wrote to Emperor Traianus, it is possible to find information about the Bithynian region. While he was the governor of the state of Bithynia (Proconsul), he reported that he wanted to review public debts, income and expenses of Apameia to the Emperor. Apameia was mentioned as a colony (Plin. Epist. X.47 – X.48).

Pomponius Mela had listed the settlements along the coast of the Marmara Sea in order. He describes Plakia and Scylace as located after Cyzicus. Plakia and Scylace were Pelasgian colonies that extendedto the Olympos Mountain ("Mysia Mountain" as the locals call it). He mentions, following the Rhyndakos River, the cities of Dakylos and Myrleia,

founded by Colophons. Pomponius Mela also mentions the city of Kios, which he describes as the most suitable trading city of Phrygia (Romer, 1998: 62-63).

Stephanos Byzantinos mentions many places called Apameia. He describes one of them, located in Bithynia region with the old name of Myrleia. He also mentions that the Apameia in Bithynia were founded by Nikomedes Epiphanes (Steph. Byz. Myrleia). Moreover, he refers to Ephoros and mentions that the ancient cities of Bryllion and Kios were the same. He refers to a small settlement, named Dskylos, in the region of Bryliss. Furthermore, he mentions five different cities called Daskyleion, as well as a lake (Steph. Byz. Bryllion). From these five cities, the Daskyleion located near Bithynia are often confused with the Daskyleion of Aeolis. Although the author did not mention the exact locations of the cities, he roughly described where they were located. Additionally, he refers to Pseudo Skylaks and mentions the city of Kios as located on the north of the Kios River (Steph. Byz. Kios).

In addition to ancient authors, travelers from the Late Ottoman Period are also important in regard to archaeological information. Many travelers refer to the harbors and harbor cities while writing about their travels. Seyyid Muradi (Muradi, 2009: 118), İbn Battuta (Battuta, 2010: 430-431)[2], Polonya'lı Simeon (Andreasyan, 2013: 24), Evliya Çelebi (Dağlı, 2008: 5, 68, 75, 86, 91 ff.), Jean Thevenot (Thevenot, 2009: 112), Richard Pockocke (Pockocke, 1745: 121- 125) and Charles Texier (Texier, 2002: 77-199) all mention coastal cities and harbors.

Seyyid Muradi narrates the life and adventures of Barbaros Hayrettin Paşa. He gives very important information about 16th century maritime activities. Muradi writes when Barbaros Hayrettin Pasa was going to Halep, he went to Mudanya by the sea route, and then went to Halep through the land route. When he was returning, he first went to Konya, and then arrived at Bursa by the land route. From Bursa, he left for Mudanya and finally, he arrived to Istanbul by the sea route from Mudanya (Muradi, 2009:118).

[2]Ibn Battuta, although he mentions Bursa in his work, he did not mention the coastal settlements. After mentioning Bursa, he explains that he went to Iznik through the land route. Although he does not give information about Iznik Harbor, he mentions that the castle of Iznik was surround by city walls.

In 1656, the French traveler Jean de Thevenot also took the sea route to arrive in Mudanya from Istanbul. In his work, it is understood that even in the middle of the 17th century, ships did not sail at night, but rather, searched for shelter when it grew dark. Furthermore, when the weather was bad, he mentionsthat the route between Mudanya and Istanbul took more than a day (Thevenot, 2009: 112).

In his work *Seyhatname*, dated 17th century AD, Evliya Celebi mentions that when going to Bursa, he went first to Mudanya by the sea route. He describes Mudanya as the strong and sheltered harbor of Bursa. Alongside the harbor, he also mentions harbor buildings, which is critical. He describes a customs building by the mole where and taxes were taken from the tradesman (Dağlı, 2008: 5).

Like Evliya Çelebi, Polish Simeon also took the sea route from Istanbul to Mudanya in order to arrive in Anatolia (Andreasyan, 2013: 24). Although he gives information about Mudanya and its population, he unfortunately neglects to give information about the harbor and harbor building of Mudanya.

Charles Texier mentions the history of the city of Bithina and many other Bithynian cities in his work, *Asia Minor*. He mentions that the harbor of the Kios was at a state of a field. He also describes how in the 19th century, there was a dockyard at Gemlik harbor. When Texier mentions Mudanya Harbor, he writes that it was completely destroyed, making it easier to arrive at Bursa by Gemlik. Thus, Gemlik became the main harbor for traveling between Istanbul and Bursa (Texier, 2002: 189, 192).

1.3.2. RESEARCH TECHNIQUES

Material cultures detected during this research area were found either underwater or near the water. When we come across an artifact under the water, surveys will be carried out around the area to find out if there are any ruins related to any civilizations. Documentations will be completed both underwater and on the land by myself and with a small team. All the collected evidence and AudoCAD sketches will be placed on the area maps. The Marmara Sea generally has very rich contents of plankton, and in comparison to the Aegean and Mediterranean Seas, vision is relatively bad. Because of this, the team will

be trying their best and no innervations will be done to the material culture. The principal part of the library research of this thesis will be carried out at Hamburg University. The libraries of the German Archeology Institute and the Epigraphy Institute of Munich will be also utilized.

1. ANCIENT HARBORS

Since the sea trade started, harbors became the gates where cities open to the outside world. Through centuries, in regions where sea transport is common, harbors became one of the most important parts of a city. These were the places where foreigners were first welcomed, and the last place they have seen when leaving.

Literally, harbors were the natural enclosures where boats sheltered, and loaded and unloaded goods and passengers. Harbors in the Ancient Period are the most important points of urban planning. When the city was planned, the central point of the city was taken as the harbor and other structures were constructed around the harbor in an arch (Akarca, 1998: 26). Especially in the Ancient Period, the harbor was not only a stop for goods and people, but also the door where the city opens to the world.

It is hard to say when exactly the first overseas voyage was made. However, under the guidance of research, the first known overseas trade was around 7000 BC (Suano, 2005: 73). Obsidian was found in Melos Island at the region of Argolis, which is located in the southern part of mainland Greece. It dates back to 7000 BC and shows that people in that period had sea transport up to 60 miles. However, exactly what sort of sea transport they had is unknown (Fig. 1).

Earliest archaeological finds of structures that can float on the water come from a small Nigerian village called Dufuna. This canoe was made of a tree trunk and dates around 6000 BC (Breunig et al., 1996: 116). Earliest examples of the terracotta float model from the 5th to 4th millennium BC were found in Egypt (Casson, 1959: 2) and painted on a vase from 3500 BC (Casson, 2002: 9). Water transport was found in a burial chamber in the pyramid of Cheops in Egypt and dated 2600 BC. It is significant, as it is the first carved timber water transport (Mcgrail, 2004: 23). In Mesopotamia, the earliest known evidence for water transportation is a terracotta float model that came from Eridu's tomb and dates around 5th millennium BC (Mcgrail, 2004: 57).

While the earliest known sea transport dates back as early as 6000 BC, the earliest known harbor structure dates back to the early Bronze Age (Shaw, 1972: 89). The earliest

harbor structures were constructed near riversides. They date back to 3000 BC from the ancient city of Lothal near the border of India (Leshnik, 1968: 911-922; Bass, 1972: 1-35; Shaw, 1972: 87-91; Flemming, 1972: 40; Dumankaya, 2013: 6). Based on the archaeological record, we can say the appearance of harbors at the coasts accrued in later periods. The earliest known sea harbor is Crete Harbor, and dates back to 4000 years before now (Flemming, 1972: 40). In earlier periods, people had used natural shelters to protect their sea transportation. Those places, which were used as harbors, were not invented by people, but were natural (Raban, 1991: 136).

In the 3rd century BC, hydraulic cement[3] started to be used, and it solved many problems such as attaching together architectural blocks under the water (Blackman, 1982b: 185). The increase of the importance of sea trade caused an increase of the size of the ships used in sea trade. As the ships grew in size, so did the necessity for bigger harbors (Gündüz, 2008: 17). As a matter of fact, after the discovery of hydraulic cement, big harbor complexes started to be constructed (Rollo, 1934: 40-53; Shaw, 1972:89; Oleson, 1998: 147-157; Blackman, 1982a: 79-104; Kretzschmer, 2000: 30-35; Blackman, 2008: 645; Dumankaya, 2013: 9.).

Harbors vary depending on where they are located, and they divide into two subtitles: sea harbors and freshwater harbors. Sea harbors can be further divided according to their construction forms: natural and artificial harbors. Harbors can also be categorized by their functions: military harbors, trading harbors and private harbors (Gündüz, 2008: 19-23). Our knowledge about the freshwater harbors compared to sea harbors is very limited. According to the known examples, quays could have been constructed with cothon digging technique (Rao, 1985: 27-28). Wooden piles were also used to construct quays and piers (Leih, 2008: 447-469). The main difference between the sea harbors and freshwater harbors is that freshwater harbors don't have mole or breakwater structures[4]. Wood was preferred in the freshwater harbors because it was more resistant in freshwater than in sea, was relatively cheaper than stone or marble, easier to form, and finally, was a very common material to find.

[3] Hydraulic cement is obtained by mixing suitable proportions of lime and pozzolano. It can resist affects of water and can harden underwater. For Detail See: Curtis, 1913: 198-199.

[4] As a result of the studies including our research, neither at Anatolian or European freshwater coasts any mole or breakwater structures were found.

1.2. RESEARCH OF ANCIENT HARBORS

The first systematical studies on harbors started at the end of the 19th century AD, and some of them were published. When the topographic structure of Rome and Pire was investigated, hydrographs drew attention to underwater harbors of these cities (Blackman, 1982a: 85). The reason for investigating those harbors was not for an archaeological study but to investigate the topographical structure of the harbors. For this reason, the first studies were undertaken not by archaeologists, but by engineer hydrographs and geographers. During these investigations, harbor plans were made and harbors were described. The data collected are important for future research on harbors and as well as for pioneering the new studies on changes at the sea level.

In 1907, the Greek engineer A. S. Georgiades made studies on six harbor facilities, one of the first studies held on the subject (Georgiades, 1907; Blackman, 1982a: 85). However, these studies of Georgiades were considered inadequate due to the fact that his ancient history knowledge was inadequate and his sketches proved incorrect (Blackman, 1982a: 85). Again, another Greek engeener by the name of P. Negris held research in Greece for a French company. In his research he has notes some harbor structure underwater, while examining the drainage workshops, channel excavation and harbor hygiene (Negris, 1904: 340-363; Blackman, 1982a: 85).

Between 1912 and 1916, the president of Egyptian harbor engineers, G. Jonet, examined the prehistoric harbor at Alexandria before the new one was constructed, and drew the plans of the mole and the dock (Jondet, 1912: 252-266; Blackman, 1982a: 85). At the study, surface-supplied divers and free style swimmers were used. Although they recorded dates with a low level of certainty, they mentioned structures that could date around 2000 BC (Flemming, 1972:40).

K. Lehmann-Hartleben (Lehman-Hartleben, 1963) did the most comprehensive study on ancient harbors. Lehmann-Hartleben has not written a book about his observations, but he has written a comprehensive reference book using ancient sources and datas (Blackman, 1982a: 86). In his research at Phalasarna in 1923, Lehmann-Hartleben describes the city

harbor and underlines that it was connected to the sea with an artificial tunnel (Lehmann-Hartleben, 1963: 80 ff.).

Ancient Minos harbors were quite small, in use for centuries, and discovered with great difficulty. In 1925, an archeologist called S. Marinatos discovered a harbor near Knossos at Agaioi Theodoroi (Flemming, 1972:37).

P. Poidebard has worked between 1934 and 1936 at Tyre (Poidebard – Cayeux, 1939), and between 1946 and 1950 at Sidon (Poidebard – Lauffray, 1951). These studies showed for the first time the importance and usefulness of air photography in shallow waters. Underwater records were supported with aerial photos. During this research local sponge divers and French navy divers were employed. Tyre's ancient harbor, mole and other structures were discovered (Taylor, 1965: 162; Blackman, 1982a: 86.).

Development in scuba diving equipments after 1950's brought improvement and ease to the underwater excavations, and research accelerated and improved. With this system, divers' time under the water decreased, and their motion freedom increased (Blackman, 1982a: 88).

Lothal was discovered in 1954, and its excavation was started in 1955 (Leshnik, 1968: 912). During this period, most of the shipyard was excavated (Rao, 1985: 27-28). However, there are also some scientists who think Cothon[5] at Lothal was not a structure related to a harbor. For those scientists, this cothon could be used as irrigation tank. It was suggested that the original size of the structure was not enough to lead the heavy traffic (Leshnik, 1968: 920-922). Yet general belief about this structure is that it was a harbor. This structure dates back to 3000 BC and is the earliest man-made dock structure. The covers used at the entrance and exits were most likely placed for arranging the water level (Shaw, 1972: 89).

In 1955 an English diver by the name of John Leatham and his band reasearched four Minos harbors. As a result of this research at Chersonisos near Knossos, they have

[5] Cothon: Harbor basin obtained by digging.

found bollards and a Roman mole (Flemming, 1972: 37). At the outer part of this mole, ruins of another mole, dating back to Hellenistic period, was also found (Taylor, 1965: 168).

The Ancient city of Kyrene is located at modern day Libyan borders. Its Greco-Roman Harbor, Apollonia was researched between the years 1958 and 1959 by a group of students form the Cambridge University. They combined the effectiveness of working on aerial imaging while carrying out a survey on shallow waters (Flemming, 1972: 95-126; Blackman, 1982a: 88).

Furthermore, H. Frost carried out complementary studies at Tyre, Sidon and Anadus near the coast of Levan (Frost, 1972: 95–114.). Caesarea Harbor at Israel was studied from 1960 and studies carried on intensively after 1976 (Raban–Hohlfelder, 1981: 56-60). At the same time, Dor (Raban, 1981: 15-26), Akko (Raban–Linder, 1978: 238-243) and Athlit (Linder, 1967: 25-29) harbors were also researched (Blackman, 1982a: 89-90).

In 1965 G. Bean did the first research on the harbor of Klazomenai (Bean, 1997: 108-116). As a result of his research, a harbor structure was found at the west coast of the island. In 1989 underwater research at the island was carried out and a plan of the harbor was sketched (Beck–Beelen, 1991: 40).

After 1965, research took place at Kenchrai (Blackman, 1982a: 90), Anthedon (Schläger et al., 1968: 21-98), Larymna (Schäfer, 1967: 527-545), Aegina (Knoblauch, 1969: 104-116; Knoblauch, 1972: 50-85) and Kyme (Schäfer–Schläger, 1967: 40-57; Knoblauch, 1974: 285-291) at the Aegean coast, as well as Phaselis (Schläger-Schäfer, 1972: 542-561; Schläger et al., 1981; Blackman, 1973: 355-364.) and Side (Schläger, 1971: 150-161; Knoblauch, 1977) at the South Anatolian coast. The main reason for the increase in the quantity of research was because of the improvement in scuba diving techniques.

Blackman indicates that the first harbor research on the Anatolian coast is in 1968 at the ancient city of Phaselis, by H. Schläger from the German Archeology Institute (Blackman, 1973: 355-364). J. Schäfer completed this research in 1970 (Schläger et al. 1981). As a

result of the research it was proved that Phaselis had three ancient harbors, which was also what Strabon mentions (Strab. XIV.3.9).

In 1978 the ancient city of Amathus at south coast of Cyprus was used as farming land. Measurements of the electrical resistivity indicate that there was once a harbor in this basin. The French School of Athens took over excavations here in 1984. In that year, eight divers held research over four weeks, and the following year, twenty people worked for eight weeks. A photogrametric survey of the harbor was done throughout the time of the research. As seen in the plan, the structures were constructed on North-South axis. Three moles formed these structures. Big irregular blocks protected the outer part of these moles, while regular smaller stones protected the inside. The entrance of the harbor was built at the southeast, opposing the prevailing wind, and the structure is 20m wide. Drillings done between 1984 and 1985 helped a lot in understanding the construction techniques and how the moles were used. Moreover, as a result of these drillings, negative effects of waves and erosion on the moles was observed (Empereur–Verlinden, 1987: 7-18).

From 1984 to 1985 and again in 1987, underwater archaeologists excavated the ancient harbor of Thasos. The excavation used an average of seven divers, three architects, one restorator, and a very limited number of technical materials. Through this excavation it was understood that airlifts were not useful in the shallow waters. As a result of the research it was suggested that there were not only one but also two harbors present, dating back to the classical and archaic periods (Archontidou-Argyri – Empereur, 1987: 622-626; Archontidou-Argyriet al., 1989: 51).

In 1986 in Phalasarna, to the west of Crete, Epida Hadjidaki started research at Classical/Hellenistic Harbor (Hadjidaki, 1988: 463-479). Research held between 1986 and 1987 verified the suspicions of the visitors who visited the ancient city before, and it came to light that great tectonic movements caused the western part of the island of Crete to rise about 8-9m (Pirazzoli, 1981: 127-149; Frost – Hadjidaki, 1990: 513).

In 2000, the underwater surveys in Limantepe were carried out with the partnership of the University of Haifa from Israel and Limantepe Excavations. In this period, with the

help of tools like DGPS, underwater and mainland maps were sketched, and probable harbor structures were excavated. It was also observed that DGPS and eco-sounder were not very suitable for underwater use. With the analysis carried out on sediment cores, scientists tried to understand the change in coastline and underwater structures (Şahoğlu et al., 2008: 74).

In 2004 in the ancient city of Myndos, surveys started with the leadership of Mustafa Şahin (Şahin, 2006: 176-177). Although there was a pause in 2005 research had a break, more extensive research continued in 2006 (Şahin et al., 2008: 1- 10). These surveys pioneered future excavations and gave more information about Myndos and nearby bays.

In 2006 at the harbor of ancient city of Kelanderis, an underwater survey was held. As a result of this, a structure was found in the harbor, and thought to be a quay (Zoroğlu–Öniz, 2007: 22). In 2007, cleaning on the area continued. As a result of the excavation held on the harbor, measurement of the structure was determined as 26x5m. This structure is considered to be the base of the pier of the ancient city (Zoroğlu–Öniz, 2008: 32).

In 2008, the first and only harbor research on the southern Marmara coast was held under the leadership of Associate Prof. Dr. Nurettin Öztürk from University of Atatürk Archeology Department and Prof. Dr. Mustafa Şahin, the head of the archeology department at the University of Uludag. This research investigated the important location of Kyzikos during the Ancient Period. In particular, the underwater mole of Hytos Harbor is sketched (Şahin – Gündüz, 2010: 179-186).

In 2009, as part of the Myndos excavations, the excavation of Asar Island started. Between 2009 and 2015, artifacts found at the underwater excavation overlapped with the land excavation. The research unrolled, and the underwater excavations at the coastline settlements support the land excavation (Gündüz – Dumankaya, 2015 (In Publication)).

In last 20 years, archaeological excavations of harbors did not receive adequate attention from scientists. Some masterand doctoral theses have been prepared in some universities. Bilhan Subaşı (Subaşı, 1996), Cüneyt Gören (Gören, 1996), Serkan Gündüz

(Gündüz, 2008), Erdogan Aslan (Aslan, 2011), Hatice Kübra Gür (Gür, 2011), Hakan Öniz (Öniz, 2012), Oktay Dumankaya (Dumankaya, 2013) and Aytekin Büyüközer (Büyüközer, 2012) all carried out research in the harbors of ancient coastal cities of Anatolia. They all provide important emphasis on the subject.

2. THE HISTORY AND GEOGRAPHY

2.1 HISTORY

2.1.1. THE HISTORY OF MARMARA SHORES THROUGH THE AGES-BURSA SHORES

The Bursa Province has been home to many civilizations in different periods. These civilizations are known from the works of the ancient writers. The northwestern land of Anatolia in the Ancient Period was quite a problematic place. Therefore it is difficult to determine who ruled the region and where exactly the borders of different states were located (Strab. XII.4.4).

Before the Trojan War, the Bebryks (Strab. XII.3.3.) were the inhabitants of this region (Apoll. Rhod. II.1-2). The earliest mythological king of the region was King Amykos[6]. The name of Bebryk was never mentioned apart from a mythological story. Mysians and Bithynians were the general ruling powers in the region. While Mysians and Phrygians were passing to Anatolia at the end of 2nd millenium BC, Bithynians and Thynias immigrated in a later period (Magie, 1950: 303-304). When Herodotos mentions people like Mysia, Phrygia, and Paphlagonia as tax givers to Persia, he does not mention Bithynia. Instead, he mentions people called Asian Tracians (Hdt. III.90). This is a reference to Bithynians (Hdt. VII.75). The common point of Herodot and Strabon is that the people who inhabited the region had Trakian roots (Strab. XII.4.4).

The present day borders of Bursa Provincepartially include both Bithynia and Mysia. It is difficult to differentiate between Bithynia and Mysia (Strab. XII.4.4). Some scientists accepted the Rhyndakos River as the border of Mysia and Bithynia (KP III (1969), 1529-1533, s.v. Mysia (G. Neumann); DNP X (2001), 1007, s.v. Rhyndakos (E. Schwertheim); Smith, 1857: 716). Lands at the western part of the Rhyndakos River are generally considered Mysia, and the eastern lands are considered to be Bithynia, though this border was not constant. It is noted that in different periods Mysians and Bithynians alternately occupied the coast. In 500 BC, Gemlik was placed inside Mysian borders. Herodotos mentions the Persian

[6] Amykos, is one of the giant son of Poseidon and he was the king of the people living in Bithynia called Bebryks. (Erhat, 1999: 36).

general Hymaias[7] who campaigned to Sardes and conquered Kios in Mysia (Hdt. V.122). As well as Herodotos, Pseudo-Skylaks (Ps. Skyl. 93), Plinius the Elder (Plin. Nat. V.40) and Xenophon (Xen. Hell. I.4) also mention Kios as a city in the Mysia region. In early periods, the Bithynia region was limited to the Izmit district and Kocaeli Peninsula, while the shores of Bursa were situated in Mysia (Map 1) (Sevin, 2001: 31; Dikyol, 2010: 77). It can be seen that the Bithynia region was expanded, particularly in the Bithynian Kingdom Period, and its borders reached the Rhyndakos River (Map 2) (Strab. XII.4.1; Doğancı, 2003: 74; Akşar, 2008: 27). Bithynian kings ruled the region until 74 BC. In 75-74 BC, it was bequeathed to Rome by Nikomedes IV (Magie, 1950: 320; Braund, 1983: 29; 52-53; 48; Braund, 1984: 151 ff; Kallet-Marx, 1995: 229; Arslan, 2007: 305). Bithynian people did not respond well to becoming a state of Rome. Shortly thereafter, Mithridates VI marched on Bityhnia and was welcomed with gusto by the Bithynians (Plut. Luc. VII. 5-6; Arslan, 2007: 316). Mithridates defeated the Roman armies at Khalkedon (Kadıkoy) then conquered Nikaia (İznik), Mryleia (Mudanya), Prusa (Bursa) and Kios (Gemlik), which are in the modern Bursa Province (App. Mithr. 71; Magie, 1950: 326; Arslan, 2007: 318.). After seizing the Cotto navy, he ruled over the entire coast of Marmara (Magie, 1950: 326).

By 73 BC, most of Bithynia and part of Mysia had come under the rule of Mithridates (Arslan, 2007: 319). The entire Marmara coastline in the Bursa Province fell under his domain. The cities in Bursa Province[8]stayedabout two years under the rule of Mithridates until he lost the war of Kyzikos and the Romans took control (Arslan, 2007: 335-336).

In 63 BC, with the victory of Pompeius over Mithridates, Bithynia united its lands with Pontus and extended to east (Map 3). In this period, Pontus-Bithynia became a province of Rome. Yet the western part of Bithynia—the modern Bursa Province—remained Bithynia.

The Pax Romana period started with Emperor Augustus. Like all Roman Provinces in this time, Bithynia lived in peace (Owen, 1992: 121; Wurster, 1996: 165). In 257/8 AD Goths

[7] Hymaias is a Persian general, known to lived between the late 4th century and the beginning of the 5th century BC. (Hertel, 2003: 221).
[8]Mrylea, Kios, Prusa Ve Nikaia.

entered Bithynia from the Black Sea and launched an attack. Because Bithynia was unprepared for such an advance, the Goths plundered cities such as Nicomedia, Nicaea, Kios, Apameia and Prusa. While they were marching on Cyzicus, the Rhyndakos River blocked their path and they returned to continue desecrating Nicaea and Nicomedia (Vassius, 1814: 20; Şahins, 2004: 11).

The history of Bithynia Province becomes more important with the period of Diocletian II. In 292 AD, the emperor declares Nikomedia to be the eastern capital of the Roman Empire (Ramsay, 1890: 74). Thereafter, the Roman Empire becomes an empire with two emperors. Diokletian shared the ruling with Maximanus (Güçlü, 2007: 20). Bithynia had become and an important place for Roman Empire.

In 325 AD, an important event for the entire Christian world had taken place in İznik (Nikea) in Bursa Province. The first ecumenical council of İznik was held for discussing important points in Christianity. Clergy who represented the Christian world came from different cities to join the council (Yalduz, 2003: 266).

At the end of the Roman Empire Period, Emperor Constantin moved the capital of the Empire from Nikomedia to Byzantion in 11 May 330 AD. Afterward, Byzantion took the name of Constantinapolis (Woloszyn, 2006: 271). Moving the capital of the Empire across the borders of Bursa surely gave Mudanya and its surroundings a greater level of importance.

Around a century later, Nikomedia become the second capital in the east of the Empire. In 395 AD, with the Roman Empire dividing into two, Bithynia was taken under the rule of Eastern Roman Empire (Diehl, 1939: 12-13). Currently, the common name given to the Eastern Roman Empire is the Byzantine Empire. However, this name did not exist in antiquity. The empire mentioned was the Eastern Roman Empire, a result of dividing the Roman Empire into two in 395AD. The name 'Byzantine' was accepted after the publication *Corpus Historiae* by German historian Hieronymus Wolf in 1557 (Woloszyn, 2006: 271). In fact, local people of the region were calling themselves“Romaioi” or Romans (Magoulias, 2011: 106).

In 1204, Crusaders sieged Constantinople, and a Latin Empire was established for a brief time in place of the Byzantine Empire. The southern Marmara lands which were occupied by the Byzantine Empire passed into patronage of the Latin Empire. Teodor Laskari, after running away from Constantinopolis, established the Nicaea Empire in Nicaea. In 1261 AD, Mihail Paeolog conquered Constantinople again and restored it as the capital city. The southern Marmara coast had also entered the Byzantine Empire in this period (Uzunçarşılı, 1988: 47-50).

The Byzantine Empire's dominance in the region continued until the 13th century AD. In the 13thcentury AD, the border between the Byzantine Empire and the Seljukian Empire was determined by the cities of Bolu, Eskişehir and Kütahya (Uzunçarşılı, 1988: 47). The western edges of these cities belonged to the Byzantine Empire and the eastern parts belonged to the Turks. The Ottoman Empire conquered Mudanya in 1321, Iznik in 1330, and the areas around Gemik and Armutlu in 1334 (Uzunçarşılı, 1988: 105; 111; 115). In 1321, Organ Gazi captured Mudanya and demolished the castle considerably as he did not wanted to leave any place for the enemy to hide (Dağlı, 2008: 5.). This shows why the modern center of Mudanya is located in different location than the ancient acropolis. After this conquest, Mudanya might have been rebuilt at the west of the ancient city. From this day on, the Bursa Province in southern Marmara coast was occupied by the Ottoman Empire. Furthermore, with the conquest of Constantinopolis by the Ottoman Empire in 1453, the Byzantine Empire disappeared from history and from the Bithynian Region (Uzunçarşılı, 1988: 141).

2.1.2. MARITIME HISTORY OF THE MARMARA SEA

From the moment mankind started using waterways to communicate with other cultures, the sea trade had started. Maritime history refers to when mankind started using the sea for its own benefit. Since early periods, people chose to settle near the water. With the Holocene Period, some changes occurred in the Anatolian vegetation and geography. Animals shifted their living area to the shores of rivers and lakes. As a result of hunting and gathering, mankind went after them. Because there was plenty of water and game,

people passed to permanent settlements for the first time. The fact that the first settlement founded in Anatolia was near a water source supports this claim (Esin, 2007: XI-XIII, XII).

The earliest known evidence from the Neolithic Age in the Marmara region dates back to the second half of the 7th milennium B.C. (Karul, 2011: 57). Previously, the people that settled in the area were mainly hunting and fishing for a living. Along with the Neolithic period, people started domesticating new animals, passed to permanent settlements, started manufacturing pottery and combined this with their traditions to form their own cultures. Fishing stayed their main nutritional source (Karul, 2011: 62).

Based on the archaeological record, it is not possible to saythat these people had fished with a vehicle like a raft. Moreover, the Pendik and Fikirtepe shores were suitable for coastal fishing because of their position. Unfortunately, at the archaeological research carried out at the inland waters of the area, no evidence of raft remains was found.

The Marmara Sea reached its recent sea level, which is approximately 7 cal ka BP (around 5000 BC) (Algan et al., 2011: 30). Before this period it was a lake, at which time it became an inner sea and formed a connection between the Aegean and Black Seas. The earliest settlement in the Marmara region was Belentepe at the Keles district, dating back to the lower Paleolithic Period (Dinçer, 2014: 38). Remains of material cultural are also found in Aktopraklık, Barçın Höyük, Çaltepesi, Ilıpınar Höyük, Kusumlar Mağarası, Marmaracık Höyük, Menteşe Höyük, Tepetarla Höyük and Yüğücek Höyük, dating back to the period when mankind started permanent settlements. Sölöz Höyük and Yeniköy Höyük date back to the Chalcolithic Period. Çakırca Höyük, Çayırköy Höyük, Çardak Höyük, Demirtaş Höyük, Hacılartepe Höyük, Karadin Höyük and Kurşunlu Höyük date back to the Bronze Age. The research carried out in this region was focused on Iznik and Yenişehir Plain (Özdoğan, 1985: 417, Map 1). There wasn't any research on the southern shore of the Marmara Sea. Because of that, only Greek and Roman settlements are known on the shores.

The northern Marmara settlements of Fikirtepe, Pendik and Yenikapı present the earliest archaeological evidence from the Marmara shores. All three of these settlements date back to 6400-6000 BC (Karul, 2011: 58; Yılmaz, 2011: 284). In this period, the Marmara

Sea was linking both the Aegean and the Black Sea, yet it still had not reached its recent hydrological conditions. It is accepted that the recent hydrological conditions of the Marmara Sea were formed at the end of 6th millennium BC (Erturaç, 2002: 45). Archaeological evidence shows that the main food source of Fikirtepe and Pendik came from fishing (Karul, 2011: 62). This data suggests that the people settling in this area used the Marmara Sea for their necessities.

The first general information on the maritime activities of the Marmara Sea comes from the 8th century BC with the colonization movement. After this period, settlers from the Aegean shores founded many colonial cities on the shores of the Marmara and the Black Sea. There is little archaeological research in both the Marmara and Karadeniz regions. Most of our knowledge about the history of these regions is compulsorily coming from written documents (Drews, 1976: 18). From the end of the 7th century BC to the beginning of the 6th century BC, Ionians started a movement to settle the northwest part of Anatolia (Schlotzhauer – Zhuravlev, 2010: 13). In this period, not only Ioanians were interested in Marmara shores. Communities from Greek Mainland also arrived here to establish colonies (Boardman, 1968: 249). While the earliest evidence at the Marmara coast belongs to Hellens, dated to early 7th century BC, the earliest evidence from the Black Sea dates back to the late 7thcentury BC (Boardman, 1968: 247). It is not possible to say that the colonization movement in the Marmara and Karadeniz regions founded new cities. As no archaeological excavations were held in these coastal cities, it's also very hard to determine how far the history of these cities goes back.

The most important reasons for the colonization movements were that the Greek mainland did not have enough farmland and as the economy grew, people started to search for more raw material resources and markets (Mansel, 2004: 155-158). In the Ancient Period, sailors were not able to sail when they wanted. The ancient author Vagetius, who lived at the end of the 4th century AD, gives information about sailing maps and sailors. In his estimation, meteorology and winds were crucial for ancient sailors. There were only select dates that were suitable for sailing. Because of the violence and the situation of the sea, it was not possible to sail throughout the year. While it was safe to sail from the 27thof May to the 14thof September, weather conditions and the condition of the sea were too uncertain

and dangerous until the 11th of October. Vagetius mentions that from the 11th of October to the 10th of March it was entirely unsuitable for sailing, and sailors had to wait again for the sailing season (Beresford, 2013: 14, 17). Navigation dates given by Vagetius remained valid in the 17th century AD. From the logbook between 1775 and 1776, it was understood that ships sailed between April and November (Özdemir, 2005: 114). Although 1500 years passed from the dates Vagetius mentions, the sea expeditions between Mudanya to Istanbul primarily did not run between October and March. As there weren't many changes in geography and climate between the 4th century AD and the 7th century BC, the seasonal information Vagetius gives would have been valid from the 7th century BC.

According to the ancient resources, Kyzikos in 756 BC (Strab. XIV. 635; Plin.Nat. V. 142; Hasluck, 1910: 163; Graham, 1982: 160), and Parion in 709 BC (Graham, 1982: 160) are the pioneers of colonial cities on the shores of the Marmara Sea. Kios was founded in 627 BC (Graham, 1982: 160 ff.). It is known from the ancient resources that Myrlea was a colony of Kolophon, and Plakia was a colony of Pelasg (MYRLEIA: Plin. Nat. V.40; Mela, I, 98; PLAKIA: Mela I. 99; Plin. Nat. V.40). Unfortunately, there is no information about their foundation dates. Colonization of the cities on the north shores of the Marmara Sea occurred in Chalkedon (Graham, 1982: 160) in 685 BC, in Selymbria (Graham, 1982: 160) before 668 BC, in Byzantium (Graham, 1982: 160) in 668 BC, in Perinthos (Graham, 1982: 160) in 602 BC, and in Thracia Chersonesus in 561 BC. When we survey the colonization movements at the shores of Marmara, entering from the Dardanelles, the earliest colonies were established at the southern shores (Fig. 2).

Since the end of the 8th century BC, the Marmara coasts were densely settled. For this reason, it is possible to say that the sea trade route was more active in the southern coasts (Fig.3). It is thought that there was a relationship between the cities of Parion, Cyzicus, Prokennesos and Kios as they were Milet colonies, and colonial cities suggest extensions of homeland cities.

In the 5th century BC, under the leadership of Athens, a strong sea force of its period, the Delian League was established to fight against the Persians (Boyona, 2007: 12). The first occupation of the Delian League was to cleanthe Dardanelles (Çanakkale Boğazı)

and the Marmara shores from Persians (Arslan, 2010: 90). One of the most important archaeological findings related to the maritime trade of the early 5th century BC is the Athenian Tribute Lists (Meritt et al. 1950a). These lists show the pay ratings and the cities that paid taxes to the Delian League. The lists include many cities at the shores of the Marmara. The tax rate of some of these cities can also be examined through these lists. Cities at the southern coast of the Marmara Sea paid relatively small sums: Parion, 1 talent; Procennesos, 3 talent; Cyzicus, 9 talent; Kios, 1000 drahmi; Astacus, 1 talent 300 drahmi. Northern coastal cities paid larger amounts: Perinthos, 10 talent; Selymbria, 6 talent; Byzantium, 15 talent; Chalcedon, 7 talent (Fig. 4). If the pay rate had direct proportion to the wealth of the cities, then, in the 5th century BC, the northern coastal cities were wealthier than their southern counterparts. The developed economies of these cities also give us information about maritime trade routes. While during the 8th century BC the maritime trade focused on the southern coast, during the 5th century BC, the focus of maritime route switched to the northern shores (Fig. 5).

In the first half of the 5th century BC, the whole Marmara Sea was under Persian dominance (Map 4) (Hdt. V.122; Arslan, 2010: 70). In this period, Persians and Greeks had big battles. As a result of the Marmara Sea becoming a Persian lake, it was possible to freely sail around the coast of the Marmara Sea. In the middle of the 5th century BC, the impact of the Delian League could be seen in both the Aegean Sea and the Marmara Sea (Map 5) (Lewis, 1994: 288). However, Persian assets in Anatolia would have kept Marmara trade routes away from the southern Marmara coast.

After the victory of Alexander the Great, the Marmara coast was entirely saved from Persian pressure. Alexander the Great was not interested in the Bithynian lands, and he continued his advance (Map 6) (Jones, 1998: 149-150) In this period, it was understood that the southern Marmara coast was also added to the Marmara trade routes. Especially between 321-300 BC, gold staters, which were minted in Kios, showed that the city got wealthier (BMC Mysia 1963, 130, Pl.XXVIII.7-8.). With the Hellenistic Period, ships entering the Marmara Sea from the Dardanelles arrived first in Kyzkios, and then from Prokennesos to Perinthos, and then to Byzantium. At least one other route would have continued through Kios.

In the Roman Period, the entire Marmara coast entered the guarantee of the Roman Empire. At the north, Perinthos become the most important harbor of the area, and became the starting point of the Via Egnatia. Moreover, the city had a very important location as it also served as the transporting and summing points for Roman army (Bosch, 1935: 236; Schönert-Geiss, 1965: 10; Öztürk-Dönmez, 2006: 97). When we take into consideration Roman cities and the political circumstances of the Early Roman Empire Period, it can be seen that southern coasts of the Marmara Sea are much more problematic. Supremacy of Mitridates VI over the Romans and captured cities such as Nikaia (İznik), Mryleia (Mudanya) and Kios (Gemlik) had caused the area became unfavorable to the Roman trade (Magie, 1950: 326; Arslan, 2007: 318). In 74 BC, Bithynian lands conjoined with Roman lands by legacy. At the second half of the 1st century BC, the city of Apameia had become a Roman colony under the name of "Colonia Iulia Concordia Apamea" (Strab. XII.4.3; Plin. Nat. V.40; Bosch, 1950: 240). After the southern coast of Marmara had become safe, the entire Marmara coast became sufficient for trading. An inscription from Perinthos dated to the 3rd century AD shows that Perinthos maintained a good relationship with Apameia, even establishing the association "Apameia lovers" (Öztürk-Dönmez, 2006: 100). From this period, trading all around the Marmara coastline could be examined. Furthermore, it shouldn't be a coincidence that Romans had established two colonies at the two different sides of the Marmara Sea, and these two cities were in liaison. Perinthos had connected to Thrace by the Via Egnatia, and Colonia Iulia Concordia Apamea liased with inner Anatolia (Dion. Chrys.. XL.30).

In light of this information, it is clear that people started to use the Marmara Sea for providing food in 6000 BC. Starting from the 8th century BC, the Marmara Sea becomes famous for sea trade. During the Archaic, Classical, Hellenistic, Roman, Byzantine and Ottoman periods, different sea routes came into being because of political effects (Fig. 6). Through the ages, each period's sea routes affected the flourishing of the cities. Cities on the sea route of the Marmara Sea continued to develop.

2.1.3. REGIONAL ROADS

As in the examples of the ancient city of Perinthos and Via Egnati, harbors should have reached inner regions by road networks. After the 8th century BC, many cities were founded as a result of colonization movements. However, there was no centralized administration, so land routes stayed in the background while trade flourished on the sea. Only big empires such as the Persian, Roman and Ottoman Empires had centralized administration and thus constructed large roads (Humphrey et al., 1998: 409).

Dating from the 8th century BC, Aegean communities arrived at the Marmara Sea by water and constructed new colonial cities. In that period, seaways were much more inexpensive than roadways. Due to financial reasons and the lack of state unity, roadways were deemphasized and used mostly for interconnecting small settlements. Persians established the earliest road network in Anatolia. As Heradotos describes, this road started from Susa and went through inner Anatolia, arriving at Sardes and continuing until Abydos. Another line of the road passed from Sardes to Epheus (Hdt. V.52 -54). Persians established satrapy centers in Anatolia and these centers were interconnected by the Royal Road. When the Persians were establishing this network of roads, they also used ever-existing Lydian and Assyrian roads (Balcer, 1984: 177; Öncü, 2012: 24). In 547 BC, Sardes and Daslyleion went under Persian rule and become a satrapy (Öncü, 2012:47). The southern Marmara coastwas also connected to the Daskyleion satrapy until 333 BC (Casabonne, 2007: 23). After the Persian rule, Bithynia must have been joined by the road networks established in Anatolia. However, no road networks were discovered to prove it.

Roman, Byzantine and Ottoman roads are the most known roads in the Bithynia Region. In the Roman period, the Persian Royal Road still preserved its density. Goods from inner Anatolia arrived to Ephesus by roads and then were carried west by sea routes (Ramsay, 1890: 26; Gündüz, 2014: 255). Because of Nicomedia's situation in Diokletain Period, road networks of the area become busier. After the Roman Empire divided in two, Constantinople became the center of the road system. Through each period of history, roads have changed by different reasons, and therefore affected the status of the cities (Ramsay, 1890: 73-74). After Istanbul became the capital city first in the Byzantine, and then

in the Ottoman Period, road networks shifted to northwestern Anatolia. It is known that when arriving in Asia Minor, travelers were taking the sea route from Istanbul to Mudanya and then traveling to the inner parts of Anatolia. The road between Mudanya and Bursa has been known since Dio Chrysostom (Dion. Chrys.. XL.30). According to the information from inscription from İznik and its surroundings, an ancient road was passing from the south of İznik Lake to Gemlik, finally arriving in Mudanya (Şahins, 1981: 50). An inscription found in Sarikayalar, 10km from İznik, mentions that the İznik - Mudanya road was repaired by pracurator in the middle of the 1st century BC (Şahins, 1979: 12; Corsten, 1987: 86). Main road networks to Anatolia were connected from Bursa through Mudanya or İznik through Gemlik.

The Ottoman Period roads proceed in three sections when going from Istanbul to inner Anatolia. These three main roads started from Istanbul and arrived in İznik, and afterward divided into different sections. The right section started from İzmit, went through İznik, and arrived in Mekke and Medina. This road was a military road and a trade route. And it was called Pilgrim Road (Hac Yolu) (Çetin, 2014: 328). The middle and left sections went through Üsküdar-Gebze-İznik and Bolu, and continued until Merzifon from the same line, and the middle section went to Musul Kerkük, while the left section went to the Kars and Tebriz (Sak – Çetin, 2004: 182). Another route started from Üsküdar and continued in the direction of Dil İskelesi, Gemlik, Mudanya, Uluabat and Çanakkale (Miroğlu, 1997: 241-242; Çetin, 2014: 329). As mentioned above, travelers went to Mudanya directly from Istanbul and arrived in Bursa by land route. From there they joined the road networks. In the Ottoman Empire Period, sea routes were preferred, as they were fast and cheap (Bulunur, 2014: 91). As Dio Chrysostom mentions, Apameia (Mudanya) was Prusa's (Bursa) harbor in Ottoman Period. Ice from Uludağ and goods of the fertile plain of Bursa were obtained and they were taken to Istanbul through Mudanya (Dağlı, 2008: 35; Gözcü–Akçiçek, 2012: 276; Çiftçi, 2004:157). Even nondurable products were sent to İstanbul from Mudanya through sea transportation. This shows how fast and reliable the sea transportation was.

In the Roman period, Apameia was one of the most important Roman colonial cities in this Bithynia Region, although lost its importance in the Byzantine Period—and regained it in the Ottoman Period (Çiftçi, 2004: 157).

2.2. THE GEOGRAPHY OF BURSA BORDERS

Bursa is located in the southern part of the Marmara Region. Our research topic includes a 135km long Bursa coastline at the south of the Marmara Sea (UTM 35 604283.09 E, 35 4472870.37 N - 35 670458.57 E, 35 4481848.52 N), Ulubat Lake (UTM 35 637206.07 E, 35 4447779.90 N), İznik Lake (UTM 35 728913.83 E – 4478505.94 N) and a part of Rhyndakos River that is between Ulubat Lake and the Marmara Sea.

2.2.1. MARMARA SEA

The Marmara Sea occupies an area of 11.500km^2. It is a little inner sea, which resides from the late Miocene period (Artuz, 2007: 2 ff.). Wave power at the sea is moderate, as it is an inland sea (Özşahin, 2009: 5). Sea flooding in the 2nd and 3rd Geological Time formed Gemlik Bay, İznik and Ulubat Lakes (Artuz, 2007: 2). The Marmara Sea reached its current form around 7,150 years ago (Erturaç, 2002: 45).

When the regional winds are examined on the southern coast of the Marmara Sea, southerwestern winds dominate in spring and winter, while northeastern winds dominate June and October (Kurt, 2013: 110-111). Moreover, northern and northwestern winds fluctuate as the sea level rises around 1-1.5m.

Streams at the south coasts of the Marmara Sea are approximately 0.5 knot and these streams are more effective at the southern Marmara coast (Özşahin, 2009: 178). One of the most important reasons of this is the dominant northerns wind. Because of these winds, the sea rising about one metre can be seen at the Bursa coastline (Artuz, 2007: 23; Kurt, 2013: 129). However, this rising is based on the winds. Because of that, they are not permanent but temporary risings.

2.2.2. COASTAL STRUCTURE

The coastal structure of the research area has a very diserve structure. While commonly high coasts could be seen in the area, there are also partially low lying coastal

areas (Fig. 7-8). Low lying coastal areas include beaches, and high coastal lands include cliffs, where the land unites with the sea directly (Fig. 9) (Kurt, 2013: 6-7). The Bursa coastline is quite straight. Bays in the region have very small dimensions. While the east side of the bay is sheltered, the western parts are open to the winds. Like Eşkel and Kapanca, an ancient settlement is found in most of the bays. From Kurşunlu/Karacabey to Gemlik, the coast has steep cliffs. River delta plains interrupt the coastline (Erol, 1991: 1-44; Divarcı, 2007: 65). Almost all of the coastal ancient cities inside Bursa Province were founded on the high coastal areas, such as Plakia (Kurşunlu/Karacabey), Caesarea Germenica (Kapanca), Myrleia (Mudanya) and Sırakayalar (Bryllion (?)). Only, the harbors of Daskyleion ad Mare (Eşkel) and Kios (Gemlik) were founded on a low coastline (Drawing 2).

2.2.3. LITHOLOGIC AND GROUND STRUCTURE

In the research area, lithological structures that can be examined include: schist metamorphic rocks from Kurşunlu/Karacabey to Bayramdere; alluvium-terrestrial sedimentary rocks from Bayramdere to Eşkel; proclastic rock, obsidian continental shelf (eruptive rocks), starting from Eşkel to the inner area of the ancient harbor of Kapanca Andesites; sedimentary rocks (sedimentary rock) - shelf sedimentary rock (sedimentary rock) in the Trilye area; sandstone-mudstone - terrestrial sedimentary rocks (sedimentary rock) from Mudanya coasts to Gemlik coasts; sand stone mudstone-limestone, terrestrial desert rock (sedimentary rock between Gemlik to Büyükkumla); and amphibolite and metamorphic (metamorphic) between around Büyükkumla to Narlı (Kurt, 2013: 51).

When the lithic structure of the ancient settlements are examined, the acropolis of Mudanya (Myrlea/Apameia), Eşkel (Daskleion am Meer), Kapanca (Caeseria Germenica) had Andezit – pyroclastic rock and Continental Shelf volcanic rock (eruptive rocks) rock structures, while the other settlements in the area haveno similar lithic structures.

The Bursa Province has very fertile land. When the map of agricultural suitability (KHGM, 1995: 131) is examined, many ancient cities in the area were founded on dry land farming areas. In addition to these areas, there are also grasslands and forests. The

Kurşunlu/Karacabey area, where the Plakia is located, is suitable for dryland farming. Around the area of Daskyleion ad Mare, there are dryland farming areas and grasslands. Lands around Mudanya are 2nd and 3rd degree important agricultural lands, and 3rd degree important agricultural lands and dry land farming areas could be seen around Sarıkayalar. Around Gemlik area lands are mostly 1st, 2nd, and 3rd degree important agricultural areas. If we compare all these and the cities founded around them, we can see that cities founded around fertile lands were more developed and better known.

As a result, it is not very possible to say that lithicsplayed important role in determining, where the ancient cities would be located. More likely, the soil structure and whether the area was protected from the winds and waves were considered when the ancient cities were founded. In general the lands of the Bursa coast are fertile. Moreover, the areas where the most important ancient cities such as Daskyleion ad Mare (Eşkel), Caeserea Germenica (Kapanca), Myrleia (Mudanya) and Kios (Gemlik) were founded are now used as olive cultivation lands (Map. 7-8). In ancient times, olive was used for food, enlightening, medicine and cosmetics (Kaplan – Arıhan, 2012:7). It was very important and had an economic value. It shouldn't be coincidence that, the large olive plantation areas and the important ancient cities are in the same location. For this reason, cities where the olive was cultivated were richer than other cities.

2.2.4. LAKES

İznik Lake is located in the south east of the Marmara Sea. It is the 5th largest lake of Turkey and the largest of the Marmara Region (Fig. 10). It covers 302km^2 area (Meriç et al., 2009: 1-9) and it is a tectonic lake (Lahn, 1948: 25). The maximum depth of the lake is 70m, and it is around 85m higher from sea level. The Karsak Stream carries its waters to the Gemlik Gulf (Özşahin, 2009: 172.).

Ulubat Lake is located on the left of the twenty-fifth kilometer of the Bursa - Balıkesir highway. Its measurements are 25km from east to west and 8km from north to south. The area it occupies is around 135-155km (Aksoy – Özsoy, 2002: 320). Ulubat Lake is an alluvial lake. Ulubat Lake is a very shallow lake and its depth measures appoximatly

1.5m in the summer months. Estimations, taken between the years of 1992-2009, show that the reservoir volume and depth of the lake have decreased in last 30 years. From 1984 to 1998, it decreased from 131.1km² to 116.8km². This is equal to 12% decrease (Aksoy – Özsoy, 2002: 323). As the data shows, Ulubat Lake might become a bog in the future and afterwards dry entirely and turn into farming land (Fig. 11).

3. ANCIENT HARBORS OF SOUTH MARMARA – BURSA PROVINCE BORDERS

Bursa is located in the northwest of Anatolia. The coastal line of Bursa at the Marmara shore is 135km long. Along this distance, many cities were established through the ages. Some of the best-known cities are Daskyleion ad Mare (Eşkel), Caeserea Germenica (Kapanca), Trilye (Zeytinbağı), Myrlea (Mudanya), and Kios (Gemlik). Nicaea (İznik) and Apollonia (Gölyazı) are the best-known lake settlements in the region.

3.1. RESEARCH BETWEEN KURŞUNLU – MUDANYA

The research started in the Karacabey district at the town of Kurşunlu, which is located at the western point of the Bursa Province, at the coordinates 35 604283.09 E, 35 4472870.37 N. It is possible to arrive at the town of Kurşunlu by going 60km to the direction of Bursa-Karacabey, then taking the route toward Kurşunlu. The distance between Bursa and Karacabey is approximately 100km. The research in this area includes the 60km coastline between Kurşunlu and Mudanya (Fig. 12). The entire coastline was scanned by car in order to discover the points where transportation was possible; the rest of the area was scanned by a boat from the sea. At the points when necessary, scuba diving was carried out and harbor structures such as detected breakwaters were transferred to digital surface through total station.

3.1.1. PLAKIA - MONASTERY OF KURŞUNLU (MEGAS AGROS)

The distance between Kurşunlu monastery and the town of Kurşunlu is ca. 1.2km by sea route, and ca. 1.5km via the land route. Today, the area is entirely occupied by summerhouses (Fig. 13). Certain architectural details reveal the monastery as both distinctive and antiquated: small marble architectural pieces, a protection wall and an area surrounded by iron wires that act as a weak protection from outside threats. Hasluck and Mango-Ševčenko identified this place as *Megas Agros* (Hasluck, 1910: 53; Cyril – Ševčenko, 1973: 262).

Pseudo-Skylaks (Ps. Skyl. 94), Herodotos (Hdt. I.57), Pliny the Elder (Plin. Nat. V.40) and Pomponius Mela (Mela I. 98) all mentioned the ancient city of Plakia in their works. According to the ancient resources, it had existed from the 4th century BC to the 1st century AD. A common thread in many resources is the location and the origins of the Plakia. This city is located on the coastline, at the east of the Cyzicus, and west of the Ryandakos River. It was founded as a colony of Pelasgians (Hdt. I.57). It is controvertible that this city is a coastal city (Ps. Skylaks. 94), particularly as Pseudo Skylaks mentions this place in his work, *Periplus*[9]. Mela mentions that Plakia and Skcylace were located after the ancient city of Cyzicus, followed by the Rhyndakos River and the ancient cities of Daskylos and Myrleia. Pseudo-Skylaks sorted the area from east to west: at the east, the ancient city of Myrleia—Rhyndakos River—Besbikos Island—and then the Plakia and Cyzicus. All of the ancient cities that both Pseudo-Skylaks and Mela mentioned were located along the coastline. As the other ancient authors—including Pliny the Elder—mentioned, the ancient city of Plakia was located west of the Rhynacus River. Mysia Olympos rose up west of the city (Plin. Nat. V.40).

Our information about Kurşunlu Monastery comes from modern research. Hasluck mentions the monastery in his work, which was published in 1910. He mentions that the monastery was not only a Byzantine monastery, but also had magnificent floor furnishings. During the Byzantine Period, the monastery was called *Μοπή τοῦ Μεγάλου "Αγρου* or *τῆς Σιγριανῆς*; and later, Σιγριανὴ. Hasluck suggests that the monastery dates

[9] Periplous is a manuscript document that lists the ports and coastal landmarks. See: Whitehead, 1987: 178.

back to the 9th century AD and was constructed by Theophanes (Hasluck, 1910: 53).

Pančenko, contemporary to Hasluck, had visited the monastery around the same period and gives more information about the monastery. Pančenko mentions a wall surrounding the monastery, as well as a square fountain, which was restored recently, although it dates back to a much older period. Pančenko also mentions marble architectural pieces around the area and describes a church, which belongs to the monastery (Mango–Ševčenko, 1973: 253).

In 1970, Mango and Ševčenko also documented Kurşunlu monastery in their work, which examines a group of churches and monasteries at the southern part of the Marmara Sea, However, many structures that Pančenko mentions have been demolished. The authors describe the outer wall of the monastery, a part of the church, and some architectural pieces that could still be examined. The column heads Pančenko dates to the Theodosian Period, despite the fact that they were dated to the Roman period by Mango and Ševčenko. Large quantities of decorative architectural pieces were found in the area, and they date to Roman, early- and middle-Byzantine periods (Mango– Ševčenko, 1973: 257).

During our research we have traveled to the Kurşunlu monastery. From our research, we determined that the area has changed greatly since the 1900s. With the help of the photographs and research from the 1970s, it is possible to determine the change (Fig. 14- 15). Construction of summer homes has destroyed most of the area. As we carried the survey the surrounding summerhouses, the architectural ruins became visible. The inhabitants had protected and surrounded these structures with a fence. Architectural pieces were randomly placed, and sarcophagus pieces with a cross motif, having been redesigned as a table, were identified. We also identified that the fountain mentioned by Pančenko and Mango still exists, is reconstructed, and still in use as water tank (Fig. 16). We also saw that many ancient marble pieces were reused at the structure, which was constructed on the fountain (Fig. 17).

Both of the important authors clearly mention the enclosure walls, and it is still partially visible, but modern structures have highly damaged it. The wall was extended by

a modern structure and even re-painted (Fig. 18). The greatest damage on the enclosure wall was at the north side of the monastery, where it faces the harbor. At the wall, roughly sculpted stones and tiles were used alternately and intertwined along the form of the wall. Lime was used as a fixation material. The enclosure wall at the north had been partially demolished (Fig. 19- 20). One of the factors that contributed to the demolition of this wall was that the ancient mole lost its function and it remained open to the sea waves from the north. These wave strikes caused great damage to the city wall. Another reason is the pressure caused by the irregular modern structures on the floor had exploded the wall outwardly.

The modern structure, which is extended to the sea, had been determined during the research at the seaside of Kurşunlu monastery. East of this modern structure, another rubble has been seen (Fig. 21). These stones started at the northeast of the monastery and went approximately 110m to the northwest. Measurable widths of the stones were approximately 15m. It is understood that the breakwater fell into ruin and stones of the breakwater had spread around.

As the result of diving, west of the modern structure, another stone pile was detected. These stone piles extended to the sea approximately 45m. It was understood that the harbor was here, and the stone piles were the breakwaters, which were constructed for protecting the enclosure wall and the ships against the waves (Drawing 3). Breakwaters were made of unshaped, large, natural blocks.

The breakwater was constructed in a way to protect the harbor from northern, western, eastern and southern winds. The entrance to the harbor was between the breakwaters (Drawing 3). Considering the geographic form of the coastline, where the breakwater is located and the form of the breakwater itself, it is possible to say this breakwater was an artificial sea harbour (Gündüz, 2008: 22).

Nowadays, apart from a few stones, the breakwater is almost invisible from the shore. The main reason for the destruction is a modern structure, which was constructed a

few meters to the east for collecting sand. The stones from the ancient breakwater were most likely used during its construction (Fig. 21).

Another reason for the destruction of the breakwater would be the earthquakes. The middle branch of the Northern Anatolian Faultline passes just off shore of the breakwater of the monastery of Kurşunlu (Map 9). Because of this, many devastating earthquakes have been recorded in Bithynia[10]. These earthquakes seem to affect the mole.

During the underwater research carried out at the harbor of the monastery of Kurşunlu, we found some archaeological evidence that could help us to date the harbor. Also, it is understood that the breakwaters were covered with algae (Fig. 22). Because of the destruction, the borders of the breakwaters could hardly be traced. The most important reason for this is the modern structure constructed at the inner part of the harbor (Fig. 23). Construction of this structure caused great destruction for the breakwater and the harbor. Moreover, the inside of the harbor was filled, as the harbor was out of function. At the east of the inner part of the harbor, a small part of a structure, probably related to the harbor, could be seen (Fig. 24). The width of the wall is 46cm. Water leaking on the wall caused moss growth. When the water is considered, this structure might have been a fountain for the benefit of the sailors who used to come to the city. Additionally, in the antiquity, many harbors had a fresh water source[11]. The reason for this is to reduce the salty water level and minimize the woodworms called Teredo Navalis. As in the Ancient Period, sailors knew that Teredo Navalis was not able to survive in fresh water, so they constructed the harbors near freshwaters (Kocabaş, 2012: 75).

The breakwater originally consisted of large irregular stone piles. This technique was used continuously for many years (Fig. 25). For this reason, it is not possible to date the area through the structure of the breakwater.

Archaeological evidence received from the monastery of Kurşunlu can help us to date both the monastery and the harbor. According to the evidence, the earliest history of the area goes back to Roman Period. The monastery, church and fountain structure all date

[10] For the earthquakes in Bithynia Region see: Şahins,2013: 1-16.
[11] Myndos (Gümüşlük), Olympos (Çıralı), Istanbul Theodisius Harbor.

back to the Byzantine Period, while the capitals inside the church date back to the Roman period (Mango– Ševčenko, 1973:257).

Through time, pagan temples left their places to churches and churches to mosques. Changing of religions did not change the holiness of the lands. We can say the same for this monastery. As Hasluck detected under the light of previous evidence, the temple of the Plakia might also have been located here in the earlier period (Hasluck, 1910: 52).

Karadağ is a mountin chain dividing the Marmara Sea from Karacabey Plain. It covers a very large area and its peak is Kurşunlu Crest (Hasluck, 1910: 52). Archeological evidence and geographical data show that the Plakia should be located on the slope of the Karadağ (Fig. 26). It might have been used as a temple at its beginning, and later became a Christian place of worship with the rise of Christianity. Despite the fact that when precisely the Plakia disappeared from history is unknown, coins from the city go back until the 4th century BC (BMC Mysia, 1963: 174). In ancient resources, Plakia was shown as a small settlement. It is not mentioned often in the ancient resources, and with Christianity, this settlement became more of a cult area, as in the example of Trilye [12]. For this reason, from the 4th century BC, the harbor served as Plakia Harbor, and might have transformed to a monastery harbor with the Byzantine period.

The monastery of Kurşunlu is located at the west of Bursa Province and only the approximately 4km area at the west of the monastery is covered in my research. This is the only ancient harbor at the coastline until Rhyndakos River, including the 4km area at the west of Kurşunlu.

[12]Will be discussed under the title of Trilye.

3.1.2. DASKYLEION AD MARE – EŞKEL

Eşkel is located at the northwest of Bursa at the coordinates of 35 642489.75 m E, 35 4470370.82 m N UTM. One can travel to the city via the road along the coast starting from Mudanya, or via the Bursa-İzmir Motorway, taking the road that heads north after reaching the 40th kilometer. Eşkel is founded at a bay, east of where Rhyndakos River meets the Marmara Sea (Fig. 27). It was named Daskeli by the Greeks in the 20th century AD. The ancient name of the city is Daskyleion. As there were few cities with the same name in the region, Corsten called Eşkel as Daskyleion ad Mare (Daskyleion at the coast) (Corsten, 1988: 53-77).

When we look at the ancient documents, it is possible to see that there were many ancient cities called Daskyleion. Stephanos Byzatinos, in his work Ethnika, mentions more than one city of this name. Two of these settlements are important us. One of them is Daskyleion (Περὶ Βιθυνίαν) near Bithynia at Eşkel, other is Daskyleion (Αἰολίδος καί Φρυγίας) located at Aiolis and Phrygia (Steph. Byz., Daskylion). Researchers often confused these two cities.

Apart from Stephanos Byzantinos, Pliny the Elder and Pomponius Mela, there are no other ancient authors that give information about the ancient city. Stephanos Byzantinos shows Daskyleion near Bithynia, Pliny the Elder (Plin. Nat. V.40) and Pomponius Mela (Mela, I. 99) describe the location of the city near Myrleia and Rhyndakos River.

In the beginning of the 20th century AD, F. W Hasluck matched Daskyleion to Eşkel for the first time. Hasluck describes Daskyleion as located on the top of a hill at a bay, which was protected by east winds. The ancient city has a breakwater carved from irregular stones and a small harbour (Hasluck, 1910: 55.).

Richard Kiepert mentions the ancient name of Eşkel as Daskyleion. It is also mentioned that in the 17th century AD, the name of Eşkel was referred to as Diaschilo in the resources (Kiepert, 1905: 241). Kiepert tries to localize Eşkel to Daskyleion near the Daskylitis Lake, as it was also mentioned as a satrapy center in the ancient resources. While he tries to match Daskyleion to Eşkel, he mentions that there was a lake nearby that

had gone dry. He reasons why the lake was not mentioned by recent researchers (Kiepert, 1905: 243). However, Kiepert does not realize that the city he successfully localizes was in reality the city Stephanos Byzatinos mentions as located at the outskirts of Bithynia.

Kurt Bittel visited the city in 1950s during his travels and described it in detail. Daskylos, which Pliny, Mela and Stephanos Byzantinos mention, matched with Eşkel harbor of today. Bittel described the city and gave some important details. According to the ceramic findings found at the surface, the history of the city goes back to the 4th century BC. According to him, the city was built on the plain cape and at the slope on the terraces. Bittel thoroughly explains why the satrapy center at Daskyleion could not be matched with Eşkel, and points out that Daskyleion is located near Ergili village (Bittel, 1953: 1 ff). Ekrem Akurgal carried out archaeological excavations in 1954 and proved that satrapy center at Daskyleion is located at Hisar Tepe near Ergili village (Bakır, 1956: 6-7). After the location of the satrapy center at Daskyleion was detected, the location of the Daskyleion in Bithynia that Stephanos Byzantinos mentions was also located.

Thomas Corsten carried out detailed research on the region in the 1980s. Corsten localizes the city in Eşkel. In the 5th century BC it was a member of the union of the Delian League (Lewis, 1994: 288) and was paying 500 drahmi annually. Pomponius Mela, who lived around 40 AD, mentions that like Myrleia, Daskyleion was also a colony of Kolophon (Mela I. 98). However, Corsten mentions this place as a colony of Miletos rather than Kolophon (Corsten, 1988: 77).

Both archeological and historical evidence date the history of Eşkel to the Classical Period. On the Athenian Tribute Lists Daskyleion was mentioned as ἐν τεῖ Προποντίδι (Daskyleion in Propontos) and between the years of 454/3 – 452/51 – 450/49 – 434/33 – 433/32 and 430/29 BC, it had paid 500 drahmi in tribute (Meritt et al., 1950: 22; Corsten, 1988:65).

Research was carried out through the Eşkel shore and at the cape and its surroundings. At the cape called Korsan Tepe, many pieces of ceramic were found. As a result of the underwater research and surveys carried out at the coast of Eşkel, no

architectural evidence was detected that dated back to the ancient period. The recent condition of the coastline shows traces of the damage that modern structures created over the past few years (Fig. 28). Photos taken by Abdullah Şentürk in 2008 reveal the change at the coastline. We can see clearly the ancient breakwater mentioned by Hasluck in the photos taken by Abdullah Şentürk (Fig. 29). Unfortunately, a new breakwater was recently constructed on the old one (Drawing 4). For this reason, it is not possible to interpret the dimensions of the old breakwater. We can only have information about the construction methods. The breakwater extends in the direction of southwest to northeast inside the Eşkel Bay. The breakwater was constructed with irregular stone piles as Hasluck also mentions. The construction methods of the breakwater show similarities to the breakwater of Plakia (Fig. 25).

The coastline on the east side of Korsan Tepe continues until Ketenderesi through the high coastline. This coastline is not suitable for a harbor. As there is no breakwater in it, it is directly open as to northern winds. For these reasons, it is possible to suggest that Daskyleion ad Mare had only one harbor.

3.1.3. KETENDERESİ

Ketenderesi is located at the coordinates of 35 645536.99 m E, 35 4470973.80 m N UTM at the northwest of Bursa (Fig. 30). Transportation to the area is from Trilye. It is possible to arrive in Ketenderesi by going right after 8.5km from Trilye to the Eşkel. This place is located at the point where Ketenderesi River joins the Marmara Sea, and takes its name from this little river.

The most remarkable finds from the survey held in 2011 under the leadership of Prof. Dr Mustafa Şahin were structure walls, roofing tiles and a stone pile, which follows the sea (Şahin, 2012: 102-103). At the cross section where the sea waves eroded the shore, remains of walls could be examined. The distance between the two walls was 2.7m. It is densely covered with roof tiles, and a short stone line was lined up (Fig. 31). Roof tiles were becoming dense in a 30cm layer—85cm lower than the surface (Fig. 32). It was constructed with large rubble stones by the drywall method. Some walls constructed by the drywall method could be seen at the shore. It was seen that one of the walls was constructed with mortar and tile (Fig. 33). Ceramic pieces were densely encountered along the walls throughout the shore. These walls must have been the walls of the workshops (Şahin, 2012: 103). Under favor of walls at the cross section, it was understood that coastline was filled more than one meter long (Fig. 31-42).

During the research, at the west of the stream, large stone blocks were visible from the surface of the water like those from Plakia, Daskyleion ad Mare, Kapanca and Sırakayalar (Fig. 34). These blocks might have belonged to a breakwater related to the workshops. As the research carried out, it was seen that the irregular stone blocks extend in a straight line for 15m (Drawing 5). Under the water, no other findings were detected apart from this stone line. As research carried on around the area, the same irregular stones can be seen densely near the river coastline. These stones were irregularly placed at the entrance of the stream (Fig. 35). These stones are arranged haphazardly. I have mentioned the connections between the freshwater spring and harbors when I was discussing the ancient city of Plakia. Stone lines placed in the sea at Ketenderesi were located to the west of the river. The hill located at the east of the river mouth provided a natural protection.

Although there was no evidence that the river mouth was protected as a harbor, an additional example of a harbor located at the mouth of a river would be Olympos/Kemer (Fig. 36).

Kapanca Harbor is located on a bay, 1.5km east of Ketenderesi. It is more sufficient than Ketenderesi Harbor. So, instead of suggesting that Ketenderesi was a city harbor, it seems more appropriate to suggest that this place was used as shelter for small boats of the workshops and was probably related to the Kapanca[13]. Marie-France Auzépy, who carried out research in the region, also suggests that Kapanca and Ketenderesi were related (Auzépy, 2008: 330).

The stone line detected at the east of the stream measures 15m and goes through the sea in a straight line. As it is constructed in a straight form, it can be confused with a pier. However, as it is situated at the harbor mouth and is long enough to block western winds, it is possible to suggest that this structure is a breakwater. With the archaeological evidence given, we can only assume the function of the harbor. Between Kapanca and Ketendersi the area is rough and high. Therefore it might have been difficult to transport the goods produced in this area through the land. For this reason, it is possible to suggest that this small harbor might have been used to transport the goods cheaply to Kapanca Harbor.

[13]Will be discussed under the tittle of Kapanca Harbor–Caesarea Germanika.

3.1.4. CAESAREA GERMENICA - KAPANCA LİMANI

Kapanca is located at the north-west of Bursa Province, to the east of Eşkel, at the coordinates of 646447.36 m E, 35 4471203.69 m N UTM (Fig. 37). It is possible to reach this location through Trilye. After 7km from the Trilye- Eşkel road, turn left onto an alley and continue 1.5km through this road from the turn out. Then turn left and reach the turn for the harbor after 500m. From the right Kapanca harbor will be on the way. This harbor was constructed by two oppositely placed breakwaters surrounding the bay (Fig. 38). The city had taken the harbor at its center and constructed all around it.

Pliny the Elder (Plin. Nat. V.40), Claudius Ptolemy (Ptol. V.I), Dio Chrysostom (Dion. Chrys. 47) had given information about the ancient city of Caesarea Germanica. Pliny the Eldermentions Caesarea Germanica as Germanicopolis, and also mentionsthe city's other name, Helgas ve Booseœte (Βοοσ Κοιτη) (Plin. Nat. V.40). It reads that the city is located between the Ryhndakos River, Dasklyleion and Apameia. Moreoever, the Gelbes River was flowing near the city. As we now know the locations of the ancient cities of Apameia and Daskyleion, this river should be at the east of the city.

Dio Chysostom, in one of his public speeches to the Prusa community, mentions Caeserea. He indicates that the cities of Nicomedia, Nicaea and Caesarea are invaded by smaller cities than Prusa (Dion. Chrys. XLVII.13.).

Claudius Ptolemy, a contemporary of Pliny the Elder, did not show the city as at the coast of Bithynia (Ptol. V.I.). Moreover, he mentions a city called Caesarea or Myrleana. This place is located between Nicaea and Prusa near Olympos Mountain.

Saint Quadratus mentions that this city is between Apameia and Apollonia (Hasluck,1910: 66). Saint Nicetas remarks on the fortification of the city, fertile lands and its important location. He also mentions that this city was the closest shore to Trigleia (Trilye)(Hasluck, 1907: 298-299).

Ravenna is supposedly written around the 7th century AD, and it shows the names of the cities. In this book, names of the cities such as Militripolis (Miletopolis), Apollonia, Apameia, Caeserea, Prusia can be seen. For the location of the city, *Ravenna* referred to the south of Apemeai, not to the east of it (Pinder – Parthey, 1860: 109).

The only information about the history of the city comes from the coins. The coinage started to be examined at the period of Titus (69- 79AD) until the period of Emperor Valerian (253-260 AD) (BMC Bitynia, 1963: 123 Pl. XXVI.11; Kraft, 1972: 196 Nr. 14.A Taf. 97; Şahin et al., 2011: 219-220). The reverse sides of the coins features the figures of the city gate, Zeus, Thyke, Apollo (?), Olympos Mountain, and a harbor structure within a bull, a galley, a building and a sculpture (BMC Bithynia, 1963, 122-123). Coins with the harbor images are from the periods of Septimus Severus (BMC Bithynia, 1963: 122, Pl. XXVI.10) and Valerian (BMC Bithynia 1963, 122; Pl. XXVI.11). In the middle of the coin sits an omega-shaped (Ω) harbor, and inside the harbor, a ship with shovel and sail (Fig. 39). At the left side of the harbor entrance, a figure like a sculpture was inserted. Under the harbor, a bull in an outstretched position is placed. While the building in the harbor could be seen clearly from some photos (Fig. 40), some parts of the building's roof resemble a pine tree[14].

The fact that the coins show two different geographical locations made it difficult to locate the city. Although there are some researchers who suggest that the city was located near the sea (Ramsay, 1890: 180-181; Sölch, 1911: 325-334; Şahin et al., 2011: 204), there are also some researchers who suggest it was located in inner areas because of Olympos Mountain (Hasluck, 1910: 66; Corsten, 1992: 223-226). Sölch suggests that the city was founded near a lake, where it can overlook Olympos (Sölch, 1911: 328). Sölch mentions that there was not enough space between Apameia and Daskyleion, so he suggests that Caesarea Germanica was located in an inner area at a waterfront (Sölch, 1911: 330).

Kapanca is a very protected bay, which is also very hard to reach. It is surrounded with hills from three directions and protected from the winds (Fig. 41). The breakwater in the middle of the village divided the bay into two parts and the harbor was constructed at

[14] http://pro.coinarchives.com/a/lotviewer.php?LotID=189810&AucID=244&Lot=297 (March 2015)

the eastern part (Fig. 42). During the construction of the harbor, the entrance of the harbor was tightened by a breakwater, which was constructed at the corner of the hill on the west.

Kapanca harbor is an artificial sea harbor, and the basin of the harbor was created with the support of breakwaters (Gündüz, 2008: 22). The western breakwater is concaved and extends 240m (Fig. 43). Because of the damage on the breakwater, real dimensions of could not be measured completely. The approximate measurable width is 10m. The eastern breakwater is placed at the opposite side of the end of the western breakwater. It is 15m long and 10m wide. The entrance of the harbor is on the north side of the harbor. The harbor has 35m of space between the breakwaters. Unshaped, large, piled stones constructed both of the breakwaters (Drawing 6). From the aerial view, the form of the harbor looks like an omega (Ω) (Fig. 44). These two breakwaters protect the harbor from northern, western, eastern and southern winds.

At the end of the west breakwater, a mooring stone was discovered. It has the form of a rectangle and measures 235x120x 63cm (Fig. 45). It is shaped from cleanly formed marble and not placed *in situ*. It is located at the entrance of the harbor at the end of the breakwater. Two hypotheses could be made on this: either the reallocation of the stone was very close to its recent situation and it was used to chain the entrance of the harbor, or this stone was brought here from the dock. Closing the entrance of the harbor with chains is a very common ancient protection technique (Vitr. V.XII; Shaw, 1972: 87-112; Blackman, 1973: 360; Gündüz, 2008: 41; Aslan, 2011: 11; Dumankaya, 2013: 69).

To prove that it was used for chaining the entrance of the harbor, we need evidence for a similar structure or any structure to attach the chain from the opposite side. However, no evidence of an existing structure was found at the research. The inner harbor was intensively filled; the depth of the water inside the harbor has a maximum of 2m while outside of the harbor it reaches 6-7m. Therefore, the stone situated across might have stayed under the layer of fill.

If we suggest that this mooring stone was carried here from the dock structure, we must come across similar stone blocks at the coast. But when we follow the western

breakwater, the borders of the layers of fill could clearly be examined (Fig. 46) (Drawing 6). Not only the harbor but also the coastline was also filled. If we think that the quay was constructed from ashlar blocks, then with the future geomagnetic surveys it will be possible to detect the quay. However, as the ancient coastline is different from current coastline, no evidence of a dock was found. To prove both of these hypotheses, it is crucial that archaeological research must be held at the harbor and in the ancient city.

The survey carried out around the harbor shows the entirety of the ancient city. As a result of surveys and underwater studies, many ceramic fragments were found (Fig. 47). These ceramic fragments show that the inhabitants of Kapanca Harbor remained there continuously through 3rd century AD to the end of Ottoman Period (Şahin et al., 2011: 204). These fragments also give us information about the occupied areas of the city. Considering the ceramic fragments found at the survey, the distribution area of the city should have gone 500m inland from the harbor (Map 11).

After the research carried out in the area, the borders of the city were not detected. However, ceramic findings indicate that the city expanded on a 0.3km^2 (Fig. 48). One of the most important cities in the area is Nicea (İznik) and the city walls of the city are still standing. The area Nicea occupied inside its city walls is around 2.384 km^2 (Fig. 49). Myndos[15], located at the Bodrum Peninsula, occupies an approximately 1.421km^2 (Fig. 50). The city limits of both Myndos and İznik could be estimated from their still-standingcity walls. However, that is not possible in Kapanca. I have mentioned that the Late Ancient Period walls in Ketendere at the west of the Kapanca Harbor might be related to the ancient city located near Kapanca Harbor. This indicates that the borders of the city were bigger in the Ancient Period. When Ketendere added in the area of the city, it occupies an area around 1.181km^2 (Fig. 51). The area that shows up with Ketenderise must have belonged to a settlement that should not be underestimated, and its name should show up in the documents.

[15]There are no other cities besides İznik in the region with its city walls still standing. As no detailed research was carried out at the known ancient cities, their distribution area is unknown. As a matter of fact, the second case was taken as the ancient city of Myndos from the Bodurum Penisula, which was an important city of its region.

When the reasearch on this topic is attentively examined, similarities between the Caesarea Germanica and the ancient city at Kapanca are undeniable. As mentioned above, Ramsay made the first localization. He located the city on the shoreline between Apameia and Dasyleion (Ramsay, 1890: 181). Sölch and Corsten suggest that there was not enough distance between Daskyleion and Apameia to fit another important city (Sölch, 1911: 330; Corsten, 1992: 224). Sölch and Corsten never mention about Kapanca Harbor on their studies, which shows that they never really visited the shoreline and were unaware of the harbor. Pliny the Elder mentions the name of these cities in the following order: Daskylos – Gelbes – Germanicopolis – Apameia (Myrleia). It is known that the Eşkel Harbor was Daskleion am Meer and Myrleia was Mudanya. For Pliny, there were two unknown names: one of them is the Gelbes River, located following Daskyleion; the other one is the city of Germacopolis, following the river. During the research at the area, Ketendere Stream, which is located in the next bay of Daskyleion, and Kapanca Harbor, which is in the following bay of Ketendere, were examined. The Gelbes River could easily be matched to Ketenderesi, and Kapanca Harbor to Germanicopolis (Caesarea Germanica). The distribution area of the ancient city, 46000m^2 harbor basin, location of the city and similarity with the description of the harbor on the Caesarea Germanica coins under that Kapanca harbor should be Caesarea Germenica (Fig. 52).

3.1.5. TRILYE – ZEYTİNBAĞI

Another coastal settlement inside the Bursa Province is Trilye, what is now called Zeytinbağı. Trilye is located 11km west of Mudanya at the coordinates of 35 652309.50 m E, 35 4472886.86 m N UTM (Fig. 53).

No foundation or structure remains were examined related to the early period of the city. Limited inscription and archaeological evidence is present regarding the early period of Trilye.This underlines the problems associated with a lack of evidence of the structure of city. As all the inscriptions found are tomb inscriptions related to cult activities, they are giving information about the history of early period of Trilye. Thomas Corsten examined the inscriptions and detected that this area was a cult area. Data he obtained indicates that Trilye should have been more of a cult area than a city (Corsten, 1987: 47).

Early written information about Trilye comes from 1100 BC (Psellus, 1941: 125; Pekak, 1996: 308). The name of Trigleia was first mentioned there. There is no earlier written evidence about the history of Trigleia. It is not mentioned in the works of known ancient authors such as Pliny, Strabon or Heredot. While some researchers match Trilye with Bryllion (Evangelides, 1943: 9-11; Pekak, 1996: 308), some match Bryllion to Mudanya (Corsten, 1987: 4-6). However, the accuracy of these matches has not been proved.

During the research carried out around Trilye, the walls of the modern houses, some areas of the settlement, and architectural pieces from the Ancient Period could be examined. Tomb stelles (Fig. 54) date back to 1st century AD (Şahin, 2013: 103). Inscriptions examined by Corsten date back to late 2nd century AD (Corsten, 1987: 55). An unfinished sarcophagus used as a trough at the entrance of the mosque of Fatih dates back to the Roman Period (Fig. 55). On the same fountain, architectural pieces dating to the Byzantine Period were also found (Fig. 55). Earlier architectural pieces seen on the walls of the arched church indicate existence that predates the Byzantine Period (Şahin, 2013: 103).

With the rise of Christianity, it was understood that Trilye continued its religious existence intensively. Some church remains were found in Trilye. Hasluck held the earliest

research in this area. He mentions Trilye as a monastery area from the 8th to 9thcenturies (Hasluck, 1910: 58).

During the research at the coasts of Trilye no harbor structure was found. Nowadays, the coastline is filled with modern buildings and the ancient coastline has disappeared (Fig. 56). In a work called *Trigleia-Bryllion*, published in 1934, a photo from the 1930s shows that there was neither breakwater structure nor a harbor structure in the area (Fig. 57) (Evangelides, 1943: 168).

As a result of the research carried out on the coast of Trilye, matching Bryllion and Trigleia was not very possible. The name of the ancient city of Bryllion was mentioned as an important harbor city of the Delian League in the 5th century BC. However, Trigleia did not have such a harbor dating back to the Ancient Period. All the cities found in the Athenian Tribute Lists had at least one harbour (Meritt et al. 1950). For this reason this match is not accurate.

According to the evidence, Trilye was a religious center in the early periods, not a settlement. Alongside Christianity, the function of the city did not change. Most likely, the temples were transformed into churches and the area turned into a monastery area. Trilye is located very close to the ancient cities of Caesarea Germanica and Myrleia. For this reason, a city harbor was probably not needed. Rafts, which could be easily pulled to the coast, could have been enough for priests living at this monastic area.

3.2. RESEARCH BETWEEN MUDANYA –GEMLIK

3.2.1. BRYLLEION(?) – MYRLEIA – APAMEIA – MUDANYA

The ancient city of Myrleia is located in the modern Bursa Province, one kilometer southeast of the town of Mudanya and at the south of the Gemlik Gulf. It is located at the coordinates of 35 660727.76 E, 35 4469956.58 N UTM (Fig. 58). The city is located on a mountainside with temperate climate.

Ancient authors such as Pseudo Skylaks (Periplus 94), Strabon (Geographika XII 3,22 – XII 8,10 – XII 4,3), Ptolemaios (Geographika V 1,4), Pliny the Elder (Historia Naturalis V–149, V-143/144), Pliny the Younger (Epistulae X, 47 – X,48), Stephanos Byzantinos (Ethika – Myrleia , Apameia), Pomponius Mela (De Chrographia I, 99) and Appianus (Mithridatic Wars, XI) mention the city. According to the ancient resources, the history of the ancient city of Myrleia goes back to the 4th century BC. The earliest resource is called *Periplus*, written by Skylax of Caria. The author mentions where Mysia and Phrygia were located. According to the author, Myrleia was a settlement in Phrygia (Ps. Skyl. 94).

As we learned from Dio Chrysostom, the people of Apameia met their timber and food needs from Prusa. Prusa was using Apameia as an import and export harbor. The sentence, which Dio Chrysostomos underlines, "Prusa did not have another harbor than Apameia", is very important (Dion. Chrys.. XL.30). Another detail that could be learned from his work is that Apameia was in need of timber. It is possible to interpret that in Apameia during 1st century AD, ships were being constructed. For this reason there would have been a ship shelter or a dockyard.

It is possible to have information from the letters Pliny wrote to Emperor Trajan during the Bithynian Province Proconsul. In one of these letters, he mentions that Apameia was a colony that had the privilege to lead the troupe, as it desired (Plin Epist. X, 47). From the answer Emperor wrote to Pliny, he wrote that the city would continue having its privileges (Plin. Epist. X.48).

The city was founded in the 8th century BC by Colophon (Şahin, 2013: 101), who named the city after their leader, Myrlos (Steph. Byz. Myrleia). According to Strabo, Prusias had reconstructed the city and dedicated it to his wife, Apameia, and renamed the city after her (Plin. Nat. V.40; Strab. XII.4.3; Smith–Anton 1860: 533). Stephanos Byzantinos mentions that Nikomedes Epiphanes changed the name of the city to Apemeia and dedicated it to his mother. Another opinion is that the name of the city comes from Amazon Myrleia (Steph. Byz. Myrleia). During the period of Caesar or Augustus, the city had the name of Colonia Iulia Concordia Apameia (Magie, 1950: 1268; Bosch, 1950: 240; Trillmich, 1978: 107). Moreover, in the period of Severus, the word Augusta was added to the name of the city as an honor and it became Colonia Iulia Concordia Apameia Augusta (Trillmich, 1978: 107). In the Late Ancient Period and Early Ottoman Period, the city was called Montania (Delatte, 1947: 241; Keydül, 1998: 42; Intepe, 2009: 14, 28, 72, 184). In the Ottoman cadastral record books it was recorded as Budamya (Tonak, 2006: 197; Çiftçi, 2012: 15). There is no information about when and why exactly the city's name was changed to Montania. However, in the 16th century, the name of the city was mentioned as Montania at the Greek ports (Delatte, 1947: 241). According to Evliya Çelebi, who lived in the 16th century, the name of the city Mudanya came from the daughter of the feudal lord during the period of Constantine, Mudına (Dağlı, 2008: 5).

At the end of the 3rd century BC (202 BC) (Magie, 1950: 306; Hotz, 1989: 179) the city was destructed and reconstructed. Philipp V destroyed the city with the help of Prusias I. Afterward, Prusias I, the king of Bithynia, reconstructed the city (Strab. XII.4.3; Magie, 1950: 307).

In 75/74 BC Apameia had gone under Roman domination after Nikomedes IV gave Bithynian land to Rome as inheritance (Magie, 1950: 320; Braund, 1983: 29; 52-53; 48; Braund, 1984: 151 ff; Kallet-Marx, 1995: 229; Arslan, 2007: 305). After one year, in 73 BC, Mithradates VI declared war on Rome and started to conquer Bithynian lands. The cities of Apameia and Kios were sieged from the sea and went under the rule of Mithradates. After Mithradates restrained the ships of Cotta, he took hold of the whole power of Propontis (Magie, 1950: 326; Arslan, 2007: 318). Apameia changed hands many times during the wars between Mithradates and the Roman Empire. With a part of the navy, Gaius Valerius Triarius conquered

Apameia and killed the resistant Apemeians (App. Mith. XI; Magie, 1950: 331; Arslan, 2007: 336).

In 63 BC, after the victory of Pompeius over Mithridates, Pompeius united his lands with Pontus and enlarged his lands to the east. In 63 BC by Pompeius united Bithynia and Pontus Provinces and the Pontus-Bithynia Province connected to Roman Empire (Strab. XII.3.1; Arslan, 2007: 490). After this date, cities situated at the western border of the province, such as Nicaea, Prusa and Kios, had Nicomedia as a capital. Cities in the Pontus land had Amastris as their capital (Kaya, 2005: 17).

During the Pax Romana period, starting with Emperor Augustus, like all the Bithynian cities, Myrleia also had peace (Owen, 1992: 121; Wurster, 1996: 165). In 257/8 BC Goths arriving from the Black Sea had attacked Bithynia. Bithynia was unprepared for attacks and Bithynian cities such as Nicomedia, Nicaea, Kios, Apameia and Prusa were plundered. While they were marching on the Cyzicus, the Rhyndakos River hindered them and they returned back (Vassius, 1814: 20; Şahins, 2004: 11).

In 395 AD with the Roman Empire divided into two, Myrleia went under the East Roman Empire domination (Diehl, 1939: 12-13). Myrleia stayed under Byzantine domination for approximately 900 years, until Orhan Gazi conquered it in 1321 AD (Uzunçarşılı, 1988: 111; Çiftçi, 2012: 15). After Orhan Gazi conquered Mudanya, he destroyed most of the castle so as to eliminate places for enemies to hide (Dağlı, 2008: 5). This explains why modern Mudanya is in a different location than the ancient acropolis.

Although many harbors were mentioned at the coasts of Bursa Province during the Ottoman Period (Armutlu, Fıstıklı, Kapaklı, Karaca Ali, Büyük ve Küçük Kumla, Gemlik, Kurşunlu, Altıntaş, Mudanya, Tirilye and Mihaliç) Mudanya was still the closest harbor to Bursa and retained its function as the main harbor of the province. Goods, which were to be taken to Istanbul from Bursa, were firstly brought to Mudanya and sent to İstanbul via the sea route (Çiftçi, 2004: 156-157). As we know from the Late Period travelers, Mudanya Harbor wasn't only functioning for trade. Travelers who wanted to arrive in Anatolia from Istanbul or Istanbul from Anatolia also followed this route (Muradi, 2009: 118; Dağlı, 2008: 3-5).

Evliya Çelebi gives detailed information about the harbor of Mudanya. He mentions that Mudanya was a natural, strong harbor with a well-kept, advanced pier. He says that there was a customs house by the pier. Taxes were taken from all the incoming and outgoing ships and merchants (Dağlı, 2008: 5). Two hundred years before Evliya Çelebi, in the period of Murat II taxes were taken at the Mudanya Harbor (Çiftçi, 2012: 66). It is known that after Istanbul became the capital of the Ottoman Empire, ice from Uludağ was taken to Istanbul through Mudanya (Kaplanoğlu, 2003: 51; Çiftçi, 2004: 164; Bilgin, 2006: 168-171; Gözcü –Akçiçek, 2012: 276.). The French constructed the customs in 1849, which now serves as a hotel. In the 16th century AD, the harbor was located in the center of the city at the west of modern Yeni Camii (Çiftçi, 2012: 69).

The history of the ancient city of Myrleia before the 4th century is unknown. The most important suggestion about the early periods of the city comes from Thomas Corsten (Corsten, 1987: 4 ff). Corsten matches Myrleia with Bryllion, the name that was seen on the Athenian Tribute Lists in the 5th century BC, as well as on the Theodoraken Lists found in Argos at the end of the 4thcentury BC. He suggests that they were the same cities, particularly because of the resemblance of the names M-YP-ΛEI-A and B-PY-ΛΛEI-ON (Corsten, 1987: 5-6.). However, there are also researchers suggesting that it is deceptive to localize a city from only the resemblance of names (Charneux, 1966: 213).

Pliny and Stephanos Byzantinos mention Bryllion and Myrleia as different places. Stephanos Byzantinos suggests Bryllion was located in Propontis and located near a small town called Daskyleion. Moreover, he refers to the fifth books of Ephoros and mentions that Kios and Bryllion were the same places (Steph. Byz. Bryllion). Yet it is impossible that the cities of Kios and Bryllion were the same cities. In the Athenian Tribute Lists, the names of both cities appeared at the same lists. Bryllion was seen four times in the Athenian Tribute List on 433/2 BC (IG I^3. 279.18), 432/431 BC (IG I^3. 280.18), 430/429 BC (IG I^3. 281.14) and 418/17 BC (IG I^3. 287.23) (Meritt et al., 1939: 476; Corsten, 1987: 4-5; Avram, 2004: 990.)[16].

[16]For the Kios name in the same lists with Bryllion: 433/2 BC (IG I^3. 279.99), 432/431 BC (IG I^3. 280.14), 430/429 BC (IG I^3. 281.7) and 418/17 (IG I^3. 287.12) BC.

When Pliny was writing about the settlements, he mentions first Daskyleion, then the Gelbes River, and then Germanicopolis (Helgas, Booscoete). The area called Myrleia was located after Apameia during the period when he lived. After Apameia, he located the Ascanius River and the gulf into which it flowed. Then he mentions the ancient city of Bryllion, the rivers of Hylas and Kios, and finally the city of Kios, which was founded by Miletus (Plin. Nat. V.40). Pliny clearly located Bryllion between Myrleia and Kios. Kiepert sketched a map in 1908, where localized the ancient city of Bryllion to Kurşunlu, which is located between modern day Mudanya and Gemlik (Map 10) (Kiepert, 1908: B2.Brussa). Most likely, he made use of Pliny while sketching his map.

None of the inscriptions that Corsten examined mention the name of Bryllion[17]. When the archaeological evidence was considered, his argument leaves many doubts. I believe it is better to look to time and archaeological evidence than attempt to make a direct "Bryllion = Myrleia" argument. Increasing the amount of research in the area and new archaeological data will enlighten the question of Bryllion-Myrleia[18].

The earliest archaeological evidence on the ancient city of Myrleia comes from the second half of the 4th century BC. It is a tumulus grave and published by Arif Müfit Mansel (Mansel, 1946: 9; Şahin, 2014: 17). When the coins of the ancient city were examined, the earliest evidence dates back to 300-203 BC. The obverse of the coin shows an Athena head and the reverse shows MYPΛ inside the spokes of a wheel (Waddington et al., 1908: 247; BMC Bithynia, 1963: 109). These coins show that in the Hellenistic period the name of the city was Myrleia.

Coins of the city provide important information about the seafaring of the city. Since the Trojan Period, ship motifs could be examined on the city coins. On the reverse side of the Trojan Period coins, a soldier stands on the bow of a battle ship[19]. On the reverse side of the coins from the period of Caracalla and Decius, a description of a battle ship could be seen (Fig. 59) (Kraft, 1972: 76). No harbor description was seen on the coins of

[17]Corsten, examined inscriptions of Mudanya at his works as well as the inscriptions around the area of Trilye, Burgaz and Kuşunlu.
[18]The localization of Bryllion will be mentioned under the title of Sırakayalar again.
[19]http://www.asiaminorcoins.com/gallery/displayimage.php?album=17&pid=7891#top_display_media (March 2015).

the city. There should be a reason why only a battleship was described on the coins. It is known that Apameia was in need of timber and they were getting wood from Prusa. Considering the coins of Apameia and the need for timber, it is possible to suggest that Apameia might have had a dockyard.

During the research carried out in 2010-2011, many illegal excavation holes were found at the acropolis of Myrleia. Architectural pieces were detected inside these holes. Moreover, many ceramic pieces dating back to the Classical and Hellenistic Periods were encountered (Şahin, 2012: 18) (Fig. 60-61). Additionally, architectural blocks from the ancient city were detected to have been deposited recently. Clamps were visible on the architectural blocks. It was also detected that the soil at the filling area was taken from the ancient city (Fig. 62) (Şahin, 2013: 101).

In 1860, Georges Perrot, Edmond Guillaume and Jules Delbet visited Mudanya and gave information about the ancient city of Myrleia. Perrot and his friends mention a very elaborate theater and the harbor of the city. The theater was 400m away from the coast and the diameter of the orchestra was 28m. It was constructed in the Greek style, relying on the hill and constructed before Roman Period. However, there is no trace from the ancient theater and the harbor. Furthermore, it was mentioned that there were terraces at the side of the hill. On the inscription found from the city (C)ol(onia) Jul(ia) Conc(ordia) Apameia could be read. This shows that Mudanya and the ancient city of Apameia were located in the same place (Perrot et al., 1872: 12-14; Thomas, 1987: 94).

Perrot and his friends also mention the harbor of Myrleia and its breakwaters as no other research and travelers mention before (Perrot et al., 1872: 12-14). Unfortunately, there were no sketches and the descriptions were only about the breakwaters of the harbor. Nowadays, the area Perrot and his friend mentioned is used as a filling area and the sea is filled even more day to day. The filling area probably swallowed the breakwater they mention. Considering the two breakwaters mentioned in Myrleia Harbor, they probably protected the harbor from northeastern, southeastern, northwestern and southwestern winds. Because there was no bay around the acropolis that could have served as a harbor basin, a harbor basin should have been created with breakwaters. Although we cannot see a

breakwater, it is possible to say that Myrleia harbor was in the category of artificial sea harbour (Gündüz, 2008: 22).

In 2013, under the leadership of the Archeology Museum of Bursa, a rescue excavation was held one kilometer south east of the Mudanya city center and the foundations of the Myrleia was discovered (Fig. 63). This area is located at the north of the acropolis. Considering the area where the foundations of the structures are locations as well as the written resources, this area probably should have been the harbor area of the ancient city. The structures discovered in the area were probably related to the ancient harbor of the city. Many researchers accept that the harbor of Myrleia is located one kilometer southeast of the modern Mudanya center and had two breakwaters (Perrot et al., 1872: 12 ff; Lehmann-Hartleben, 1923: 244; Thomas, 1987: 94). In the research carried out at the coast of the city and underwater, no harbor evidence was found. Wall foundations discovered at the excavations of the Archeology Museum of Bursa, should have belonged to the harbor structures from the Byzantine period[20]. The harbor of the ancient city of Myrleia probably stayed under the modern coastline (Map 11).

[20]The area of the mention place and its surroundings are at the tribunal and the Museum of Bursa noticed that the excavation repports could not be examined until the tribunal ends. The walls discovered were excavated by the museum however; information about the features and measurements of the walls could not achieved from the museum. Description mentioned here, are based on the photographs. Unearthed walls were constructed with rubbles in the style of drywall.

3.2.2. SIRAKAYALAR – TEREIA / ÇİFTEKAYALAR - BRYLLION

The area called Sırakayalar is located between Mudanya and Gemlik. The harbor is located at the eleventh kilometer of the Mudanya-Gemlik highway and it is located at the coordinates of 35 669336.89 E, 35 4469419.93 N UTM. This area is surrounded with high hills from the south and is naturally protected from southern winds (Fig. 64).

During the research carried out between Bursa and Gemlik at the coordinates given above, similar stones to the stones found in Plakia, Daskyleion ad Mare, Ketendere and Kapanca Harbors were detected. As far as it can be seen from the coast, the stone line extends 40m straight in the sea (Fig. 65). At the west of these stones, another stone line extending around 10m could be examined (Fig. 66). Diving expeditions revealed that these stone lines were longer than expected and continued underwater.

After realizing that a harbor was located in Sırakayalar, sketches of the breakwaters were done. As a result of the sketches, the form of the breakwater was understood. It was seen that the west breakwater, which was only partially visible from the coast, extended 20m from the coast and it formed an arch to the east to the east breakwater and continued around 60m. It was examined that the west breakwater was 85m from the coast. East breakwater extends 87 m from the coast. Both of the breakwaters were constructed from irregular large stones (Fig. 67) (Drawing 7).

Research was not successful because of the road construction and a stone mine (Fig. 68). The harbor reclines to the mountain and the side of the mountain overlooking the harbor is entirely destroyed (Fig. 69). During the research at the coast of the harbor, many architectural pieces were found (Fig. 70). Architectural pieces would have belonged to a structure nearby. During the research, apart from the breakwater, no harbor building was found.

The only settlement shown between Myrleia and Kios was the ancient city of Bryllion (βρύλλιοη). Pliny mentions that after Myrleia came Bryllion, then the rivers of Hylas and Kios, and finally the ancient city of Kios (Plin. Nat. V.40). He clearly located

Bryllion between modern Mudanya and Gemlik. Corten conducted research in the area and suggests that Bryllion is the early name of the Apameia/Myrleia. It was mentioned above, under the title of Apameia/Myrleia[21]. After the discovery of a harbor in Sırakayalar, the Bryllion-Myrleia match should have been reconsidered.

When the research was extended around the harbor, three kilometers from the harbor, in the village of Gündoğdu, archaeological finds were examined (Fig. 71). It is known that the early names of the village of Gündoğdu were Paladari (Corsten, 1987: 69), Paladaryon (Kalfoğlu, 2013: 80) and Filadar (Wiegand, 1904: 311; Mango, 1968: 169 ff; Ötüken, 1988: 95; Kalfoğlu, 2013: 158). This city dominates its surroundings and the whole sea with its high location (Fig. 72–73). There is no information about the history of Paladari. Around 100m northwest of Gündoğdu, at a rocky area called Çiftekayalar Kalesi (TAY 2007, Çiftekayalar Kalesi), a channel structure starts from rocks, descends into the lower level, and culminates in a domed structure at the end of the channel (Fig. 74). It was understood that the domed structure had two phases. The upper part of the structure was constructed with alternating technique (Fig. 75). It was examined that the tiles and stones were used alternately. At the bottom of the structure, ashlar blocks dated to an earlier period could be seen (Fig. 76). Giros has researched the area and shows Çiftekayalar on his map sketch. According to the plan, a cistern, a silo and a tower are located at the tower ruins (Giros, 2003: 222, Fig. 11). As the domed structure has no plaster on its inner walls and it overlooks the whole Marmara Sea, it is probable that it is a Roman observation tower.

Ἀρτέμιδι Λευκοφρύνη (Artemidi Leukophryene) expression comes from an inscription in Paladari and is very interesting. The expression of Λευκοφρύνη (Leukophryene) is usually used for mentioning Artemis of the Magnesia ad Meandrum (Tekinköy/Aydın). The same expression of Λευκοφρύνη (Leukophryene) that we have come across from Paladari is seen on two coins from the Imperial Period of Magnesia (Schult, 1975: Nr. 43-47, 77; Corsten, 1987: 69). This inscription is a vow inscription dedicated to Artemis and Leukophryene (Corsten, 1987: 69.). Leukophryene means “the white eyebrow” (Umar, 1979: 48; Sevin, 2001: 102). However, the reason why an indigenous name to Magnesia was written at an inscription in Gündoğdu and their relationship is not solved. Religion

[21]For Detail See: Apameia/Myrleia.

was the most important link between colonial cities and main cities. This inscription could indicate that the settlement located at Gündoğdu could be a colony of Magnesia.

When the evidence and the location of the harbor of Sırakayalar are examined, Sırakayalar Harbor could be the harbor of the Paladari or the harbor of the lost city of Bryllion. There is limited information about both cities. It is known that in the Ancient Period, at cities located in inner areas, an epineion (harbor area) was established to the closest coast for sailing (Freitag, 2002: 80; Reinders-Prumme, 2003: 19; Gündüz, 2008: 32; Blackman et al., 2013: 203). In this context, Sırakayalar harbor might be accepted as an epineion of Paladari.

Another possibility is to match Paladari and the ancient city of Bryllion. Although the meaning of Bryllion was not explained by any resource, it could be derived from the Greek word of "βρύλλω"[22]. Βρύλλω means "cry for water"[23]. Nowadays, the city called Paladari is located at a high location without water resources. On a map of Turkey with a scale of 1/25.000, dried out streams could be seem around the city (Map 12). The maps show a water spring on the hill. The cistern Giros sketched could indicate that there were no springs on the hill. It must have been hard to carry water 200m high with the technology of the Ancient Period. Moreover, on the Athenian Tribute Lists, the expression Τηρεία παρὰ βρύλλιον (Tereia beside Bryllion) could be examined (Meritt et al., 1939: 476). Here, a settlement called Bryllion was mentioned near Tereia, which indicated a place close to Bryllion. Τηρέω means "to protect" in Ancient Greek[24].

It is unknown whether Sırakayalar is only a harbor structure or a small settlement[25]. When cities such as Pergamum, Athens, Sparta, Cyrene and Epineion are examined, they also had settlements at the coast (Blackman et al., 2013: 20, 22, 205, 294). A small settlement should also be expected alongside the harbor in Sırakayalar. It is possible to match Tereia near Bryllion, which was mentioned in the Athenian Tribute Lists, to Sırakayalar. The aim

[22]Strabon mentioned a settlement near Troia called Phegasos. Phegasos meant oak or oak forest. Moreover, Erineos meant wild fig tree. (Strab. XIII, I, 35).
[23]http://www.perseus.tufts.edu/hopper/resolveform?type=start&lookup=Brullw&lang=greek (MART 2015).
[24]http://www.perseus.tufts.edu/hopper/resolveform?type=start&lookup=Thre&lang=greek (MART 2015).
[25]The hill near Sırakayalar Harbor is destructed irreversibly.

of the city could have been to protect the harbor, so the name of the city, Τηρεία would have come from Τηρέω (to protect).

Both Bryllion (βρύλλιον) and Paladari have common features. Both of them were harbor cities. Both of them were located between Apameia and Kios. In addition to this, "βρύλλω" could means "cry for drink" and as there were no water resources on the hill and Paladari was located 200m high, bringing water would have been very hard.

My suggestion with the discovery of Sarikayalar Harbor is that Paladari was Ancient Bryllion and Sırakayalar was Tereia, an epineion of Bryllion.

3.2.3. KIOS – GEMLİK

Kios is located within the boundaries of the Gemlik prefecture. It is 35km from the Bursa city center. It is located at the inner point of Gemlik Gulf, which is named after the city Gemlik itself. It is located at the coordinates of 35 682930.14 m E, 4477937.98 m N UTM (Fig. 77). Mountains surround the settlement on three sides, leaving onling the west open to the Marmara Sea.

In the ancient resources often mention the name of the city. Pseudo Skylaks (Ps. Skyl. 93), Herodotus (Hdt. V.122), Apollonius Rhodius (App.Rhod.. II, 766), Xenophon (Xen. Hell. I.4), Pliny the Elder (Plin. Nat. V.40) and Strabo (Strab. XII.4.3; Smith, 1870: 629) mention that the city was inside the Mysia border, while Pomponius Mela (Mela I. 100) suggests it was inside Phrygian borders. Kios was established as a Miletus colony and was the trade center of Phrygia. There was also a river sharing the same name with Kios (Plin. Nat. V.40; Mela I. 100).

Stephanos Byzantinos shows Ephoros as a resource and suggests that Kios was Bryllion (Steph. Byz. Bryllion). As both of the cities are shown in the Delian League tribute lists at the same time, it is difficult to say that they were the same cities and I have mentioned it under the title of Apameia/Myrleia (Meritt et al., 1939: 476; Charneux, 1966: 212; Corsten, 1987: 4-5; Avram, 2004: 990.).

The first foundation date of the city is unknown. However the foundation of the city is based on the myth of the Argonauts. The Argonauts start their journey in Thessaly in quest of finding the Golden Fleece under the leadership of Iason. Then they go to the land of Kios, which is located between the mountain of Arganthonion and the Kios River. They are welcomed very hospitably and all their needs are met. Hercules and Hylas go to forest to repair the shovel and they separate from each other and never return back. When the sun rises, the sailors leave Hercules and Hylas in the land of Kios and continue their journey (App. Rhod. I. 1177 ff.; Strab. XII.4.3). According to Strabo, after the victory of Colchis on the way to return home, one of the friend of Hercules, Kios, stayed in Mysia and founded the ancient city of Kios (Strab. XII.4.3). However, Apollonius Rhodius mentions that Polyphemus founded the city when he returns from Colchis (App. Rhod. IV.1470 ff).

Moreover, according to Apollonius Rhodius, when Iason was telling his story to Lycus, the king of Mariandyni, he mentions how they went to the land of Mysia and Kios (App.Rhod. II. 766). This shows that the history of Kios dates even earlier than the legend of Argonauts.

Strabo gives information about the reconstruction of the city. It was demolished by Philips and reconstructed by Prusias. Thus the city was dedicated to him and its name was changed to Prusias (Strab. XII.4.3; Smith, 1870: 629). The city is also known as Prusias ad Meer.

In 546 BC, Cyrus the Great ended the Lydian Empire (Greaves, 2010: 301). Then we learn that in 499/8 BC, Hymas marched to Marmara and captured Kios (Hdt. V.122; Arslan, 2010: 70). Athenian ambassadors came to meet with Cyrus and were taken to Kios under the surveillance of Ariobarzanes, and then joined Athenian navy through the sea route (Xen. Hell. 1.4.). In the middle of the 5th century BC, the dominance in the area should have passed to the Greeks because the name of the city can be seen in the Delian League as one of the important cities of the coastline, and it was paying tribute (Meritt et al., 1950: 24) of 1000 talent[26]. It can be seen that Kios was an important city of the Hellenistic Period because of its coinage in this period. Between 321 and 300 BC, golden coins were minted (BMC Bithynia, 1963: 130, Pl.XXVIII.7-8.). Kios was also affected by every political event in the Bithynia Region like its neighbor, Apameia/Myrleia. In between 297 and 74 BC it went under the rule of the Bithynian Empire (Doğancı, 2013: 74), while in 74 BC it went under the rule of the Roman Empire as a legacy, like the whole of Bithynia (Magie, 1950: 320; Braund, 1983: 29; 52-53; 48; Braund, 1984: 151 ff; Kallet-Marx, 1995: 229; Arslan, 2007: 305). In 73 BC, with Mithradates VI declaring war on Rome, the southern coast of the Marmara Sea was sieged from the sea and went under the rule of Pontus (Magie, 1950: 326; Arslan, 2007: 312-318). In 63 BC, again the city was sieged from the sea and this time fell under the rule of Roman Empire (Strab. XII.3.1; Arslan, 2007: 490). In the Roman Imperial Period, Kios lost its significance to Nicaea. In this period, there was a known competition between Nicaea and Nicomedia (Dion. Chrys. XXXVIII. 7). Although both of them were established on important land routes, Nicaea did not have a liaison with the sea. For this reason, the harbor of Kios, the closest coast to Nicaea, was used as an epineion of Nicaea. The liaison was made

[26] 1 Talent : 60 Mna; 1 Mna: 100 Drahmi (Bispham et al., 2006: 473).

through a route passing from the south of the İznik Lake (Magie, 1950: 305; Şahins, 1981: 50; Kommena, 1996: 324-329; Texier, 2002: 160; Turan, 2004: 128-130). The city was plundered in the 3rd century BC during the Goth attacks in the region.

During the Byzantine Period, the city was under the shadow of Nicaea and continued serving as its epineion. After the foundation of the Sultanate of Rum (Anadolu Şelçuklu Devleti), which was a new empire in Nicaea, Gemlik became important. As it was the closest neighbor to the capital of the empire located on the coastline, it drew attention. After the conquest of Kios by Ebu'l Kasım, a dockyard was constructed (Gencer, 1991: 501-509). This dockyard is the first dockyard that started functioning during the period of the Sultanate of Rum (Daş, 2009: 50). From Anna Comnena, it is understood that after Ebu'l Kasım conquered Kios, he constructed a ship here (Comnena, 2008: 2598). But it is unknown whether he constructed a new dockyard or used an existing shipyard.

During the First Crusade at the siege of Nicaea, the city of Nicaea was receiving help through the harbor. Byzantine Emperor Alexios I Komnenos had brought a small navy via Kios, and then went through the land to the lake of İznik to prevent Nicaea receiving help (Comnena, 2008: 4540; Texier, 2002: 160; Osman, 2004: 128-130). Transportation through the Karsak Stream, which still exists today, was not mentioned. Since antiquity, Kios had succeeded in transmitting Nicaea to the sea. In this period it helped end the Sultanate of Rum.

In 1334, Orhan of the Ottoman Empire captured Gemlik (Uzunçarşılı, 1988: 115) and the dockyard continued to be used by the Ottoman Empire. Osman Kalfa and Manol had launched a ship to the sea called *Fethiye* in 1800s (Zorlu, 2008: 98). Now there is a dockyard in Gemlik. The name of Gemlik comes from "Gemilik" which means "a place to keep ships" (İntepe, 2010: 28).

Since the campaign of Argonauts, Kios was seen as a city related to the sea and having a sufficient harbor to host sailors (Apol. Rhod. II,766). It is the most convenient harbor of the whole Phrygian coast, and it ensured trading and established a liaison through the inner part of Phrygia and Bithynia for millenia. For this reason, it kept is importance in

each period. The significance of the sea could be seen from the coins of the city. Particularly the coins minted between 321 – 300 BC, on which a bow could be seen (Fig. 78) (BMC Bithnia, 1963: 130, Pl.XXVIII.7-12). There was no harbor description on the coins. It is an interesting coincidence that (1) the dockyard, mentioned for thefirst time by Ebu'l Kasım, continued its function during the Ottoman Empire, (2) the name of the modern city comes from Gemlik (Gemilik), and (3) the early coins had a description of ships instead of harbors. All of these coincidences show that Gemlik might have been a ship construction area during the Late Classical to Early Hellenistic Periods. As no excavations were held in the ancient city, no evidence was found related to an ancient dockyard or a shelter.

Now, Gemlik is one of the largest districts of Bursa, where 100,000 people live. The ancient city of Kios is entirely located inside the Gemlik borders (Fig. 79). For this reason, the destruction is very extreme. Filled land swallowed the coastline (Fig. 80). Texier, who visited the ancient city at the beginning of the 19th century, mentions that the modern city occupied only a little part of the ancient city and because the Kios Harbor was filled, this area was used as a field (Texier, 2002: 189). Nowadays the whole coastline is filled (Fig. 80). For this reason, at the first research I carried out, I could not come across any ancient harbor or structures related to dockyard.

Considering the geography of the ancient city, it is logical to suggest that Uludağ University Gemlik Campus and the modern Gemlik harbor could be the location of the ancient harbor. I have previously mentioned the importance of fresh water in ancient harbors under the title of "Plakia – Kurşunlu"[27]. There are two streams in Gemlik. It is incidental that while locating the harbors, the coastline of the streams should also be examined. As the modern Gemlik harbor is very sheltered and located near Karsak Stream, it is also a very preferable area for ancient harbors. However, this sight cannot go further because of the extreme filling and buildings.

[27] See the title of Plakia Antik Kenti – Kurşunlu Manastırı (Megas Agros).

3.3. MILETOPOLIS AND INNER HARBORS

3.3.1. NICAEA - İZNİK

Nicea, located at the border of the Bursa Province, is one of the important lake settlements. Nowadays it is not as important as in the Roman and Byzantine Periods, and its name has been changed to İznik. It is located to the east of İznik Lake at the coordinates of 35 730436.93 m E, 35 4478903.47 m N UTM (Fig. 81). The city has a very mild climate because of İznik Lake. It is located at a fertile plain and surrounded by mountains from the north and south. There are marble quarries at the north of the city (Map 14). Lands around İznik are first-level important farming lands. Notably olive, there are also many other vegetable and fruits grown here (Map 15).

As İznik had fertile lands and astrategic location, important road networks developed around it. It is one of the important cities that connect Bithynia to Galatia and Phrygia. Roads passing from İznik extended to Caria and Cilicia (Altun, 1998: 345-346). İznik was always important because of its military and economical location, as well as its proximity to the other important cities. In Tabula Peutingeriana, which shows the Roman Period road network, Iznik was located at a junction of four different roads (Map 17). In 292 AD, Diokletian changed the capital of the empire to Nicomedia and the importance of the city increased (Ramsay, 1890: 74). In this period, the Roman Empire was an empire with two emperors. Diokletian and Maximanus ruled the Roman Empire together (Güçlü, 2007: 20). Nicaea was located on the road networks connecting Anatolia to the capital, Nicomedia. The first council gathering in Nicaea indicates the importance of the strategic location of Nicea.

According to the Byzantine road networks Ramsay draws, the main road started from Istanbul and went on to Nicomedia (İzmit), Nicaea (İznik), Claudiopolis (Bolu), and then continued tothe east (Map 16). In the Ottoman Period, there were three important road lines. The left line was called Pilgrim Road (Hac Yolu), and it started from İstanbul and went to İzmit, Iznik, until Mecca and Medina. This road was most commonly used for military and trade purposes (Çetin, 2014: 328). The middle and left lines went through

Üsküdar-Gebze-İznik-Bolu and Merzifon. After Merzifon, the left line went to Mosul and Kırkuk and left line went to Kars and Tabriz (Sak – Çetin, 2004: 182).

The information about the oldest name of Iznik comes from the author Stephanos Byzantinos. Stephanos Byzantinos, in his work *Ethnica*, mentions that İznik was called "Αγκωρη" (Ankore) (Steph. Byz. Nikaia; Texier, 2002: 150). Sencer Şahin mentions that the first name of İznik was "Helikore" (the city with plenty orchards) (Şahins, 2004: 5).

The foundation myth of the city resides with Hercules and Dionysus, and can clearly be seen from the inscription of Lefke Kapı and the city coins (Şahins, 2004: 4). Nicaea got its name from the daughter of the Godess Kybele and Sangarios (Sakarya) River. She promised to stay virgin. Nicaea killed a shepherd who was in love with her. One day when she was bathing, Dionysus saw her and fell in love with her. He made her drunk and had his way with her. Later she gave him a child. After returning from India, Dionysus honored Nicaea by founding the city (Erhat, 1999: 51-54).

According to Strabo, I. Antigonos Monophtalmos founded the city. The first name of the city was Antogonia, which is named by Antigonos.Its name changed to Nicaea after the wife of Lysimachos (Strab. XII.4.7; Steph. Byz. Nikaia; Bekker-Nielsen, 2008: 21). Strabon mentions that the city was surrounded by city walls, with roads of the city vertically cross cutting one another. Four gates could be seen from a stone placed at the middle of gymnasiumun (Strab. XII.4.7).

Iznik took its name from the grammatical form of Eis or is – Nikaean means to Niceaea. Turks had taken this pattern and called the city İsnikean, and with time it changed to İznik (Şahins, 2004: 3).

After 301 BC, Nicaea fell under the rule of Lysimakhos, the successor of Alexander the Great. Zipoites (BC 327-279) took advantage of the war between Lysimakhos and Seleukos and Bithynia and Nicaea went under the rule of the Bithynian Empire (Doğancı, 2013: 74). According to the Nicaean historian Cassius Dio, Emperor Caesar gave permission for the dedication of the sacred precincts in Ephessos and in Nicaea to

Rome and to Caesar (Cassius Dio LI. 20.6). In 75/74 BC Nikomedes IV inherited the land of Bithynia and it fell under Roman rule (Magie, 1950: 320; Braund, 1983: 29; 52-53; 48; Braund, 1984: 151 ff; Kallet-Marx, 1995: 229; Arslan, 2007: 305). The Bithynian people did not welcome the Roman rule gracefully. Shortly thereafter Mithridates VI marched on Bithynia, and the Bithynians welcomed him with joy (Plut. Luc. VII. 5-6, Arslan, 2007: 316). Mithrades defeated the Roman armies in Khalkedon (Kadıköy) and captured the cities in Bursa Province such as Nikaia (İznik), Mryleia (Mudanya), Prusa (Bursa) and Kios (Gemlik) (App. Mithr. 71; Magie, 1950: 326; Arslan, 2007: 318). After Mithradates's fleet captured Cotto's fleet, he started to dominate the whole southern waters (Magie, 1950: 326). In 63 BC Bithynian and Pontus Provinces were united and Pompeius created the province called Pontus-Bithynia (Strab. XII.3.1; Arslan, 2007: 490). Niceaea in this period went under the ruling area of the capital city of Nicomedia (Kaya, 2005: 17).

In the Pax Romana Period the peace seen in all Roman lands was also seen in Bithynia. Until the Pax Romana began, the most expensive buildings constructed were city walls (Owen, 1992: 149). During this period, city walls lost importance and little attention was paid to their maintenance and repair (Owen, 1992: 121; Wurster, 1996: 65). In257/8 AD, Nicaea was attacked by Goths and the city walls were left unattended. The Goths plundered Nicaea and went on attacking other Bithynian cities. On the returning route they vandalized Niceaea and Nicomedia (Vassius, 1814: 20; Şahins, 2004: 11). In this period not only Nicaean walls but also other cities such as Milet, Pergamon and Didyma seem to reduce attention to the city walls (Foss, 1976: 3; Şahins, 1979: 7-12; Şahins, 2004: 11).

The year 325 AD is very important as the council gathered in Nicaea by Constantin I on the 20th anniversary of his reign. Alongside the celebrations, important religious topics were discussed (Kaçar, 2005: 69). Subjects such as Arianism, the official belief system of Christianity, the personality of Christ and Constantin's political role in the land were all discussed (Yalduz, 2003: 266).

In 722 AD at the period of Leo III, Arabs sieged the city. Although the city walls of the city were partially destroyed, Arabs could not enter the city (Theoph. 405-406). An

inscription that was written after the siege in the city proves the siege and that the city was damaged (Şahins, 1979: 234).

Iznik became the capital of the Anatolian Seljukians in 1075-1086 AD and Kutalmışoğlu Süleyman Şah was the founder of the Anatolian Seljukians (İnalcık, 2000: 301). In 1204, the Latins conquered Istanbul and established the Empire of Latins in Istanbul. A Byzantine noble by the name of Theodor Laskaris I founded the Nicaean Empire in Nicaea (Uzunçarşılı, 1988: 47-48).

Alongside the rampage, earthquakes also damaged the city of Nicaea (Şahins, 2013: 1-16). It is located in the middle line of the Northern Anatolia Fault and since antiquity, many earthquakes occurred (Adatepe – Erel, 2005: 102). An inscription shows that an earthquake in 368 AD demolished the city to its foundations (Şahins, 2013: 9). Through the aerial photos in 2013 Prof. Dr. Mustafa Şahin, the director of the archeology department of the University of Uludağ discovered a church structure and its protection wall around 80m within the lake of İznik at 2m depths. This structure also shows the level of the damage of the earthquakes (Fig. 82).

İznik (Nicaea) was founded at the shores of İznik Lake and since then it has benefited from the lake's blessings. Ancient resources provide information about the types of fish in the lake of İznik (Şahins, 1987: 18-21). Iznik Lake was important for protecting the city of Nicaea as much as it was important for providing food. The city is surrounded by water and the lake is situated at the west of the city, providing extra protection. Nicaean used every opportunity to benefit from the lake. It is possible to have information about the contribution of the İznik Lake to Nicaeans. One of the earliest events from the historical sources comes from the Seljukian Empire. After the death of Süleyman Şah, Ebu'l Kasım took control and a struggle occurred with Emir Porsuk, the emir of Melihşah of the Seljukian Empire. When Emir Porsuk surrounded the city of İznik, Ebu'l Kazım requested help from Aleksios Komnenos of Byzantine. Emperor Aleksios Komnenos sent a small army to İznik. The army arrived to İznik, then from Göl Kapı, mounted on the city wall and erected the Byzantine coat of arms (Batır, 2014: 71).

In 1097, Crusaders sieged İznik during the first Crusade. Although the Crusaders surrounded the city on three sides, İznik continued receiving aid from Göl Kapı. As the Crusaders could not stop the help from the İznik Lake, they demanded help from Byzantine Emperor Aleksios Komnenos (Edgington, 2007: 117; Comnena, 2008: 4540). Aleksios Komnenos's fleet was carried through the land and arrived at the lake of İznik and blocked the aid. Only after this was Nicaea's resistance broken. The city surrendered on the 18thof June 1097 (Kommena, 1996: 324-329; Texier, 2002: 160; Turan, 2004: 128-130).

In 1302, Osman Gazi surrounded the city, although he was not successful. In an anonymous work called *Tevarih-i Al-i Osman*, a statement about this unsuccessful attempt was described "*Gördüler kim cenk ile alınmaz, dört yanı su, hiç katına adam varımazdı* (They have seen it would not be captured by war, No men would come close, as it was surrendered with waters) (İnalcık, 2004: 63). This statement also describes how the city walls were surrounded by water. A ditch should have been around the citadels, starting from the lake at the north side of the citadel and extending to the south side of the lake. However, there is no trace of such ditch that could be examined. Pachymeres mentions that messengers were sent to Istanbul from Göl Kapi (İnalcık, 2004: 65).

During the surveys carried out on the İznik Lake shore, around 370m to the north and 300m to the south, two parallel wall remains were detected situated toward the lake (Fig. 83–84) (Drawing 8). Through this thesis, these walls will be named as Northern Harbor Wall and Southern Harbor Wall. Both of these walls could be partially seen from the lake (Fig. 83– 85). As a result of the rescue excavation held by the Archeology Museum of İznik, it was understood that these walls were continuing straight to the city walls (Fig. 86- 87). At the point where Northern Harbor Wall meets with the lake there is now an area used as an observation terrace. There are no remains other than the section where it ends at the lake. According to the rescue excavation notes, the width of the wall is around 2.9m. As no one has gone down to the foundation, it is impossible to have information about the height of the wall. The section of the Southern Harbor Wall that could be examined from the lake and the part that archaeologists examined measures 4.7m. Both the Northern Harbor Wall and the Southern Harbor Wall were constructed with

clean-cut stone blocks filled with khorasan mortar and rubble stone. The size of the architectural blocks of the facade is differential (Fig. 86-88).

As I mentioned above, the soldiers surrounding the city for all ages were unable to reach the lake's gate. The biggest reason was the harbor walls. Although we can only estimate the joint where the Northern Harbor Wall would have joined with the Southern Harbor Wall, the Southern Harbor Wall is almost entirely visible. The length of the Southern Harbor Wall is approximately 175m. This wall is joining the early city wall while there is a four-meter merge between them (Şahin, 2005: 140). At this area between the western city wall and the Southern Harbor Wall there should be a vaulted door. The shorter facade of the harbor wall was constructed from block stones, and on the upper part of the wall, traces of a vault starting could be examined. The traces on the tower also indicate that there was a structure attached to it (Fig. 89). Although the city wall on the side of the tower ends smoothly, it rises in a slope to the tower. At the point where the wall meets with the lake, it ends in a round form. As this wall was created for defense, it is accurate to suggest that at this round part of the wall, there would have been a tower structure (Fig. 83– 85).

Foss mentions that in the period of Leo III (AD 717-741), the gate and the walls that connected to it was repaired and two spur walls were constructed to protect the Göl Kapısı from the attacks (Foss, 2004: 252-253). What I call the Southern Harbor Wall is one of the walls Foss describes as a spur wall. Spolia materials used at the Southern Harbor Wall included Byzantine materials. As a matter of fact, it should not have been constructed before the Byzantine period (Fig. 90). Moreover, this wall is tangentto the Laskaris Period wall and connected directly to the 3rd century AD wall, and this dates the wall to the 8th century AD at the latest[28] (Fig. 91). If the archaeological data are examined in this context, it is possible to accept that the dating Foss did was correct. An inscription from the tower number 69 between Istanbul and Göl kapı dates back to the period of Leo III and it mentions the restoration at the city walls after the Arab attacks (Şahins, 1979: 234). But, there was no mention about this wall's reparations in the inscriptions discovered.

[28]The outer wall known as the Laskarid wall was constructed by Laskarid emperor John Vatantzez. (Foss, 2004: 259).

The reason I have called the two parallel walls mentioned above as Northern Harbor Wall and Southern Harbor Wall is because of their function. The function of these two walls was not protecting the harbor from the waves but probably protecting it from the attacks, because a great part of the Southern Harbor Wall continues on the mainland until the city walls. The main function of moles and breakwaters is to protect the harbor and the ships in the harbor from the waves. This wall clearly did not have such a function. During the first Crusade, Godefoi surrounded the northern city walls, Bohemund and his nephew Tankred guarded the eastern wall, and Robert de Frandre and Raymond de St Gilles had surrounded the southern city wall (Işın, 2004: 125). This siege plan and the church found 200m south of the Southern Harbor Wall in the lake shows this part was located on the land. For this reason the function of this was not protecting the harbor from the waves but protecting it from enemy attacks

During the period of Leo III, protection walls of the harbor were constructed and determined the borders of the harbor. Unfortunately, at the research carried out between the western city walls and the lake as well as at the harbor, no evidence was found about the harbor from before the period of Leo III. An archaeologist from the 1800s called Charles Texier mentionsin his work called *Asia Minor* that the city walls of İznik stretched until the waters of the lake. Thus, even under siege it was possible to make contact with the outside easily (Texier, 2002: 158). From the sketches of Texier, the waters of the lake connect with the city walls between Istanbul Kapı and the NorthernHarbor Wall, not from Göl Kapı (Map 18). The space at the Southern Harbor Wall indicates that there should be a living space between the city walls and the lake. In 2014, when the water of the lake ebbed more than normal, parallel pier piles were found inside the lake in front of Göl Kapı (Fig. 92). In the research carried in 2015, it was detected that these piles were not visible from the coast. Similar piles to these piles were also found near the Örnekköy village of Orhangazi and Çakırca (Fig. 93). Piles near Örnekköy are more clearly visible. According to the researchers, the ancient city of Bailinopolis is located between Kios (Gemlik) and Nicaea (İznik) (Ramsay, 1890: 179; RE III,1 (1987), 99, s.v. Basilinopolis (Ruge)). These piles probably belonged to the harbor of the Basilinopolis. Piles were also detected at the Gölkaya. However, as the water level was high and the visibility underwater in the lake was blurry, photographs could not be taken. Piles and architectural elements found in Gölkaya

indicated that there would have been a settlement in this area. The distance between Gölkaya and Söloz is 5.5km. Modern researchers locate the ancient city of Pyholopolis near Sölöz (Kiepert, 1908: B2. Brussa; Talber, 2000: 52; Hammond, 1981: 8B).

Apart from Strabon, there are any ancient researchers thatprovide information about the Hellenistic and Roman Period harbors of Nicaea. At the research carried out underwater in the freshwater, no mole or a breakwater-like structure was detected which might have revealed the borders of the harbor. The location of the harbor of an ancient city called Apollonia ad Rhyndakos was detected because of a mooring stone found *insitu* position (Fig. 94). In Apollonia, no evidence of a woodpile line or a breakwater was found. The dock of the city was defined through the moorings stone, which was found.

The difference between the freshwater harbors and sea harbors were mentioned under the title of "Ancient Harbors". Unfortunately, as there are no archaeological studies carried out in the fresh water at the Anatolian coasts, it is not possible to compare the evidence related to the harbor. Although there are studies on harbor structures on the lake of Küçük Çekmece (Öniz et al., 2015: 407 ff.), this lake is a lagoon lake with salty water, so there was no commonality found (Lahn, 1948: 54). For this reason, the harbor outside of Anatolia was compared. All the research on the Anatolian coastline was carried out at Mediterranean, Marmara and Aegean Sea harbors. It was detected that sea harbors and freshwater harbors have hydrological differences and different harbor structures. Studies at freshwater lakes are very popular around central Europe.

Considering studies, similar examples come from Colonia Ulpia Traiana (Xanten) at Germania Inferior State of Roman Empire (Leih, 2008: 447-469). Colonia Ulpia Traiana (Xanten) is located on the coast of the Ren River, and is constructed in the form of Hippodamos (Mert, 2005: 174 ff). Common characteristics of these cities are that they were surrounded by strong city walls, founded near water, and constructed in the Hippodamos form[29]. Archaeological research in the city of Colonia Ulpia Traiana started in 1934 and excavations started at the harbor of the city in 1974. After processing the data and

[29]As the excavations held at the city of İznik are only a few, the plan of the city is unknown. However, Strabon mentions that the roads of Iznik are connecting vertically and this shows the roads of İznik were constructed with the technique of Hippodamos.

detecting the plan of the harbor, it was completely filled. During the excavation, data about the pier and dock of the city was received (Leih, 2008: 451). Data indicate that during the reconstruction in the 2nd century AD, the pier and quay structures were shaped. The quay and the pier of Xanten were constructed entirely from wood. It was understood that between the river and the city walls there were no structures, but there was an area, which could be used as a quay (Fig. 95). The pier was located at the level of one of the city gates. It should not be a coincidence that the pier piles at İznik were also located at the level of the only gate opening to the lake (Drawing 8).

Wooden materials excavated in Xanten came from land excavations, not from underwater. The harbor of the city is entirely underground. In the ancient times, this harbor was constructed as a freshwater harbor. It is possible to compare it with Nicaea harbor. As a result of the research carried out in Central European lakes, it was understood that the wood materials could be preserved for long years in the lakes without deterioration. The Society of Bayern Underwater Archeology (Bayerischen Gesellschaft für Unterwasserarchäologie e. V.) held underwater research in 2005 at Starnberger Lake near Roseninsel and detected wooden findings (Fig. 96). According to the C14 reports, wooden materials dated back to between 510 and 390 BC (Schlitzer – Pfederer, 2006: 88). This study was important as it shows how long wood materials could be preserved in freshwater.

Studies show that, like in Central Europe, mole and breakwater structures were unnecessary to protect the harbors from waves in the fresh waters of İznik and Gölyazi. Wooden materials were used more in freshwater harbors than in sea harbors. Wood was preferred in the fresh water harbors because it was more resistant in fresh water than in sea, was relatively cheaper than the stone or marble, easier to form, and a very common material to find. Breakwaters and moles were not constructed in the fresh water harbors, probably because fresh water is calmer than the sea. According to all the evidence from the piles found in Nicaea, the piers of the city harbors were probably Basilinopolis and Gölyaka.

It is impossible to determine the period of the piles from İznik from their shape and where they located. It is known that the function of the structures continued throughout ages in the long living cities. Temples of Ancient Greek and Rome left their places to churches in the Byzantine Period, and with Islam churches became mosques. Although, the form of the buildings changes, the purpose of the buildings stayed the same. It is possible to say the same thing for harbors. For geographical reasons, there aren't many places to locate the harbor around the harbor cities. When the city was founded, the harbor was taken as the center and other structures were constructed around it inside an arc form (Akarca, 1998: 26). Eras passed away and although, the location of the harbors did not change, structures around it were probably reconstructed for various reasons. Piles found at the coast of İznik, Çakırca, Örnekköy and Gölyaka matched with settlements from the maps of Kiepert and Hammond (Map 19-20). As there no marble or stone pier structure was detected at the coast of these cities, I believe there would have been wooden pier structures in the Ancient Period (Drawing 8).

3.3.2. MILETOPOLIS – MELDE

The ancient city of Miletopolis was situated near the road of Mustafakemalpaşa-Karacabey and 4.5km from Mustafakemalpaşa town in Bursa. It is located at the coordinates of 35 616285.22 m E, 4435144.93 m N UTM. The settlement is situated on hills near a large plain (Fig. 97).

Information from the ancient resources is very limited. It is written that the city was located near a lake in 1st century BC. According to some resources, this lake was called Miletopolitis (Strab. XII.8), or for some other resources it was called Artynias (Plin. Nat. V.40). Since its foundation, Miletopolis stayed under the shadow of its neighbor, Kyzikos. Thracian tribes, Dalions, and Mygdonians had settlements in Miletopolis and its surroundings. Residential area of these tribes went until Aisepos River on the west and on the east to the part of Olympos Mountain in Mysian lands (Strab. XII 8, 10).

Since the period of Hadrian, the founder of the city "Miletos" was described in the coins of Miletopolis (Burckhardt, 1932: 1656-1659; Hasluck, 1910: 76 ff.; Schwertheim, 1983: 103). There is no written information about whether the city was a colonial city or not. However because of the inscriptions on the coins, it is possible that Miletopolis was connected with Athens (DNP VIII (2000) 181, s.v. Miletupolis, Miletopolis (E. Schwertheim).). Since the 4th century BC, an Athena head was described on the obverse of the coins, and an owl on the reverse. Moreover, a headstone found in Athens belonged to a citizen from Miletopolis. According to the inscription, Miletopolis was an independent city (Schwertheim, 1983: 118 ff). It is seen that Miletopolis was paying tribute in the lists of BC 410/409 of Delian League, which was established in the 5th century BC (DNP VIII (2000) 181, s.v. Miletupolis, Miletopolis (E. Schwertheim)). In the political situation at the end of the 5th century BC, Miletopolis came under the rule of Athens, while Daskyleion was a Persian satrapy center (Bakır, 1956: 6). For this reason, the coins of the city were designed to show the city as more of an Athenian exponent city rather than to describe the city myths.

Specific information about Miletopolis is limited however. Through the general data, it is possible to determine the Hellenistic Period of the city. After 281 BC, Miletopolis went under the rule of the Seleucid Kingdom (Arslan, 2010: 219).

It is one of the cities located in the territory of Kyzikos (Teichmann, 1991: 148, 151 Pic. 1). When it lost its independent status in AD 25, the city went under the territory of Adramytteion (Plin. Nat. V.32, 123). It was understood that the city trade had developed in this period. Inscriptions mention a great deal of grain and purpur transportation (Schwertheim, 1983: Nr. 26.35; Cremer, 1991: 102). The grave steles prove the economic development (Schwertheim, 1983: 130; Cremer, 1991: 102).

Miletopolis coins of Hadrian Period are important as they show the city was a harbor city (Fig. 98). On the obverse of the coins is a portrait of emperor Hadrian and on the reverse; a standing Miletos figure at the prow of a ship was described. Both sides read "Founder Miletos" (Schwertheim, 1983: 129). According to the coins, Miletopolis probably had a harbor at the coast of Miletopolis Lake, which had a link with the sea.

In Tabula Peutingeriana at the Roman Empire route map, the city was located on a very important route. The road started from Prusa ad Olympum, reached Miletopolis through Apollonia, and from there it continued to Pergamon (Map 20). As it was a harbor city, it had access to the Rhyndakos River, Ulubat Lake and the Marmara Sea.

As a result of the research carried out in the region, it is possible to have information about Miletopolis. Since the 1800s, its neighbor, Kyzikos, and a satrapy center, Daskyleion, received the most attention as part of the research we encountered with the name of Miletopolis. According to Marquart, the road coming from Pergamon was going to Miletopolis through Hadrianotherae (Balıkesir). Moreover, the travelers visiting the province wrote about their impressions (Marquardt, 1836: 24). In his travel notes, confuses Miletopolis Lake with Daskyleion Lake (Hamilton, 1842: 105). In the chapter where he tells about his visit to Kirmasti, he describes the inner part of the area as a flat boggy plain. However, there is no boggy area near modern day Mustafakemalpaşa (Kirmasti).

Another researcher who visited the area in 1902 was geographer Alfred Philippson. Philippson mentions that at the west of modern Melde Slope, there was a bog, and between the bog and the hill, architectural pieces were located. He adds that this area was the ancient city of Miletopolis (Philippson, 1913: 45).

Hasluck reports that Miletopolis was under the dominating area of Kyzikos. He discusses the location of the city very briefly and suggests that it was located at Mihaliç or Melde. Moreover, he mentions that Miletopolis coins were found very intensively in Melde, while in Mihaliç they were found rarely (Hasluck, 1910: 74-76). J. Artue Munro is also one of the researchers who located Miletopolis near the Melde Slope (Munro, 1912: 57-67).

Archaeological excavations carried out in 1975 by the Archeology Museum Directorate of Bursa answered all the questions of the researchers. As a result of the archaeological excavations in the area, which was dug for roadwork, vandalized temple remains were found. Beyond the area, which the team called "C drilling", bath remains were found (Altan et al., 1977: 5, 29).

German epigrapher Elmar Schwertheim had published Miletopolis inscriptions in the second series of Kyzikos and its region inscriptions, and he had abolished the localization problem of the city (Schwertheim, 1983: 89 ff**)**. Moreover, the archaeological remains discovered at the city show the importance of the city in the Hellenistic and Roman Periods[30]**.**

As a result of the research carried on until now the location of the lost city of Miletopolis was detected. The aim of this study is to locate the harbor of the Miletopolis or at least estimate where it could be located. Unfortunately, no archaeological remains related to a harbor were discovered at Melde Slope or around it. Therefore the area of the research was widened and the villages of Tatkavaklık, Derecik, Ocaklı, Yumurcaklı, Gönü, Yolağzı and Ovaazatlı were visited and the evidence of a harbor was investigated (Fig. 99). These villages were chosen especially when the geography of the area was considered. As a result of the research in these villages, no ancient settlement remains were found. The

[30]For grave stele see: Şahin, 2000.

villagers told that the few individual artifacts found in the villages were brought from hillside of Melde Bayırı. As the village headman reported, there were graves on the upper ridge of Derecik Village. Considering where he described, it is probably that this place was the necropolis of the Miletopolis (Fig. 100). Moreover, he described that at the ridge of the Karacabey stud there were also graves. However, no resource or documents were found related to these graves. There was a law in the Roman Period that graves were required to be located outside the settlement (Toynbee, 1971: 73). It is also known that Ancient Period cities could have had more than one necropolis (Başaran, 1998: 353). Considering the mentioned areas as Miletopolis and its necropolis, then the borders of the ancient city of Miletopolis would be outlined (Fig. 101).

As there was no evidence found in the area related to a harbor, I have tried to detect the harbor by considering the geographical conditions of the region. The lakes of Ulubat and Manyas are located to the north of the Anatolian fay line. As a matter of fact, this area is and was very active. This active ground caused lots of geomorphological changes in the Quaternary Period (Turoğlu et al., 2002: 93). E. Lahn mentions in the Neocene Period (23.8 – 1.81 million years ago) a depression area was formed in the Bursa-Gönen depression area. Later in the Quaternary Period (1.81 mya), movement divided this lake into four lakes. With time, two of them became continental and the two lakes left are Uluabat and Manyas (Lahn, 1948: 23).

Philippson mentions that he had visited the region in 1910s. He mentions a boggy area at the west side of the rescue excavation near Melde. He also clearly shows the bog in the map he sketched (Map 21). In our time, this area is entirely drained and buildings were partially constructed in the area (Fig. 102).

When the general area considering the general area of the region, the west coast of Uluabat Lake is 8-10m high and the plain where Miletopolis is located is 10-12m high. Finally, the plain at the west of Karacabey is 10-12m like Melde (Fig. 103). This similarity suggests that this area could have been part of a lake, which had shrunk during thousands of years and had its modern conditions.

In 1910, researchers who had travel to the area mention a bog, but now there is no bog in the area. The changes in the area could be seen even in one hundred year's time. The author who mentions a third lake in the area is Strabo, who lived between 64/63 BC and 24 AD. He lived 2,014 years before now. If the bog could entirely dry out in 100 years, 2,014 years seems to be enough time to dry out the whole lake. The Miletopolis Lake, Strabo mentions, was probably one of the shrunk lakes that Lahn mentions. Another probability is that in the Quaternary Period, the Uluabat Lake was an even a larger lake, which extended until the coast of Miletopolis. Like the other two lakes that disappeared, in time the Uluabat Lake would have also decreased and divided into two. When the area was investigated from the satellite images, the geographical forms around the east and the northwest of the Miletopolis remains support this idea (Fig. 104). The lake of Miletopolis that Strabo mentions was probably a lake divided from Ulubat Lake. The lake would have filled up from various reasons during the years until no trace was left. From research carried out between the years of 1984 and 1998 it was understood that in 14 years, the area of the Uluabat Lake had decreased. In 14 years, Uluabat Lake had decreased from 131.1km^2 to 116.8km^2. This is equivalent of 12% decrease in the area of the lake (Aksoy – Özsoy, 2002: 323).

Harbor cities would have been constructed around the harbor in a range. The city center was the harbor. In many harbors of the ancient cities, temple and bath structures were examined (Zoroğlu, 1994: 45; Trebilco, 2004: 31; Alanyalı – Şen, 2008: 413). According to the evidence, the necropolis of Miletopolis was located at the eastern and northern part; the location of the bath and temple structures from the excavation of the museum and observations of the researcher who described the geography of area in 1900s, the location of the Miletopolis harbor would have been at the west of the area where the museum excavated.

3.3.3. APOLLONIA AD RHYNDAKOS – GÖLYAZI

The ancient city of Apollonia ad Rhyndakos is located on a peninsula and an island connected to the modern Gölyazı, at the northwest part of Uluabat Lake in Bursa. The city consists of a peninsula extending through lake and an island in front of it. Nowadays, a modern bridge is providing access to the island. The city is located at the coordinates of 35 642867.35 m E, 4447508.89 m N UTM (Fig. 105).

The earliest written resource gives the localization of the city. Moreover, this resource is very important as it shows the geographical changes. Strabo mentions three lakes in the area: Apolloniatis, Miletopolitis and Daskylitis. Near the lake of Daskylitis, Daskyleion was located. Near the lake of Miletopolitis, the ancient city of Miletopolis is located. Finally, near the lakeat Rhyndakos, the ancient city of Apollonia is located. The author tells that Kyzikos was an important city and it dominated most of the lands of the region (Strab. XII.8.10). This work is also important, as there are only two lakes surviving to our time. This shows the effect of the passing thousands of years on the geography of the region.

Stephanos Byzantinos mentions that there were twenty-five settlements called Apollonia. He locates Apollonia ad Rhyndakos inside the Mysia borders upon Rhyndakos River (Steph. Byz. Apollonia).

An inscription found in Delphinion at Miletus indicates that the city was a colony of Miletus and Didyma played role in the founding of the city (Greaves, 2003: 164-165). Owing to the archaeological evidence, the city is dated back to the early 4th century BC. On the obverse of the coins, which were found, a reverse anchor with a fish and a letter A could be examined (BMC Mysia, 1963: 8, PL. II, Nr.1-6). Additionally, in the book of Warwick, a coin in Pl. II, number 15 is very interesting (Fig. 106). The coin dates back to the period of Commodus. On the obverse of the coin, a Commodus portrait was described, and on the reverse side, a nude Apollo figure with one leg on the altar (BMC Mysia, 1963: 12). Another element that attracts attention is the description under the altar. Apollo and the altar are described as on a ground with a slight upward slope. When examined carefully, this could

be seen as the prow of a boat [31]. The reverse side of the coin could be descried as a nude Apollo figure, mounted on an altar on a boat prow. It is known that at the founding of the city, Didyma played an important role as much as Miletus. It is undeniable that Didyma was the oracle of Apollo and Apollo was an important god for the city (Fontenros, 1988: 5 ff.). Besides, religion and worshiping were the most important establishable connection between the metropolis (mother city) and colonial city (Greaves, 2003: 143). Even today the bottom of the vessels used in Uluabat (Apolyont) is very small (Fig. 107). According to all the evidence, it is probable that the reverse of the coin represents Apollo coming from Miletos with its cult.

In the 1st century BC, during the Siege of Kyzikos, armies of Mithradates and Lucullus battled at the Rhyndakos River. After the war, women of Apollonia had gone out from where they were hiding and they had taken the goods of the defeated army of Mithradates and the belongings of the dead (Plut. Luc. XI).

After the 1st century BC, a development can be seen in the city. It can be understood from the coins that Apollo cult and freshwater rostrum had played an important role (BMC Mysia, 1963: 9; Aybek – Öz, 2008: 286). As we learn from Pliny, Apollonia was located in Adramytteion territory in the 1stcentury AD. The city brought its legal issues to Adramytteion (Plin. Nat. V.32). It is known that in 120 AD a destructive earthquake happened in the region. Emperor Hadrian had the help of the city of Apollonia, which was destructed from the earthquake (Hasluck, 1910: 69-70).

As studies of the city of Apollonia Ad Rhyndakos are very few, our knowledge about the city is very limited. It is known that in the Byzantine Period, the life in the city was peaceful and the Apemeians and Prusians, who run away from Ottoman attacks, soughtrefuge here (Aybek– Öz, 2008: 287).

One of the most important structures discovered from Apollonia ad Rhyndakos is the temple located in Kız Adası, around one kilometer north of the ancient city and partially underwater (Fig. 108). This temple is dedicated to Apollo with dimensions of

[31]On the Miletopolis coins, dating back to the period of Hadrian, Miletos was also described on a rising ground. See: Fig.98.

70x50m. Its Hellenistic temenos wall is partially underwater and could be followed (Fig. 109).

In the research carried out around the city of Apollonia Ad Rhyndakos, an *in situ* mooring stone was discovered on the city wall at the west of the city (Fig. 110). Unfortunately, as the research carried on, apart from the mooring stone, no evidence was found to indicate that this area belonged to the harbor of the ancient city. The situation of the mooring stone mentioned above is located quite high from the waterfront. The stone is situated on the landside of the modern road, around 2m higher then the lake water level. According to this *in situ* mooring stone position, the water level in ancient times must have been much higher than now. Studies carried out on the lake show the effects of the passing of years on the lake. Between the years 1984 and 1998, the lake shrunk around 12% (Aksoy – Özsoy, 2002: 323).

When I was discussing the ancient city of Miletopolis, I mentioned the possibility that the lake of Miletopolis was a division of the lake of Uluabat. Before the 1st century BC, as Strabo mentions, this lake was probably divided into two as the lakes of Miletopolitis and Apolloniatis. Miletopolis had entirely dried out. The lake of Apolloniatis is also in danger of drying out. Uluabat Lake has a large basin with steep slopes and is fed by rivers, so it inevitable that with the affects of nature, sedimentary erosion would occur. In this condition, the lake could continue its existence for long years as long as no extreme climate changes occurred. However, it is envisioned that because of the human factor, the lake will dry out in the future and this area will turn into farming land or marshy bog area (Uluabat, 2002: 7).

While no other mooring stone was found around the big island where the city was founded, at the islands called Kız Adası along the temenos wall of the temple of the Apollo, four mooring stones were found (Aybek– Öz, 2012: 2.). As seen in the sketches of Ayberk, mooring stones could be seen in two different levels (Aybek– Öz, 2012: 5, Draw. 2). Le Bas and Reinach mention that these stones were situated in three different elevations around the lake (Le Bas – Reinach, 1956: 39). The reason why they were constructed at different elevations was because of the change in water level at the lake. It is known that

the difference in lake water between winter and summer is around 3m (İleri et al., 2014: 48). Because of the dense vegetation, it is not possible to reach the mooring stones found after the cleaning near Aybek. In the research I carried out, it was not possible to reach any mooring stones.

Nowadays thereare more than 2m differences between the mooring stone found at the water level and the mooring stone found at the city. However, the remarkable detail at both of the points is the lack of a protective structure such as a mole or a breakwater. It was impossible to carry out research by boat at the temple, which was surrounded by reeds. On the satellite photo, the temenos wall and the area around it were clearly visible (Fig. 111). At the harbor of the city of Apollonia ad Rhyndakos and the temple of Apollo, no breakwaters were constructed, as it was located at the freshwater. Currently, the coast of the island is used to pull boats up. Based on the mooring stone, the location of the harbor was found at the west of the island. It is logical that mooring stones would be located all around the city in different points as they were located all around the island. People of Apollonia would have tied their boats at different places around the island depending on the weather conditions. When the wind and the waves were coming from the east, boats would have been tied to west and when the wind and the waves were coming from the west, they were tied to the east. Unfortunately, on the other side of the city walls, no other mooring stones were found because of the destruction. Archeological data from Kız Adası have shed light on my research.

CONCLUSION

The research is carried out between the far west of the Bursa Province at the coordinates of 35 T 604257.36 m E, 4472833.43 m N and far east at the coordinates of 35 T 670456.22 m E, 4481877.45 m N, and also includes 135km of coastline and İznik Lake, Uluabat Lake, Miletopolis Lake and a part of Rhyndakos River, situated between Uluabat Lake and the Marmara Sea. As a result of this research, ancient harbor remains were detected in Kurşunlu/Karacabey (Plakia), Ketendere, Kapanca Harbor (Caesarea Germanica), and Sırakayalar (Bryllion). Moreover, in places such as Eşkel (Daskyleion ad Mare), Trilye (Trigleia), Mudanya (Apameia/Myrleia) and Gemlik (Kios), destruction of modern intensive constructions on ancient harbors was examined.

Although the location of the ancient city of Plakia is given in some ancient resources, there were some doubts as to the authenticity of these accounts. Known information about the city included that the city was located at the west of the Rhyndakos River, and was a colony of Pelasg, located on the coastline (Hdt. I.57). In Kurşunlu/Karacabey, a very deconstructed breakwater structure was discovered under the water. These are the only harbor remains discovered between Kurşunlu and the Rhyndakos River. Monastery remains and architectural structure remains found at the upper side of the harbor date the history of the area to an even earlier period. Plakians probably utilized this harbor in early periods and in the Late Ancient Period it was probably used as a monastery harbor. To define this place as the harbor of Plakia, it would be at least supported by inscriptions. For this reason, as there was no other harbor in the region, it is appropriate to describe it as the harbor of the ancient city of Plakia. The harbor was an artificial harbor, constructed with two breakwaters. Breakwaters were constructed with piles of irregular stones.

Matching Daskyleion ad Mare and the harbor of Eşkel was done in the 20th century AD (Hasluck, 1910: 55). For this reason, research is carried out to find the harbor of the city. From the old photos, the location of the harbor was detected and the affect of the modern construction on the harbor and the breakwater was examined. It was understood that the city had only one harbor and it was constructed at the bay. The breakwater was constructed with irregularly piled stones.

It was understood that Kentendere should not be considered as an ancient city because of its location and the archaeological evidence discovered. A breakwater structure constructed by piling up irregular stones was discovered. When the connection between ancient harbors and freshwater resources were taken into consideration, this structure was probably used for small vessels and belonged to the Caesarea Germanica.

During the research at harbor of Kapanca, two breakwater structures were detected. It was understood these breakwaters were constructed with irregullar stone piles. Features of Kapanca harbor and Caesarea Germanica were compeared and it was stated that these two cities were the same city.

During the research carried out at the coasts of Trilye, some archaeological evidence was found for dating the harbor to the Ancient Period. Modern constructions at the coasts are the worst enemies of the ancient harbors. Modern structuring at the coastline of Trilye is also most responsible for the destruction. In the research carried in Trilye, it was understood that this area shouldn't be a settlement but a cult area (Corsten, 1987: 47).

The research carried out in the borders of Mudanya focused around the acropolis, which was detected previously (Şahin, 2013: 101). A harbor structure that could be dated to the Ancient Period was detected in Mudanya, which had been an important harbor city for Prusa since the Roman period. It was understood that in Eşkel and Trilye, like in Mudanya, coastlines were heavily filled and constructed. It was detected that breakwater structures, which were mentioned in 1860s, were demolished (Perrot et al., 1872: 12-14).

As the result of the research carried out between Mudanya and Gemlik, a harbor located at Sarıkayalar was detected. Breakwaters were constructed with irregularly piled stones. During the research held to understand the function of the harbor, it was seen that the road constructions on the hillside of the harbor and stone mine had caused great destruction on the harbor. As a result of the studies held to detect the identity of the ancient city, similarities with the ancient city of Bryllion were found which had previously been known only from written sources. It also appeared to be related to the ancient city located

in Gündoğdu, 3km more inland than the harbor. There is no information about the earlier periods of this city, which some research calls Paladari (Corsten, 1987: 69). The cities should have been located in the area and were investigated from the works of ancient authors and with the matching results, philological pairing attempted to be applied. According to the evidence, the ancient city located in Gündoğdu was probably the ancient city of Bryllion and the harbor structure located on the hill behind the epineion of Bryllion, where Tereia would have been located. For this reason, the lost city of Bryllion and Çiftekayalar near Gündoğdu were probably the same places.

As a result of the research carried out, no harbor or dockyard structure was detected in Gemlik, where there was a very important ship production center, especially after the 10th century (Gencer, 1991: 501-509). It was found that the coastline was filled and was constructed.

During the research of the İznik Lake, pier piles were found in three different locations. When the piles and the ancient cities predicted to be in the area were compared, they were overlapping. It is known that the wood can stay intact in the freshwater. Like in the examples of Bodrum, Myndos, Antalya, Eşkel and Gemlik harbors continued their functions during thousands of years. This situation should be the same in the lakes. At the investigation carried out around the city of İznik, some evidence of breakwater structure was found. At the lake coast of the city, intensive filling could be seen. The piles detected in front of Göl Kapı could be indicating the pile of the ancient city. The same area could be used for centuries by renewing the wood.

Results of the research carried out at the Uluabat Lake have similarities with İznik Lake. A breakwater or mole was found at both of the lakes. At the research carried out in Gölyazı (Apollonia ad Rhydakos) an *in situ* mooring stone was located which showed the location of the harbor. The mooring stone was located 16m more inland than the lake. The road passing between had destroyed the wooden remains.

The area of the ancient city of Miletopolis located on the coast of Miletopolis Lake, which was known from the ancient resources, is now entirely dry (Strab. XII.8). The closest

lake is Uluabat Lake and the distance from the air is 20km. To find the lake Strabo mentioned, the area of the lake was detected by the research carried out on the topography and the geography of the area. As the result of the museum excavations and the topographical data, the location of the harbor was estimated.

In the studies carried out on the Rhyndakos River, between Uluabat Lake and the Marmara Sea, no harbor was found. This study shows even the small sized ships could travel and anchor at the river without needing and harbor structure (Fig. 112). As there was some evidence found in this area, a separate title for this subject was opened.

Research on the coastline and the lakes shows that the entire breakwater structures at the harbors and at the Bursa coastline were constructed with irregular stones. At the freshwater, no evidence of breakwaters was found. No additional structures are needed in freshwaters.

In the 135km coastline three breakwaters were detected. At the location where the cities are still inhabited such as Eşkel, Trilye, Mudanya and Gemlik, harbor structures were destructed. Because the coastline is flat, no harbors were natural harbors. All the harbors detected were artificial sea harbors.

There isn't enough data to date the harbors at the coastline of the Marmara Sea, which was very active since the 7th century BC. The construction style of the breakwaters could not provide any date. However, through the archeological evidence, the ancient city of Plakia dated back to the 4th century BC (BMC Mysia, 1963: 174); Daskyleion ad Mare to the 4th century BC (Bittel, 1953: 1 ff); Caesarea Germanica to the 1st century AD (BMCBithynia, 1963: 123 PL. XVI.11; Kraft, 1972: 196 Nr. 14.A Taf.. 97; Şahin, 2011: 219-220); Apameia/Myrleia to the 4th century BC (Mansel, 1946: 9; Şahin, 2014: 17); and finally Bryllion and Kios to the 5th century BC (Meritt et al., 1939: 476; Charneux, 1966: 212; Avram, 2004: 990).

The distance between Plakia and Daskyleion ad Mare is 33km; Daskyleion ad Mare to Caesarea Germanica, 5km; Caesarea Germanica to Apameia/Myrleia, 14km; Apameia/Myrleia to Bryllion, 9km; and Bryllion to Kios, 17km. Common points in the

distances between the harbors couldn't be seen. So, when the harbors were constructed, not the distance but the geographical conditions were considered.

The Marmara Sea received attention from the Aegean people since the 7th century BC. In this research, I tried to examine the maritime routes of the Marmara Sea until the Ottoman Period through the archaeological evidence and written sources. During this research, political events around the Marmara Sea were also considered.

During the research carried out, it was understood that some of the cities had harbors described on the coins of the city while some had the prow of a war ship. While in Kios and Kyzikos, a war ship prow was described on the city coins, and at Caesarea Germanica, a harbor was described. The reason for this difference couldn't be solved during the research within Bursa Province. As a result of this, the research area will be widened, all the coinage will be compared and the reason for the difference will be investigated. Coins of the cities, which have similar descriptions to Kios, Myrleia and Caesarea Germanica, will be examined and the connection to the cities will be investigated. In particular, the reason of the harbor and prow descriptions will be examined. During this research, the situation of the city at the sea trade roads, its status, and the structures related to the harbors in the cities will be investigated.

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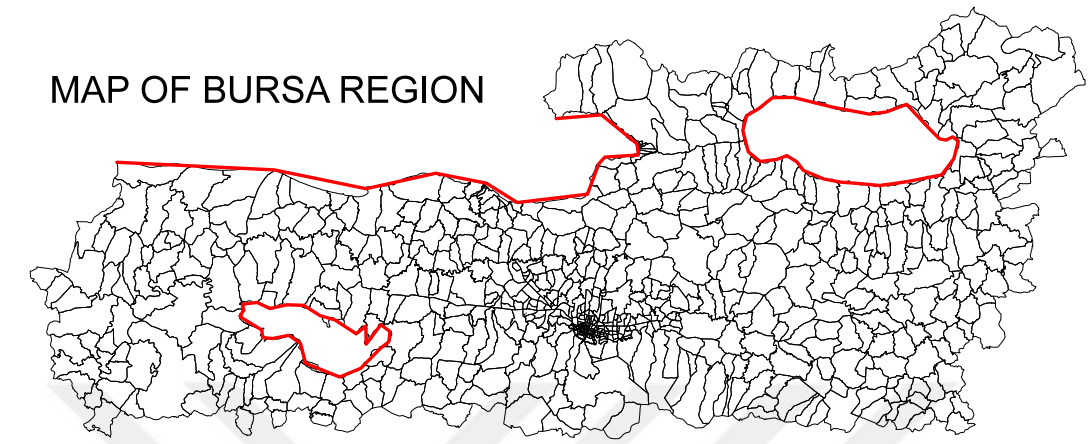
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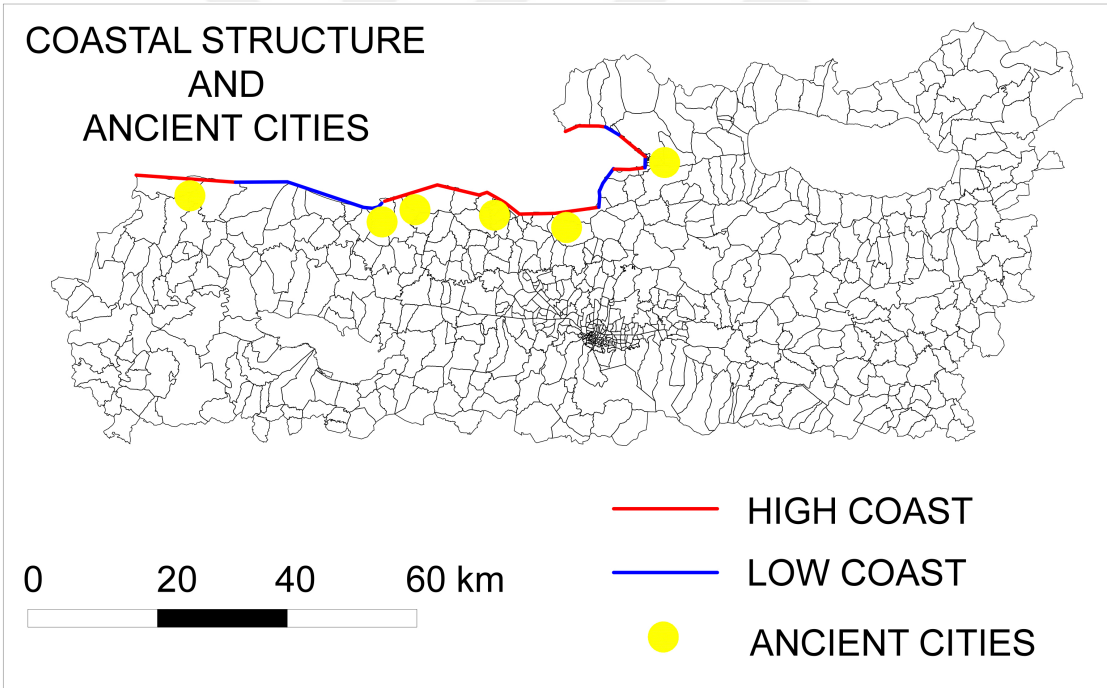
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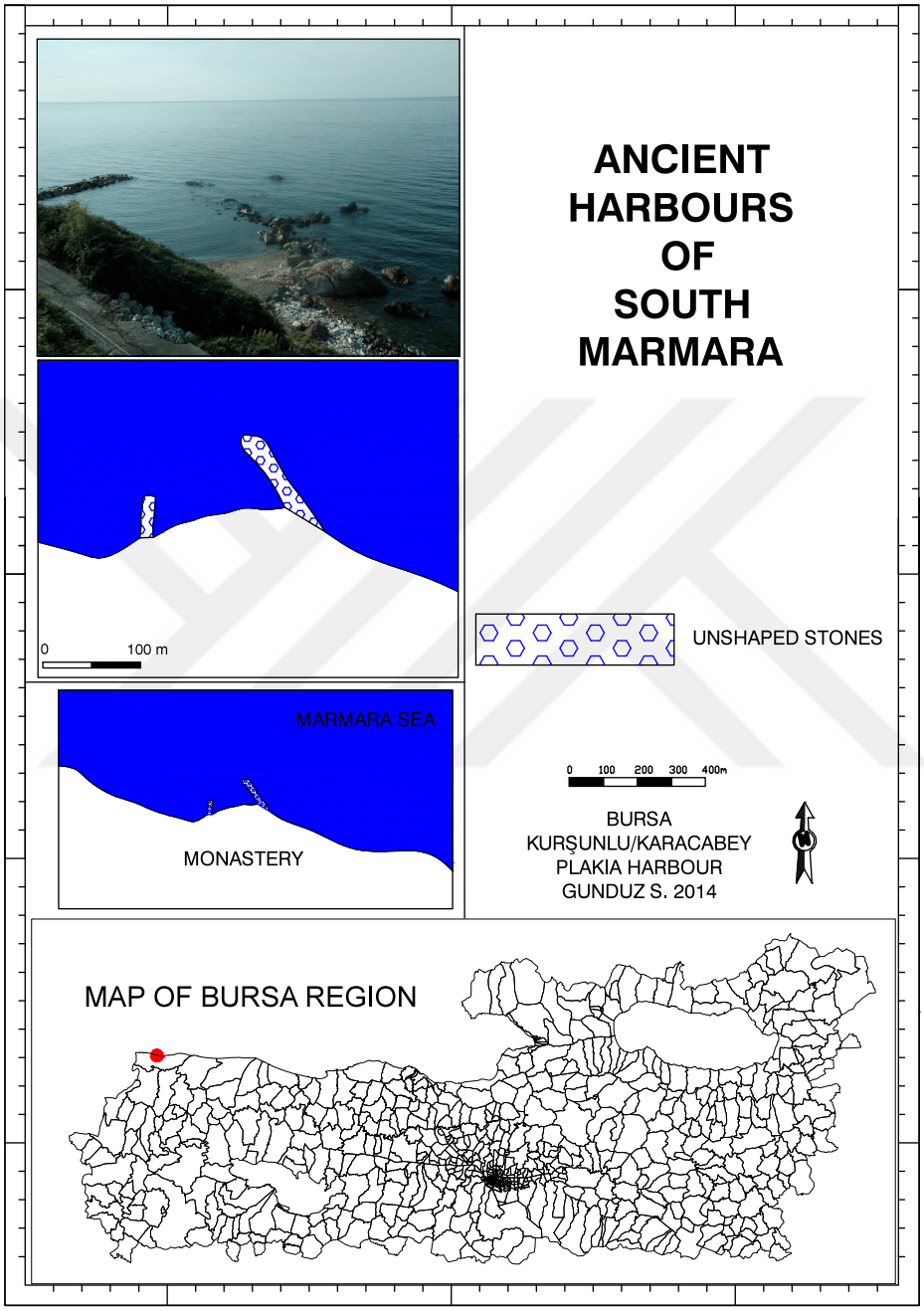
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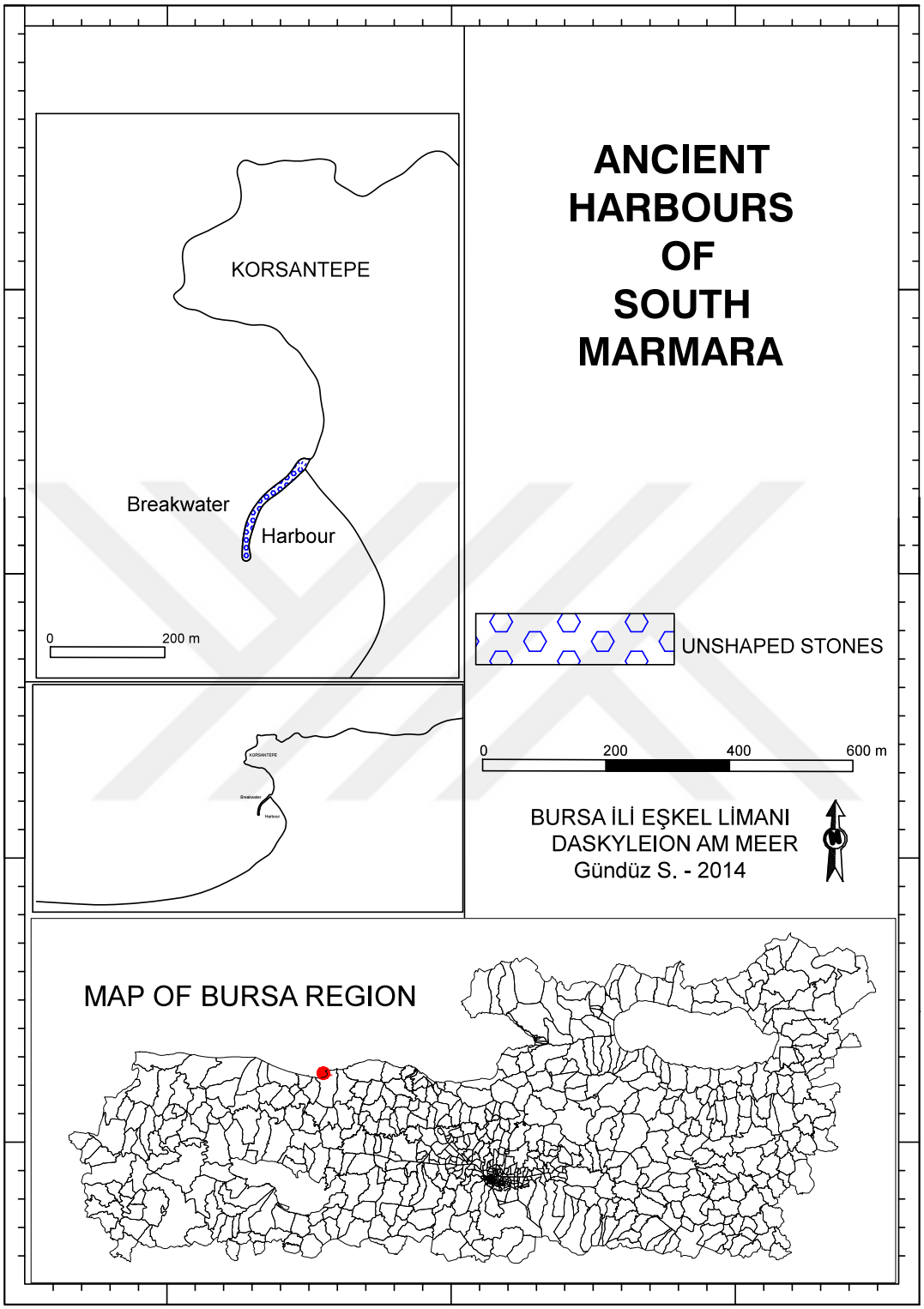
Drawing 1



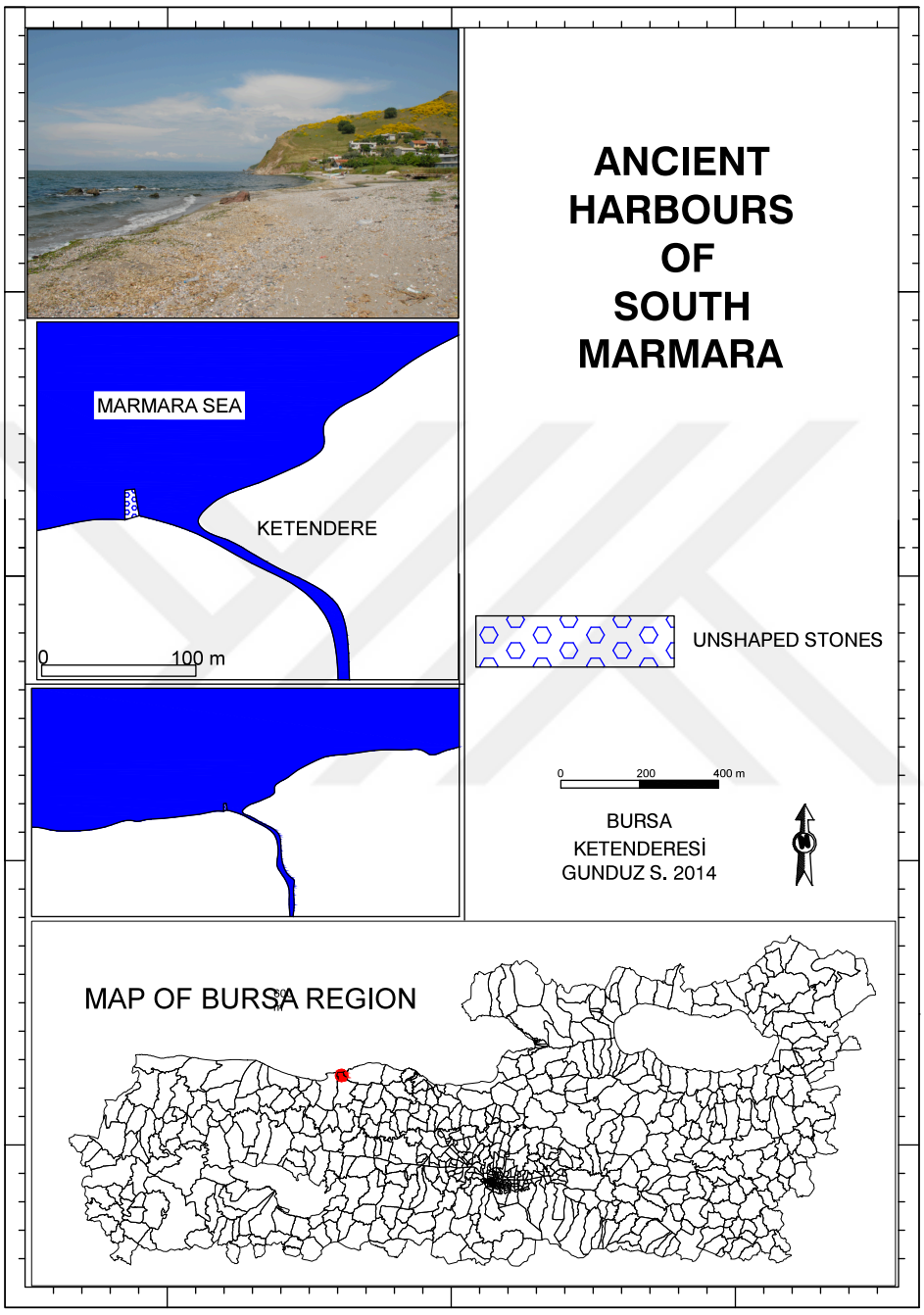
Drawing 2


ANCIENT
HARBOURS
OF
SOUTH
MARMARA
0
100 m
UNSHAPED STONES
MARMARA SEA
MONASTERY
0 100 200 300 400m
BURSA
KURŞUNLU/KARACABEY
PLAKIA HARBOUR
GUNDUZ S. 2014
MAP OF BURSA REGION

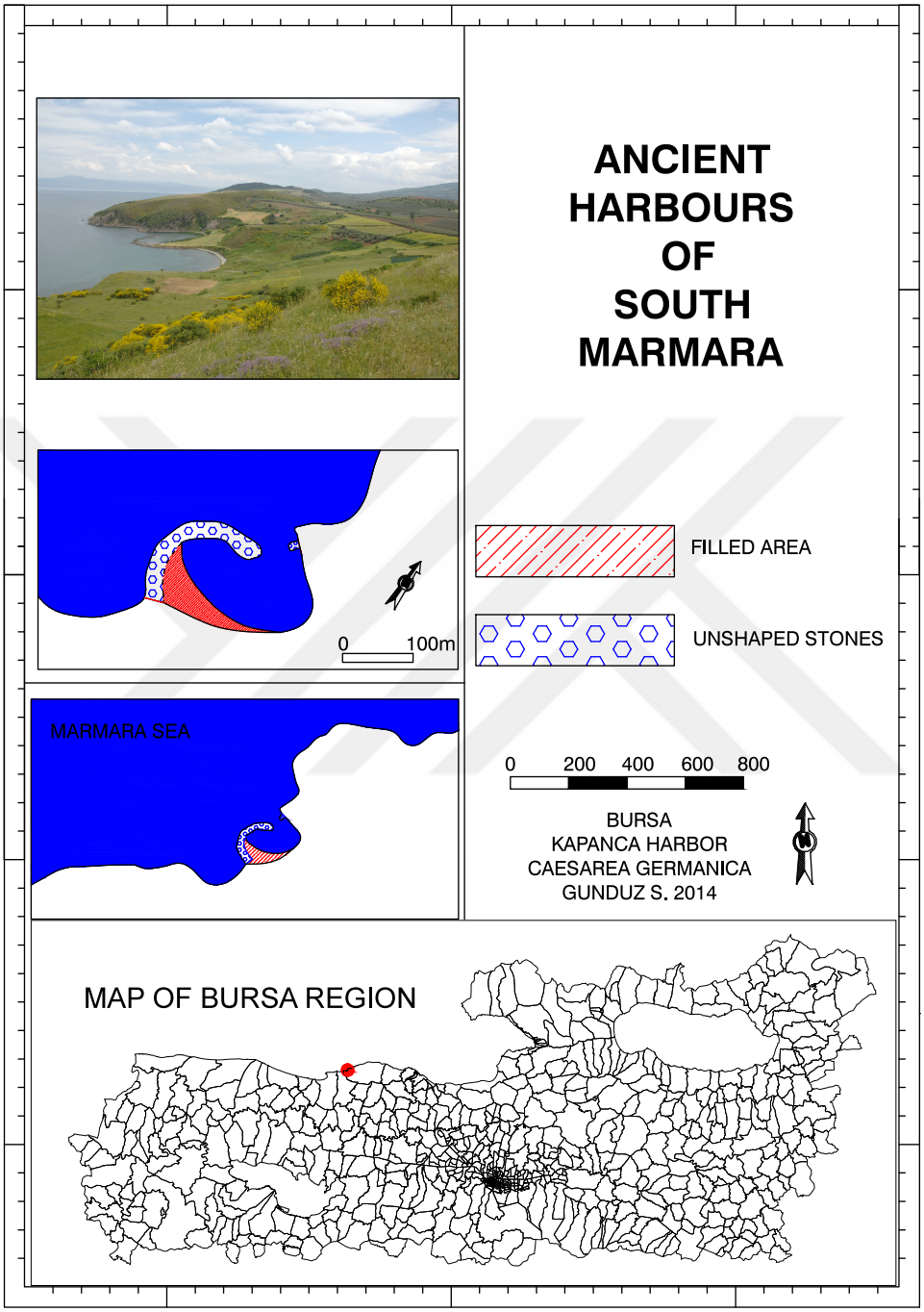
Drawing 3


ANCIENT
HARBOURS
OF
SOUTH
MARMARA
KORSANTEPE
Breakwater
Harbour
0
200 m
UNSHAPED STONES
0
200
400
600 m
BURSA İLİ EŞKEL LİMANI
DASKYLEION AM MEER
Gündüz S. - 2014
MAP OF BURSA REGION

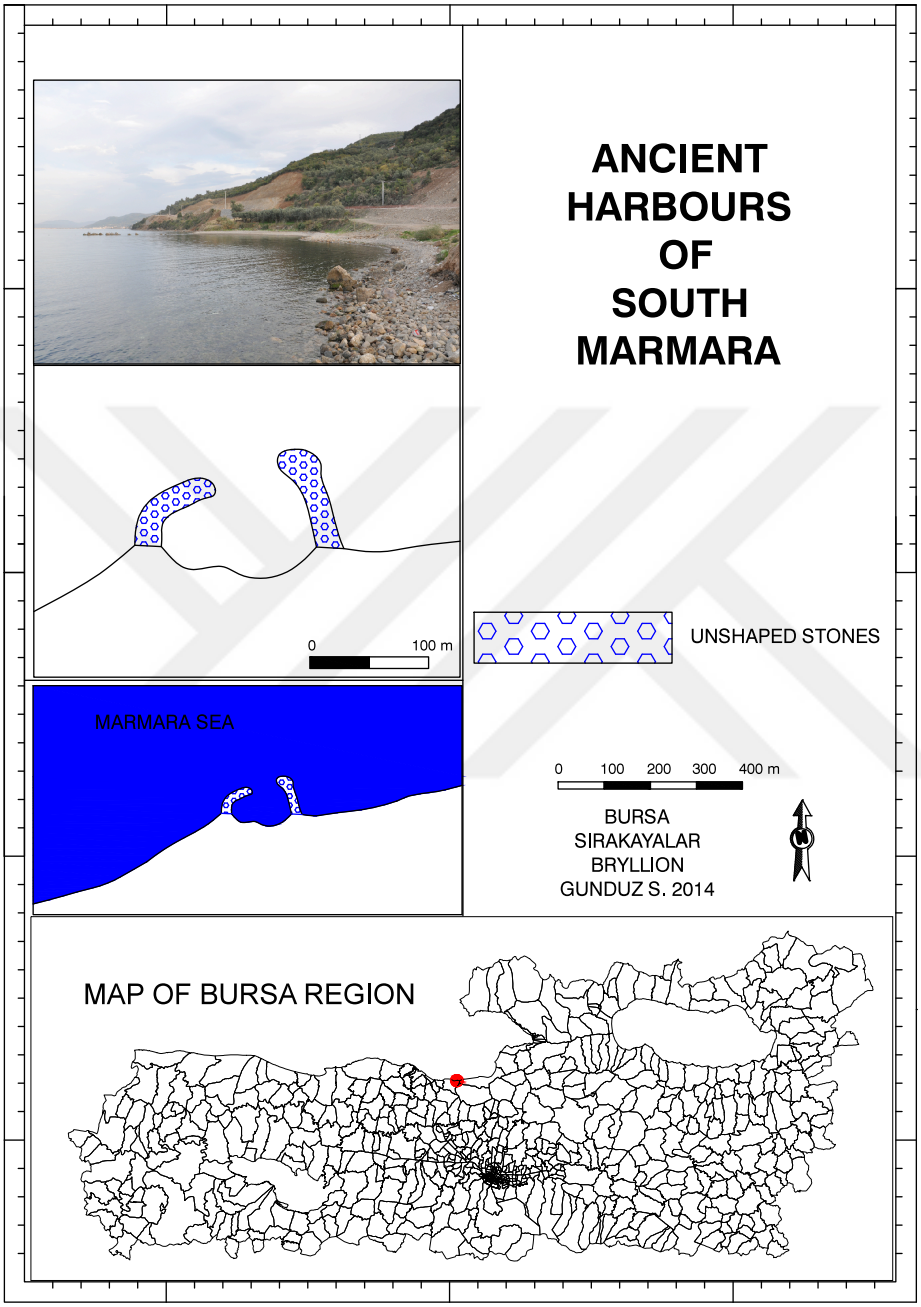
Drawing 4


ANCIENT
HARBOURS
OF
SOUTH
MARMARA
MARMARA SEA
KETENDERE
0
100 m
UNSHAPED STONES
0
200
400 m
BURSA
KETENDERESİ
GUNDUZ S. 2014
MAP OF BURSA REGION

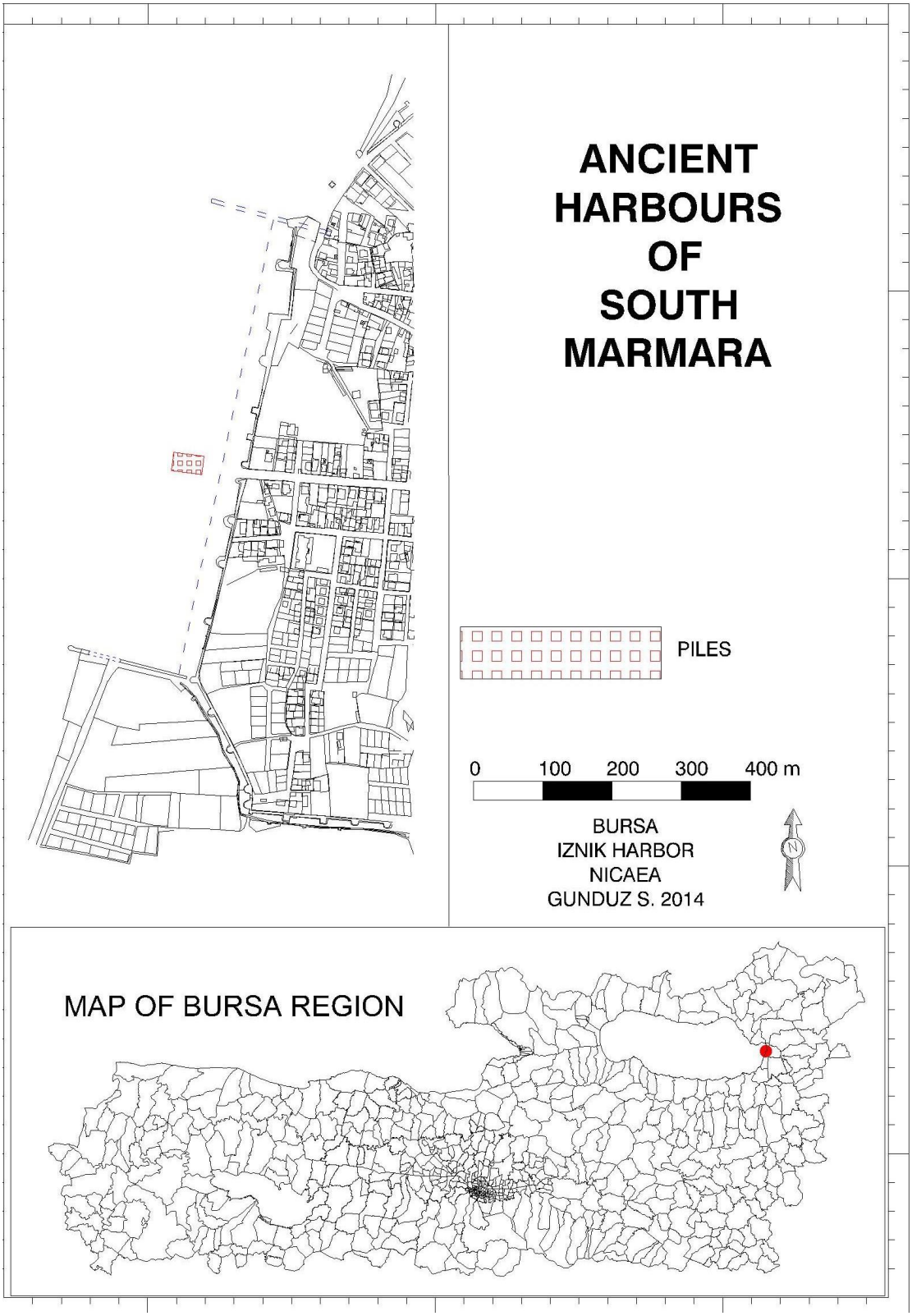
Drawing 5


ANCIENT
HARBOURS
OF
SOUTH
MARMARA
FILLED AREA
UNSHAPED STONES
0 100m
MARMARA SEA
0 200 400 600 800
BURSA
KAPANCA HARBOR
CAESAREA GERMANICA
GUNDUZ S. 2014
MAP OF BURSA REGION

Drawing 6

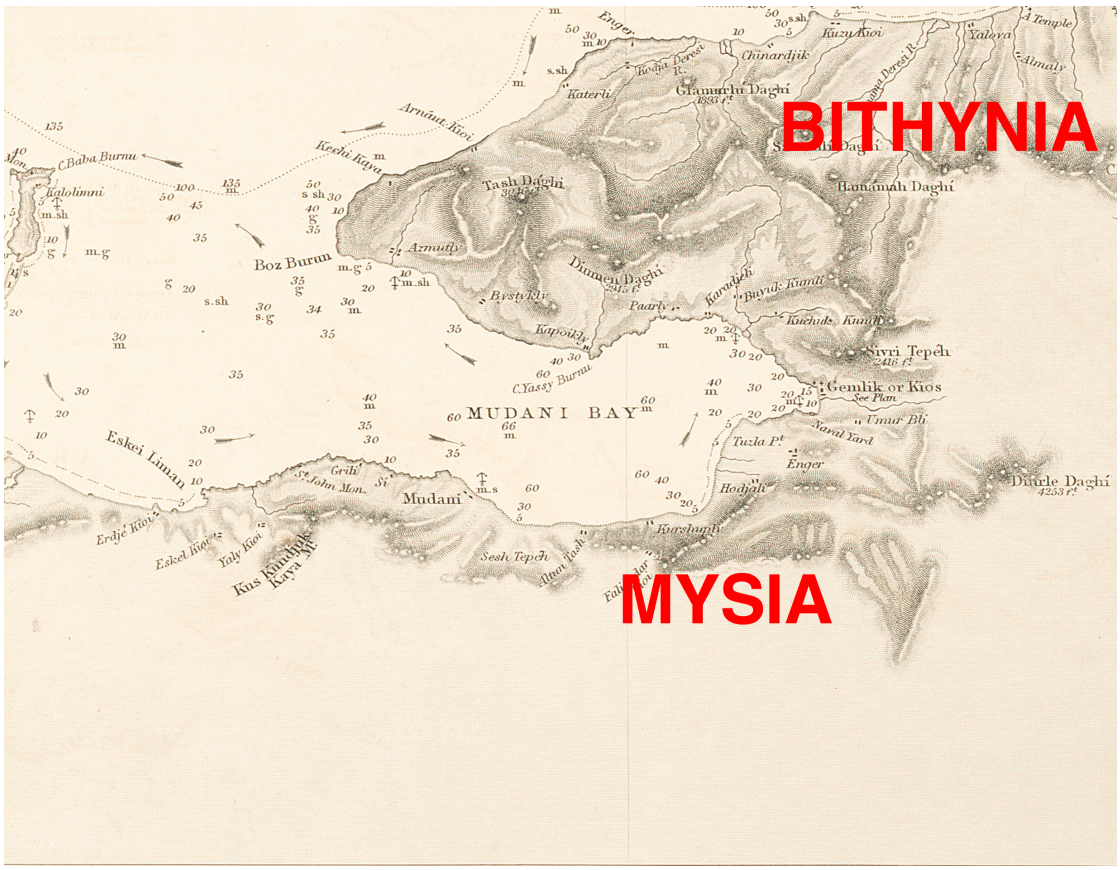

ANCIENT
HARBOURS
OF
SOUTH
MARMARA
0
100 m
UNSHAPED STONES
MARMARA SEA
0
100
200
300
400 m
BURSA
SIRAKAYALAR
BRYLLION
GUNDUZ S. 2014
MAP OF BURSA REGION

Drawing 7

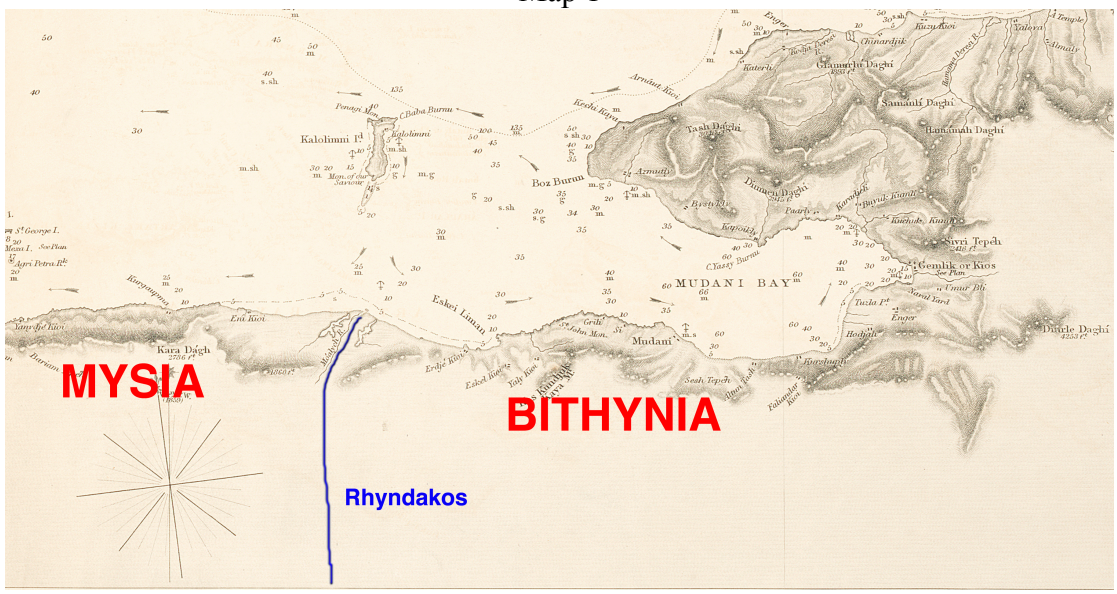

ANCIENT
HARBOURS
OF
SOUTH
MARMARA
PILES
0 100 200 300 400 m
BURSA
IZNIK HARBOR
NICAEA
GUNDUZ S. 2014
N
MAP OF BURSA REGION

Drawing 8

MAPS:


BITHYNIA
MYSIA
MUDANI BAY
Mudani
Eskei Liman
Boz Burun
Tash Dághi
Dumen Daghi
Gemlik or Kios
Siyri Tepeh
Kapoidji
Hodjali
Enger
Durle Daghi
Banamah Daghi
Kalolimni
C. Baba Burnu
C. Yassy Burnu
Armaut Kioi
Kuzu Kioi
Chinardjik
Katerli
Glaurthi Daghi
Yalova
Almaly
Azmutly
Paarly
Kurshunlu
Sesh Tepeh
Erdje Kioi
Yaly Kioi
Kus Kunduk Kaya
Tuzla Pt.
Yaral Yard
Umur Bli

Map 1


MYSIA
BITHYNIA
Rhyndakos
MUDANI BAY
Mudani
Eskei Liman
Boz Burun
Tash Dághi
Dumen Daghi
Gemlik or Kios
Siyri Tepeh
Kapoidji
Hodjali
Enger
Durle Daghi
Banamah Daghi
Samanli Daghi
Kalolimni
C. Baba Burnu
Armaut Kioi
Kuzu Kioi
Chinardjik
Katerli
Glaurthi Daghi
Yalova
Azmutly
Paarly
Kurshunlu
Sesh Tepeh
Erdje Kioi
Yaly Kioi
Tuzla Pt.
Yaral Yard
Umur Bli
Kara Dágh

Map 2



Map 3



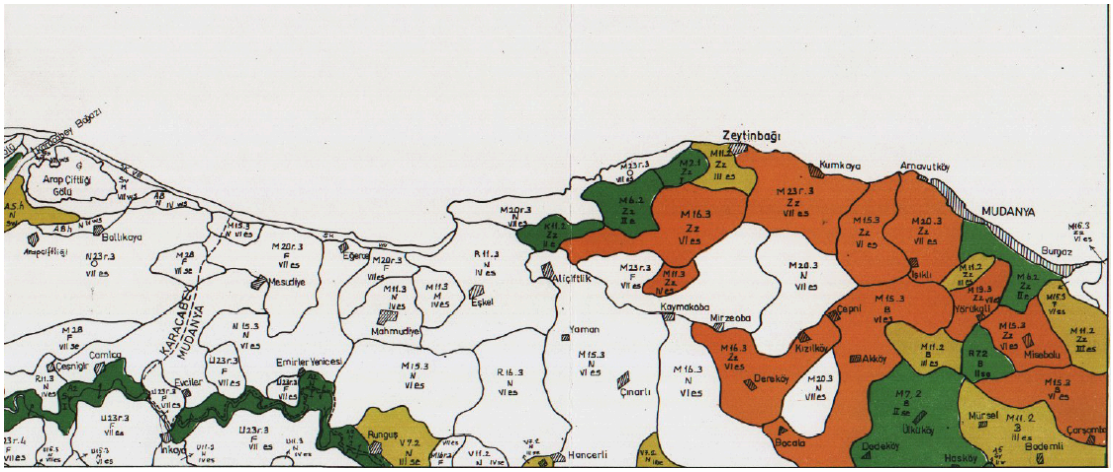
Map 4


ODRYSSIAN THRACE
Epidamnos
Amphipolis
Abdēra
Maroneia
Kypsela
Perinthos
Byzantion
Khalkēdōn
Aigai
MACEDON
Pydna
Olynthos
Athos
Sestos
Lampsakos
Abydos
Kyzikos
Daskyleion
HELLESPONT
PHRYGIA
THESSALY
Larissa
THRACE
Lēmnos
Imbros
Kerkyra
EPIRUS
Sybota
Ambrakia
Pharsalos
Pherai
Mēthymna
LESBOS
Mytilēnē
Pergamon
PERSIAN EMPIRE
Oreos
Skyros
EUBOIA
Naupaktos
Delphoi
Khalkis
Eretria
Thēbai
Korōneia
Tanagra
ISLANDS
KHIOS
Smyrnē
Sardeis
LYDIA
Sikyōn
Megara
Karystos
IONIA
Korinthos
Athēnai
Andros
Ephesos
Mantineia
Argos
Aigina
Samos
Olympia
Tegea
Milētos
Dēlos
KARIA
Halieis
NAXOS
Halikarnassos
Kibyra
Pylos
Sparta
Mēlos
LYKIA
Eurymedōn
Gytheion
KARIA
Rodos
Xanthos
Lindos
RODOS
Athens and dependencies
Athenian allies
Cleruchy of Athens
Sparta and allies
Persian Empire
Battle
Revolt against Athens
Kydōnia
Knōssos
KRĒTĒ
Greece and the Aegean c. 448 BC
© Ian Mladjov

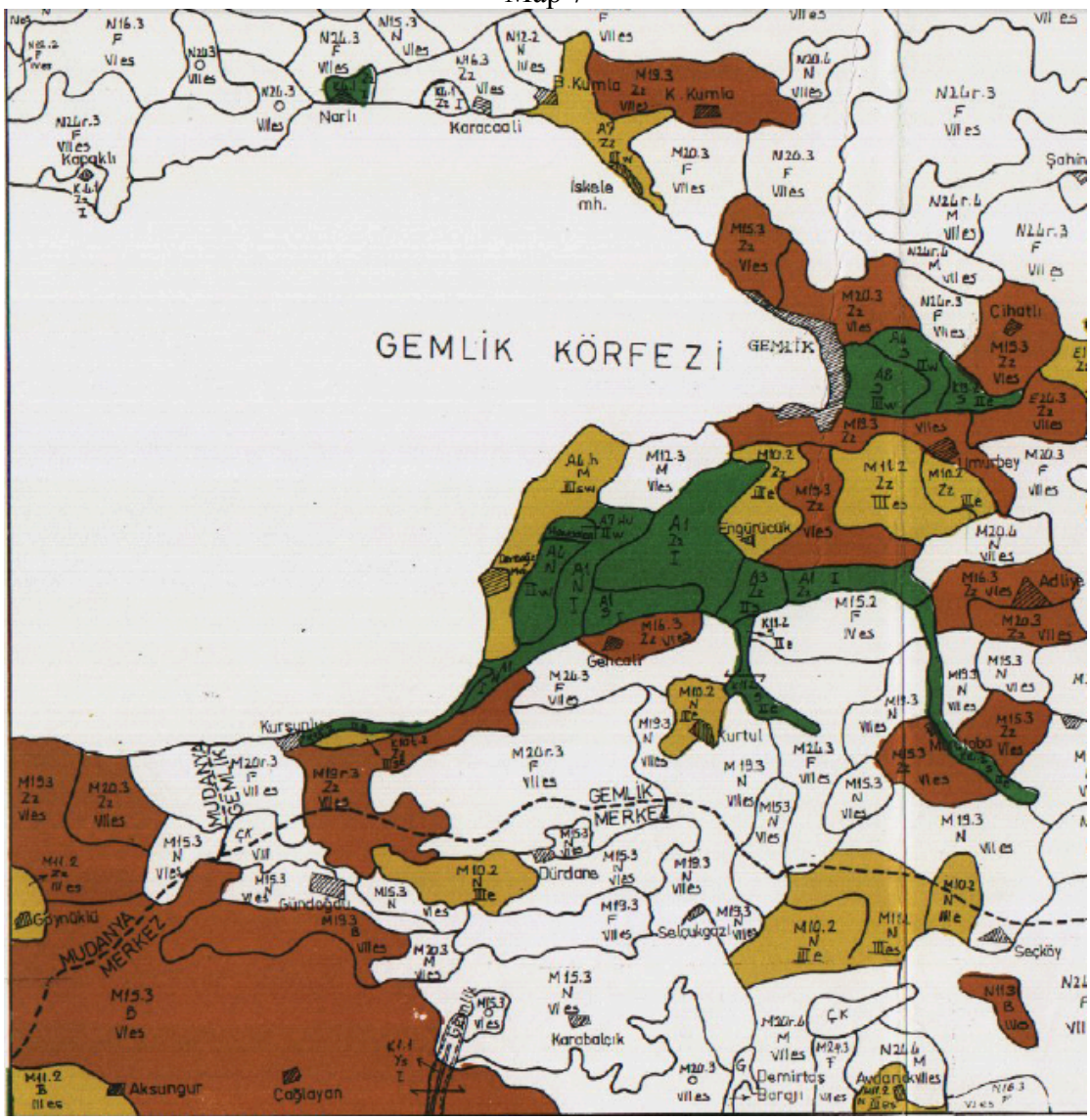
Map 5


Scythians
Black Sea
Caspian Sea
Aral Sea
Massagetae
Sakas
Chorasmii
Dahae
ILLYRIA
Getae
THRACE
MACEDONIA
Pella
Thessalonica
EPIRUS
Byzantium
Heraclea
PARTHALONIA
BITHYNIA
Sinope
PONTUS
Trapezus
COLCHIS
CAUCASUS
Olbia
Panticapaeum
Tanais R. (Don)
Iaxartes R.
Alexander, after succeeding his murdered father, strengthened his kingdom in Macedonia and in 334 B.C. crossed the Hellespont with an army of about 35,000 men.
Alexander defeated the western satraps of Darius III at the Granicus R. near Zeleia.
Alexander subdued the eastern Persian satrapies after a long and difficult campaign. At Maracanda Alexander killed his friend Cleitus.
Alexander's army returned to Bactra. Beyond the Hyphasis R.
Maracanda (Samarkand)
Alexandria Eschate
SOGDIANA
Bactra
BACTRIA
Oxus R.
HELLAS
Athens
Sparta
Ephesus
LYDIA
MYSIA
Zeleia
Ilium
Sardis
Ancyra
PHRYGIA
CAPPADOCIA
Mazaca
PISIDIA
Ipsus
CARIA
LYCIA
Cilician Gates
Zagros Mts
Tarsus
Issus
Antioch (300 B.C.)
Nisibis
Ninus
Gaugamela
Arbela
MEDIA
HYRCANIA
Hecatompylus
ARIA
PARTHIA
Rhagae
Caspian Gates
Ecbatana
Alexandria Arion (Herat)
Prophthasia
DRANGIANA
Alexandria Arachosiorum
ARACHOSIA
Taxila
Bucephala
Nicaea
Alexandria
INDIA
Patala
Harmozia
GEDROSIA
CARMANIA
Carmana
Persepolis
Susa
SUSIANA
Seleucia (Opis)
Babylon
BABYLONIA
Persepolis was looted and burned by Alexander in 331 B.C.
Alexander died at Babylon, June 13, 323 B.C., after a short illness.
Seleucus ceded Alexander's eastern provinces to Sandracottus of India for 500 war elephants (302 B.C.).
While Nearchus explored the Arabian Sea, Alexander made the difficult overland march to return to Babylon.
Persian Gulf
Arabian Sea
Mediterranean Sea
CRETE
RHODES
CYPRUS
CYRENAICA
Cyrene
LIBYA
Alexandria
PHOENICIA
Tyre
SYRIA
Damascus
JUDAEA
Gaza
Jerusalem
Petra
Nabataeans
Sinai
Pelusium
Memphis
Ammonium
Alexander founded the city of Alexandria in 332 B.C. He visited the oracle of Ammon and was told of his divine origin.
EGYPT
Nile R.
Ptolemais
Thebes
Syene
LIBYAN DESERT
After defeating Darius III at Issus Alexander occupied Phoenicia, Judaea and Egypt.
At Gaugamela in 331 B.C. Alexander defeated the reorganized Persian army. Darius fled to Media and was later slain by his own men.
THE EMPIRE OF ALEXANDER THE GREAT
323 B.C.
AND THE KINGDOMS OF ALEXANDER'S SUCCESSORS
c. 305 B.C.
Copyright by C. S. HAMMOND & CO., N.Y.
Kingdom of Antigonus Cyclops
Kingdom of Seleucus
Kingdom of Ptolemy
Kingdom of Lysimachus
Kingdom of Cassander
Prior to the Battle of Ipsus 301 B.C.
Scale of Miles
0 100 200 300 400 500
Alexander's Route
Nearchus' Voyage
Major Battles Fought by Alexander
Limits of Alexander's Empire 323 B.C.

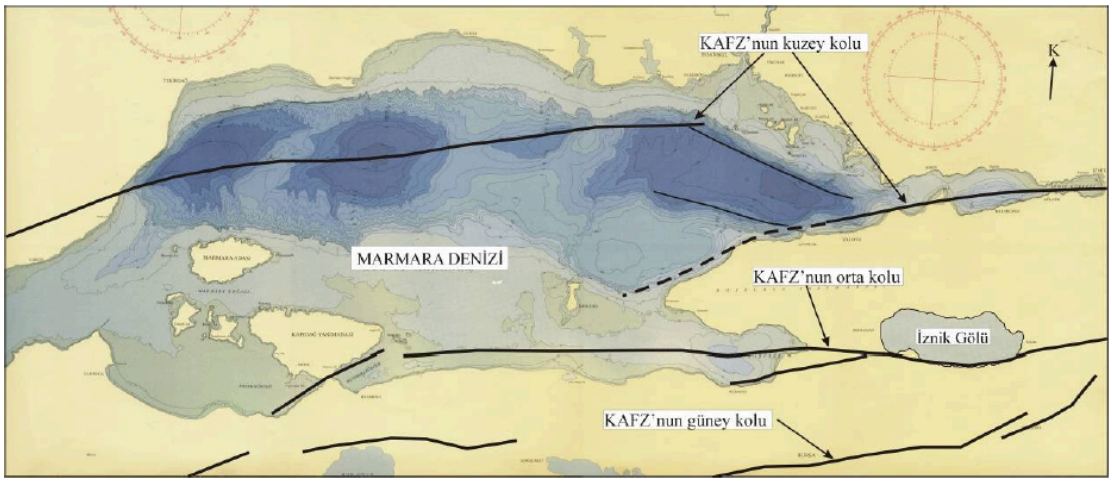
Map 6


Zeytinbağı
Kumkaya
Arnavutköy
MUDANYA
Burgaz
Arap Çiftliği Gölü
Balıkaya
Mesudiye
Eğerci
Mahmudiye
Eşkel
Atiçiftlik
Yaman
Kaymakoba
Mirzeoba
Çepni
Işıklı
Yeniköy
Misebolu
Çamlıca
Emirler Yenicesi
Evciler
Çınarlı
Kızılköy
Akköy
Derekoy
Bocala
Dereköy
Ülküköy
Müsel
Hasköy
Bademli
Çarşamba
Hancerli
KARACABEY
MUDANYA

Map 7


GEMLİK KÖRFEZİ
GEMLİK
Narlı
Karacaali
B.Kumla
K.Kumla
İskele mh.
Kapaklı
Şahin
Cihatlı
Yımurbey
Engürücük
Adliye
Gehcatlı
Kurşunlu
Kurtul
Dürdane
Selçukgazi
Seçköy
Karabalçık
Demirtaş
Aksungur
Çağlayan
GEMLİK MERKEZ
MUDANYA MERKEZ
MUDANYA GEMLİK

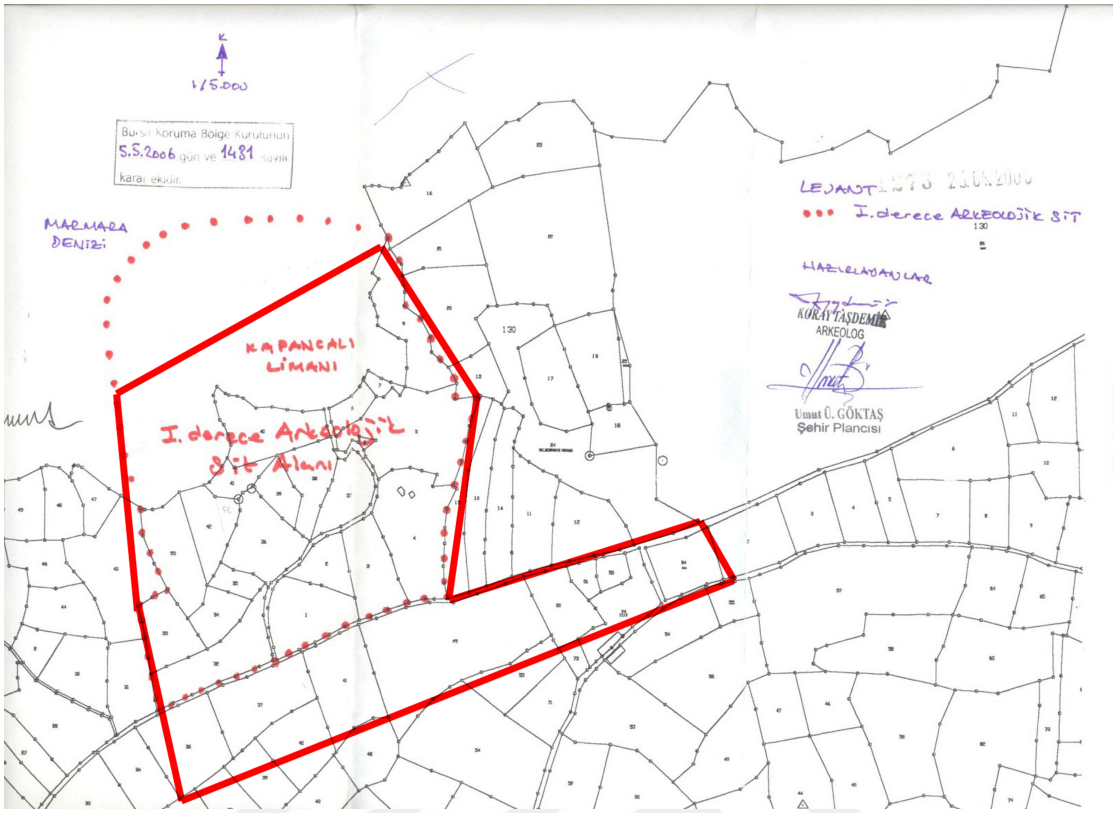
Map 8


KAFZ'nun kuzey kolu
K
MARMARA DENİZİ
KAFZ'nun orta kolu
İznik Gölü
KAFZ'nun güney kolu

Map 9


Kalolimnos I.
(tk. Emir Ali Adasi)
BYSBICUS (BESBICUS) I.
C. H. Georgios
C. Lena
C. Karos
ARA MEER
OPONTIS
SINUS CIANUS
Boz Burun
POSIDIUM PR.
Jasi Burun
Gemlik
(gr. KIOS CIUS)
Tuzla Burun
SCYLACE?
ANDACUS F.
DASCYLIUM
GELBES
ECHELEUS
DASCYLITIS
ODRYSES F.
Abuliond Gölü
APOLLONIA
Shirine Adasi
Halil Bey Adasi
H. Konstantinos
BRUSA
PRUSA

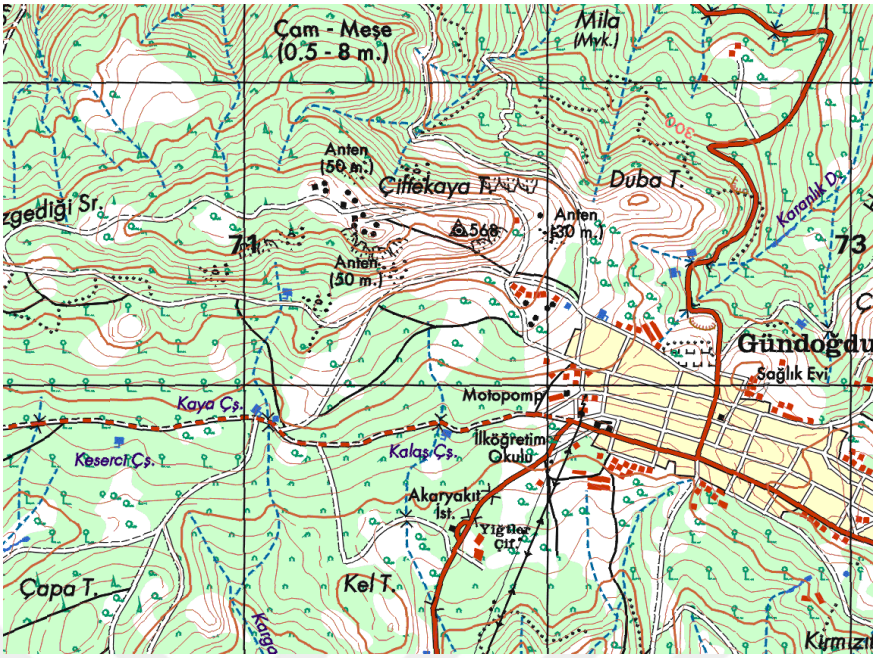
Map 10


1/5.000
MARMARA DENİZİ
KAPANCALI LİMANI
I. derece Arkeolojik Sit Alanı
I.derece ARKEOLOJİK SİT
KORAY TAŞDEMİR
ARKEOLOG
Umut Ü. GÖKTAŞ
Şehir Plancısı

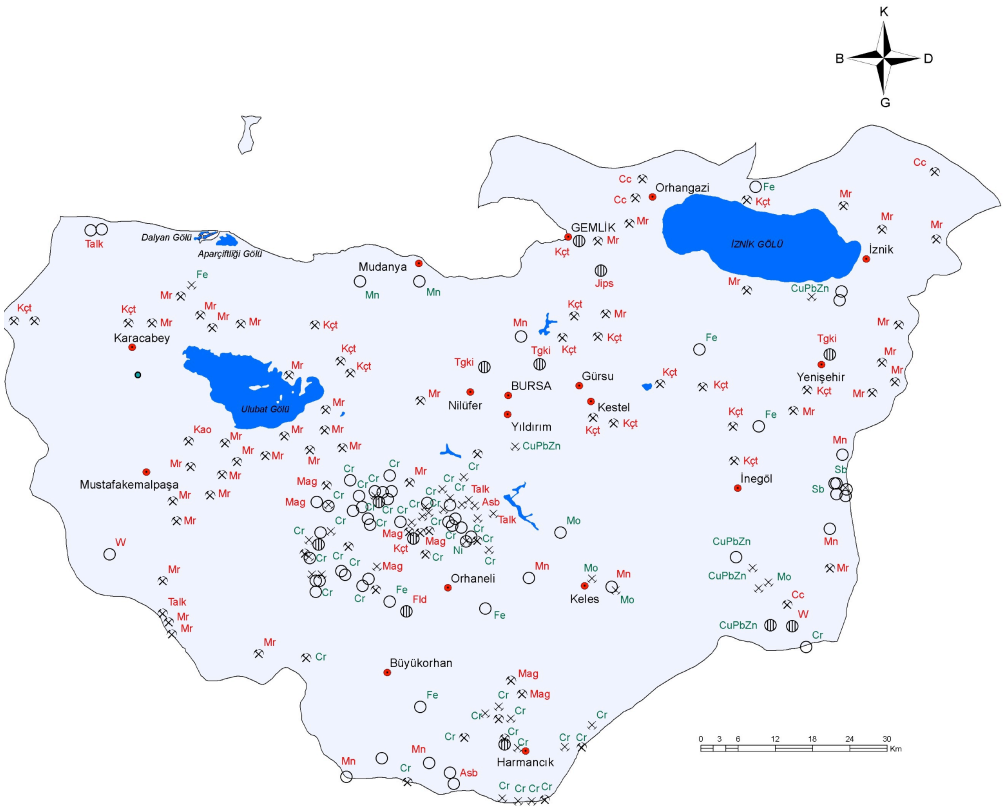
Map 11


ANCIENT COASTLINE
ANCIENT HARBOUR

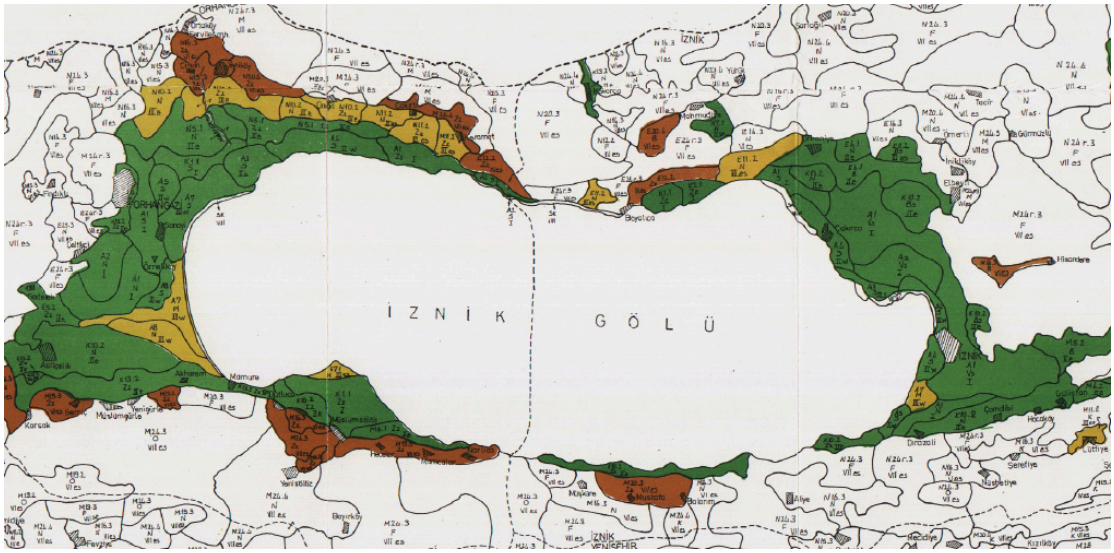
Map 12


Çam - Meşe
(0.5 - 8 m.)
Mila
(Myk.)
Anten
(50 m.)
Çiftekaya T.
Duba T.
Anten
(30 m.)
Anten
(50 m.)
Gündoğdu
Sağlık Evi
Motopomp
Kaya Çş.
Kalaşı Çş.
Keserci Çş.
İlköğretim
Okulu
Akaryakıt
İst.
Çapa T.
Kel T.

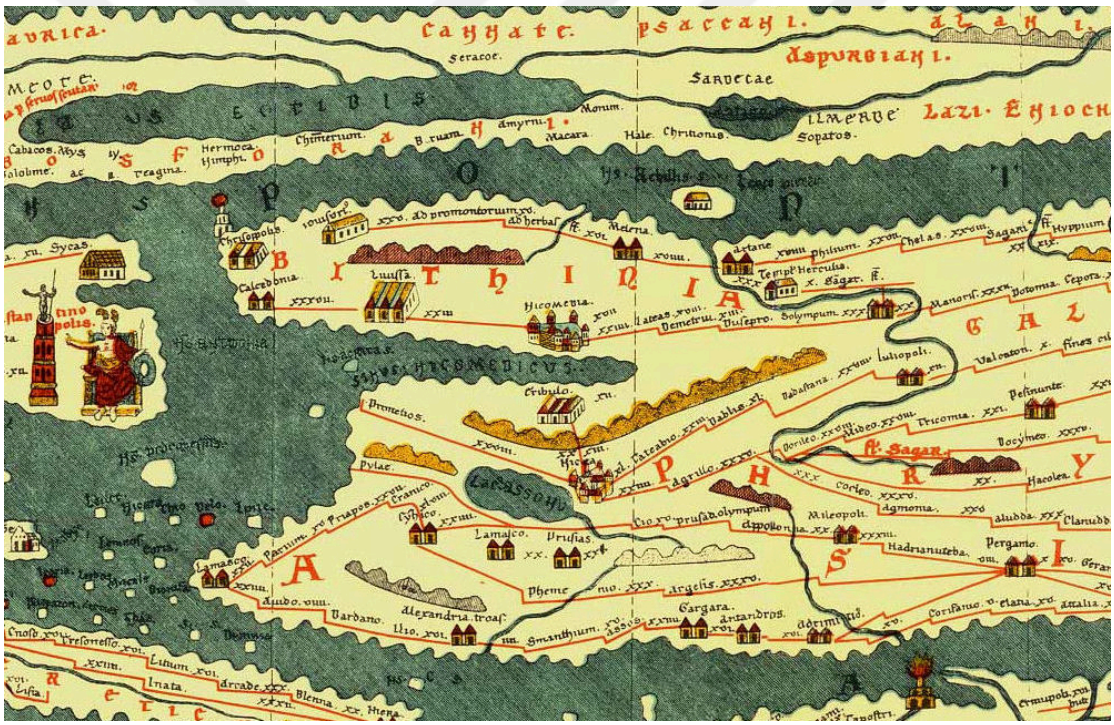
Map 13


K
B
D
G
Orhangazi
GEMLİK
İZNİK GÖLÜ
İznik
Mudanya
Dalyan Gölü
Aparçiftliği Gölü
Karacabey
Uluabat Gölü
BURSA
Nilüfer
Yıldırım
Gürsu
Kestel
Yenişehir
İnegöl
Mustafakemalpaşa
Orhaneli
Keles
Büyükorhan
Harmancık
0 3 6 12 18 24 30
Km

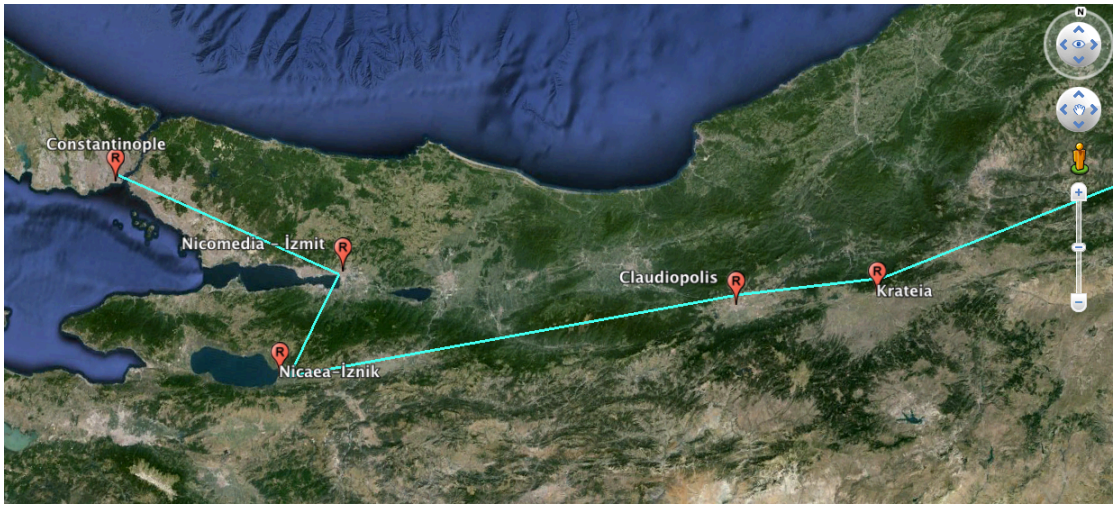
Map 14


İZNİK GÖLÜ
İZNİK

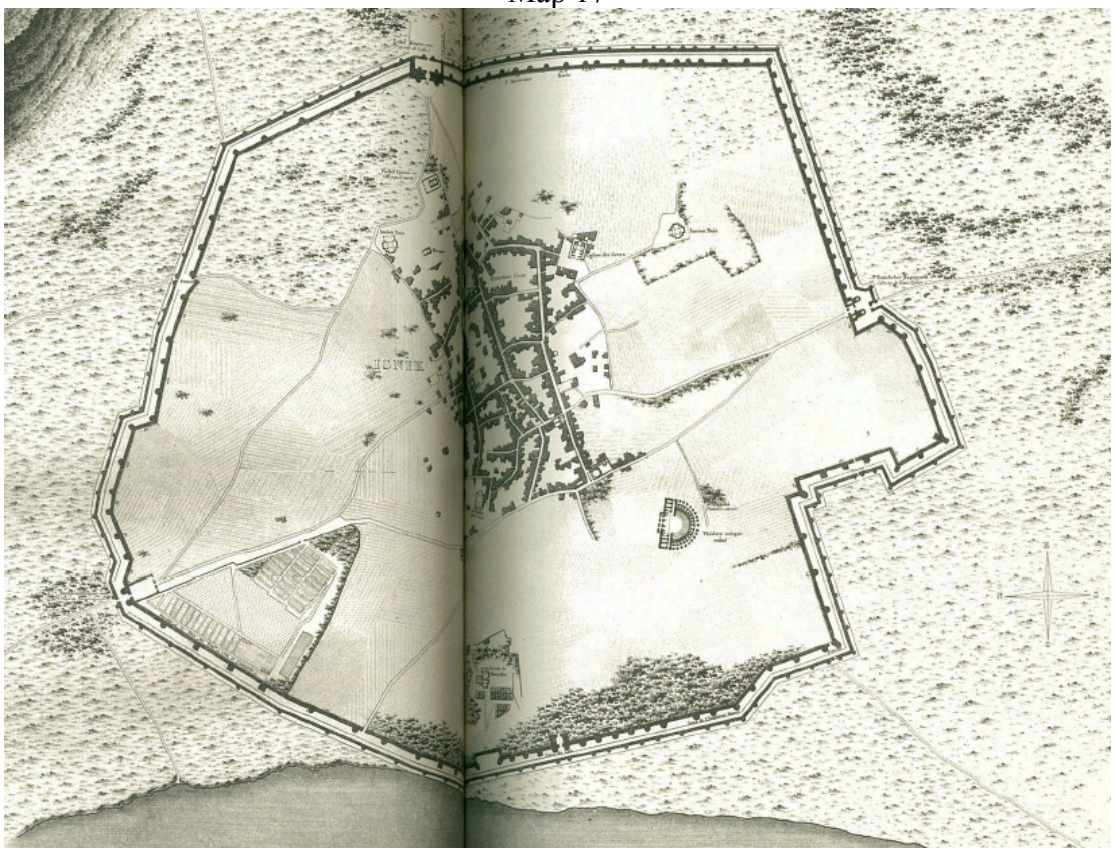
Map 15


BITHINIA
PHRYGIA
Nicomedia
Nicaea
Prusias
Pergamo
Hadrianutheba
Cyzicum
Lampsacum
Parium
Abydo
Sagari fl.
Sangarius fl.
Hermocaprum
Chrysopolis
Chalcedonia
Heraclea
Tium
Amastri
Sinopen
Amisum
Trapezunta
Cerasunta
Cotyora
Polemonium
Comana
Zela
Amasia
Neocaesarea
Phazemon
Gangra
Pompeiopolis
Tarsus
Adana
Mopsuestia
Anazarbus
Seleucia
Antiochia
Laodicea
Apamea
Synnada
Dorylaeum
Nicopolis
Ancyra
Pessinunte
Tricomia
Iuliopoli
Valentia
Bocylmeo
Hacolea
Agmonia
Miletopoli
Apollonia
Philadelphia
Sardes
Thyatira
Pergamo
Adramyttium
Assos
Alexandria troas
Ilio
Smyrnam
Phocaea
Erythras
Clazomenas
Lebedum
Colophon
Ephesum
Magnesia
Tralles
Hierapolis
Laodicea
Apamea
Colossis
Philadelphia
Sardes
Thyatira
Pergamo
Adramyttium
Assos
Alexandria troas
Ilio
Smyrnam
Phocaea
Erythras
Clazomenas
Lebedum
Colophon
Ephesum
Magnesia
Tralles
Hierapolis
Laodicea
Apamea
Colossis

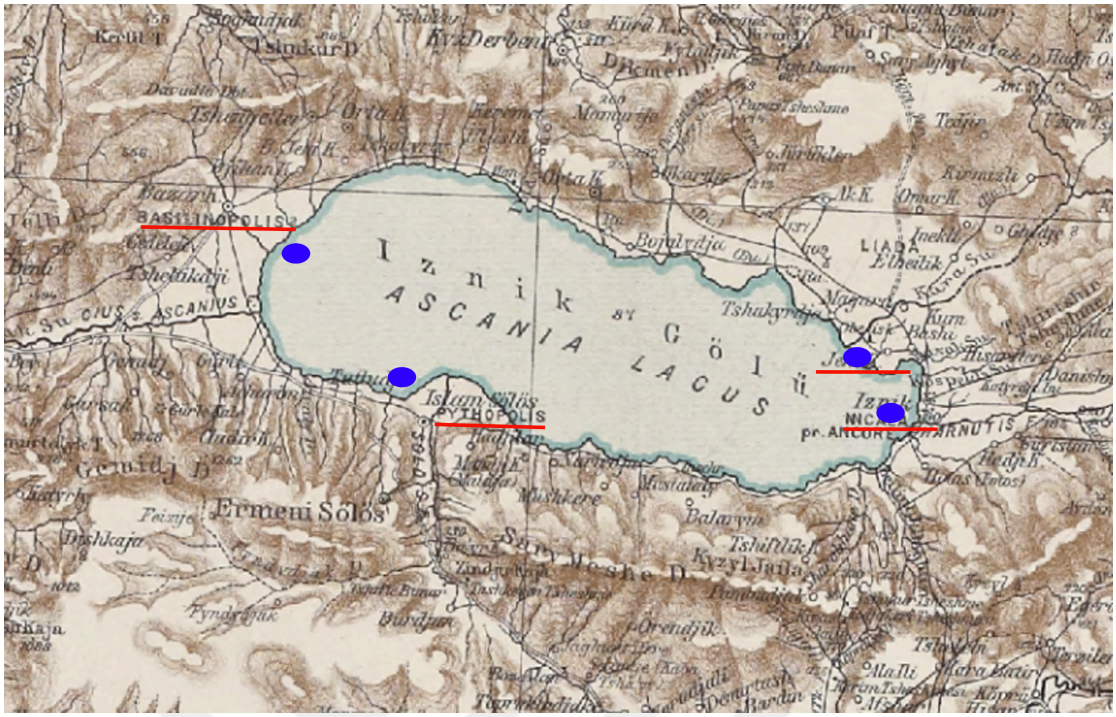
Map 16


Constantinople
Nicomedia
İzmit
Claudiopolis
Krateia
Nicaea
İznik

Map 17



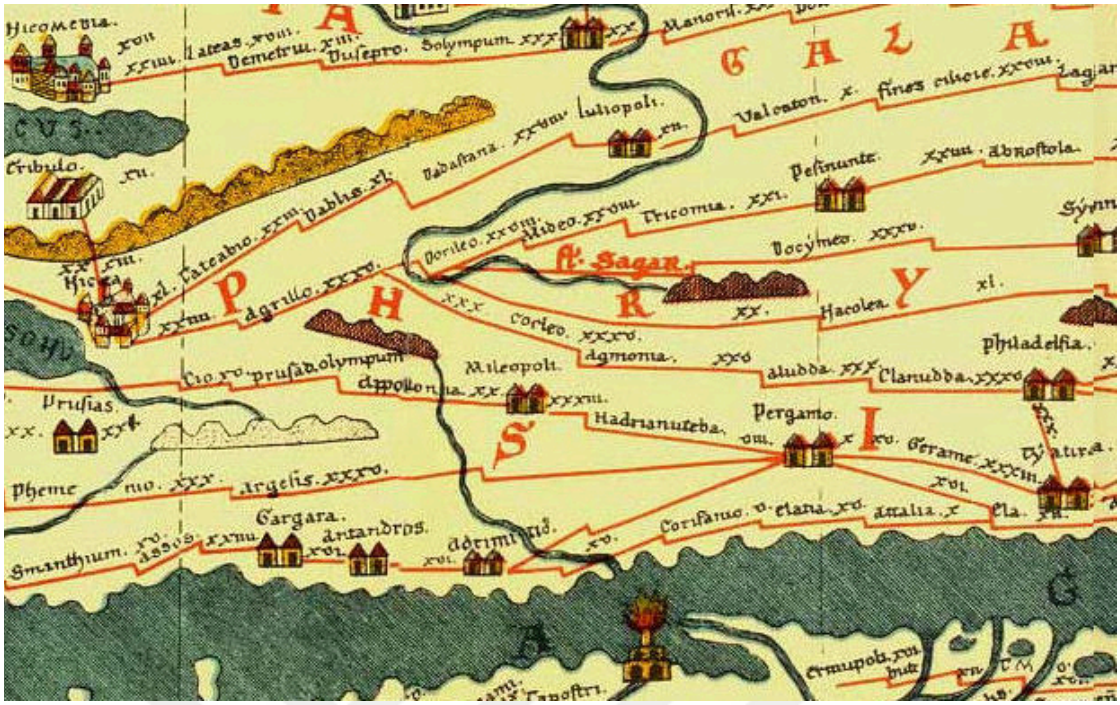
Map 18


BASILINOPOLIS
ASCANIUS
Iznik Gölü
ASCANIA LACUS
Ermeni Sölös
Tshakyrdja
Borjalydja
Tshaklikdji
Gerenidj
Tshelikdji
Dishkaja
Pyndrdjak
Orendjik
Kyzyl-Jailak
Tshiftlikler
Mushkere
Balawm
Tshakyrdja
Kum Bashi
Kyrnazli
Inekli
Eltchitlik
Danishmend
Hadji Ilias
Ak K.
Ormanli
Tekije
Kara Su
Kara Derbent
Kuru T.
Tshinkur D.
Ortaklar
Ermeni
Mamudje
Papasi Sheslane
Tshelebi
Kurd K.
Pinar T.
Sary Moshe D.
Tshakyrdja
Kum Bashi
Kyrnazli
Inekli
Eltchitlik
Danishmend
Hadji Ilias
Ak K.
Ormanli
Tekije
Kara Su
Kara Derbent
Kuru T.
Tshinkur D.
Ortaklar
Ermeni
Mamudje
Papasi Sheslane
Tshelebi
Kurd K.
Pinar T.
Sary Moshe D.

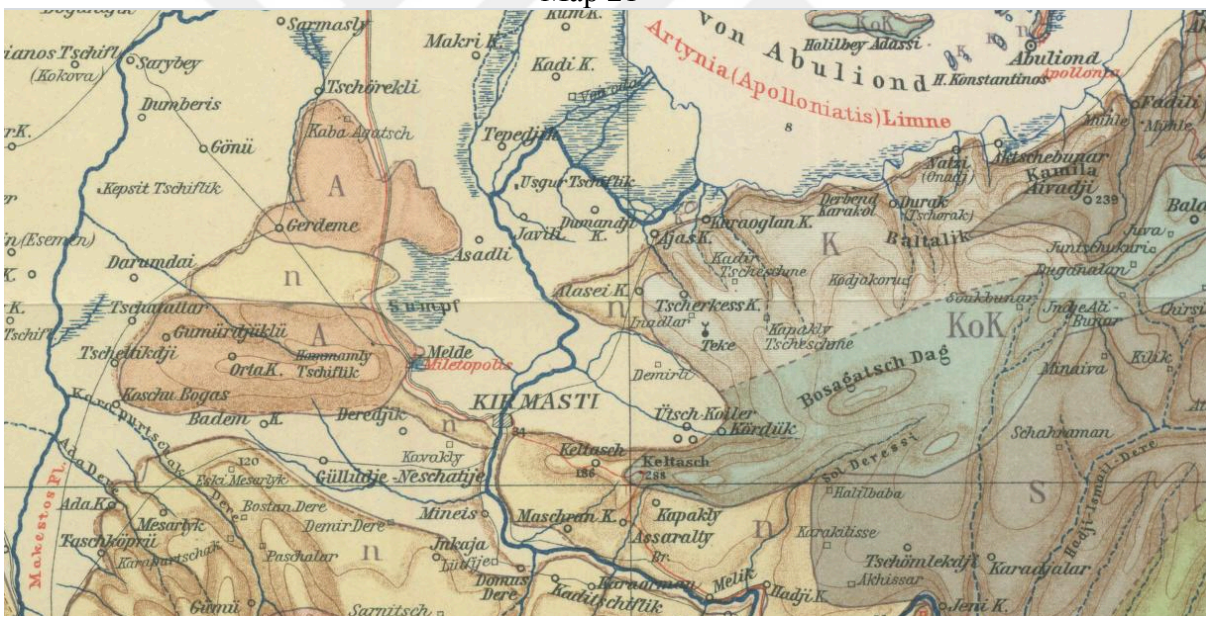
Map 19


Sangaros
Pytheion/
Pythia Therma
*Pratomysia
Basilinoupolis
Libum
[LIBON]
MONS
ARGANTHONEION
MONS
MYSIA
Tetrakomia
Liada
ASKANIA
ASKANIA LACUS
Charmidea
PRUSIAS AD MARE/
KIOS
KIANOS SINUS
Helikore/NICAEA
*Ploketta
'Schinae'
Aureliane
Pythopolis
Brylleion/
MYRLEIA/APAMEA/
Col. Iulia Concordia
Elekosmoi
Mygdum/'Midum'
Otroia
Eikote
PHRYGIA
Basilica
Therma
Agrilion

Map 20


Hicomedia.
Cribulo.
Prusias.
Pheme
Gargara.
Smanthium.
Mileopoli.
Hadrianuteba.
Pergamo.
Pesinunte.
Tricomia.
Philadelfia.
Hacolea.
Corileo.
Cariano.
Ermupoli.
PHRYGIA

Map 21


Von Abuliond
Artynia (Apolloniatis) Limne
Sarmasly
Makri K.
Kadi K.
Tschörekli
Kaba Ayatsch
Tepedjik
Dumberis
Gönü
Kepsit Tschiftik
Usgut Tschiftik
Gerdeme
Javili K.
Asadli
Daumdai
Tschaufattar
Gumürdjüklü
Tschelikdji
Orta K.
Tschiftlik
Melde
Miletopolis
Koschu Bogas
Badem K.
Beredjik
KIRMASTI
Alasei K.
Tscherkess K.
Teke
Demirli
Bosagatsch Dag
Ütsch Koller
Kördük
Keltasch
Gülludje
Neschatije
Mineis
Maschran K.
Kapakly
Assaraly
Jukaja
Paschalar
Domus Dere
Karadschiftlik
Halilbey Adassi
Abuliond
Natzi
Kamila
Aivadji
Derbend Karakol
Durak
Baltalik
Kodjakoruc
Tschukurdere
Kilik
Minaira
Schahraman
Halilbaba
Karakilisse
Tschömlekdji
Karadjalar
Akhissar
Jeni K.
Hadji Ismail Dere
Makestos Fl.

Map 22

FIGURES:

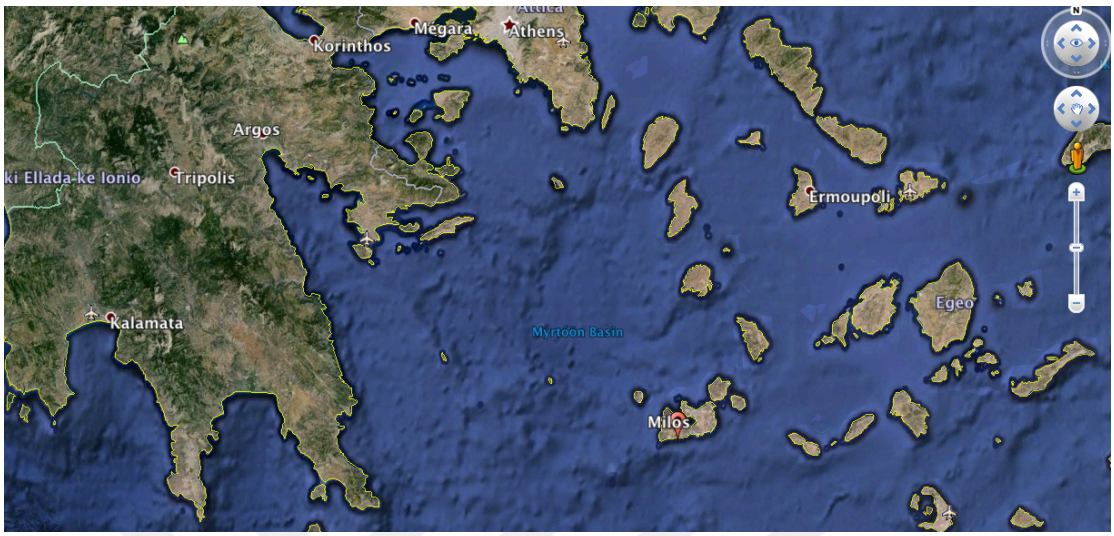


Fig. 1



Fig.2



Fig.3



Fig.4



Fig. 5

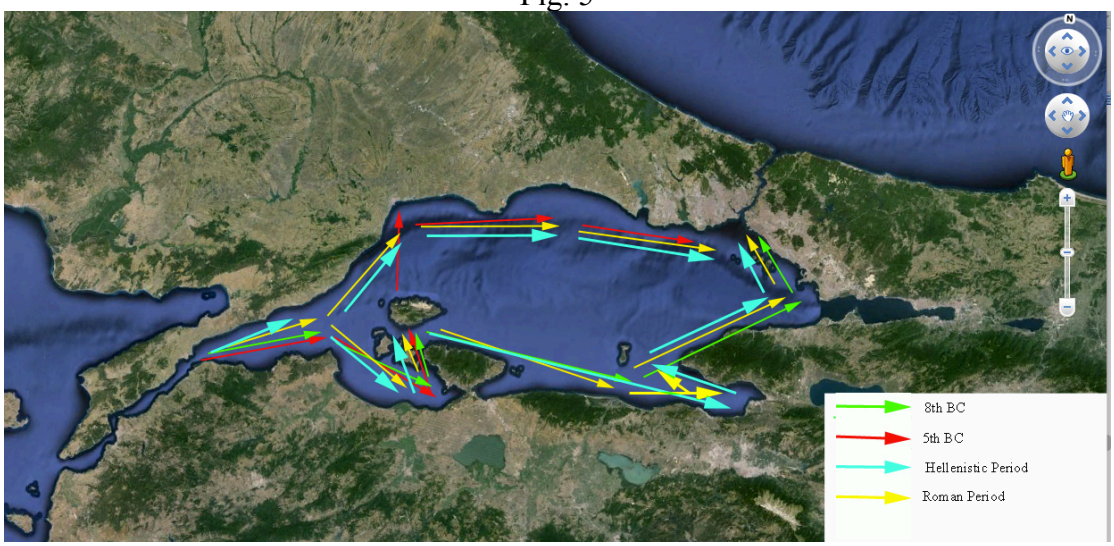


Fig. 6



Fig. 7

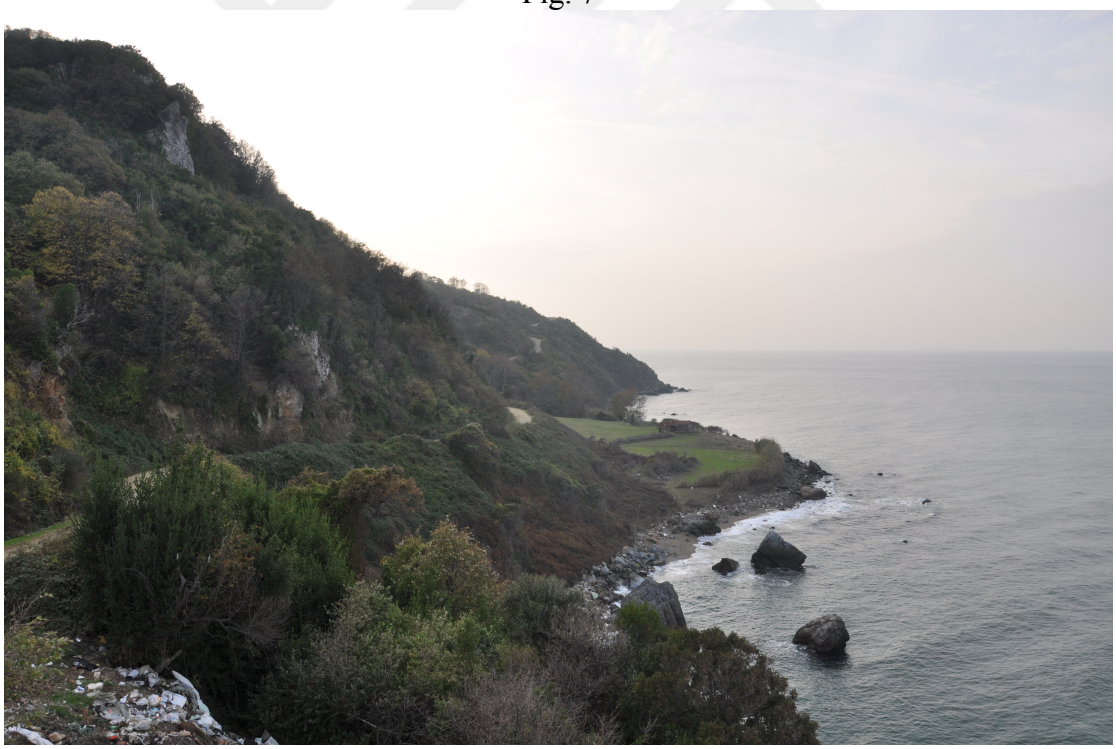


Fig. 8



Fig. 9

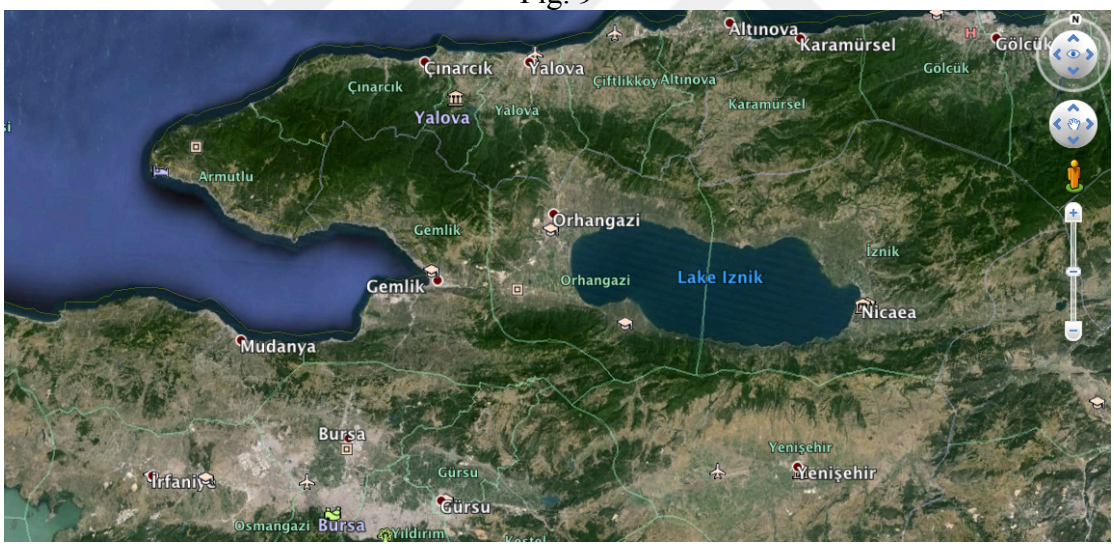

Altınova
Karamürsel
Gölcük
Çınarcık
Yalova
Çiftlikköy
Altınova
Karamürsel
Gölcük
Çınarcık
Yalova
Yalova
Armutlu
Gemlik
Orhangazi
İznik
Gemlik
Orhangazi
Lake Iznik
Nicaea
Mudanya
Bursa
Yenişehir
İrfaniye
Gürsu
Yenişehir
Gürsu
Osmangazi
Bursa
Yıldırım

Fig. 10

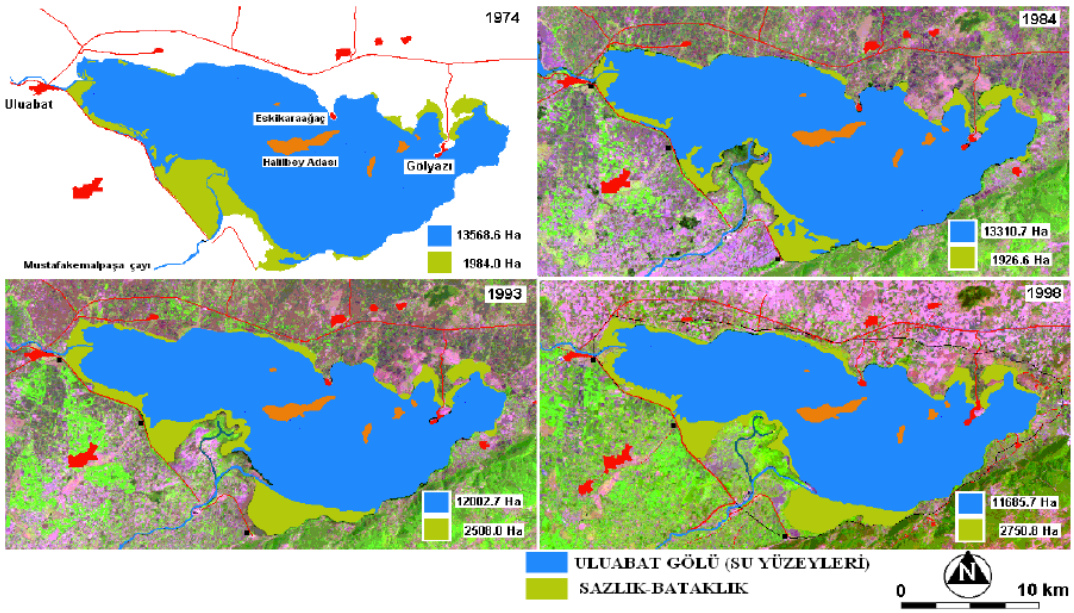

1974
Uluabat
Eskikaraağaç
Halilbey Adası
Gölyazı
13568.6 Ha
1984.0 Ha
Mustafakemalpaşa çayı
1984
13310.7 Ha
1926.6 Ha
1993
12002.7 Ha
2508.0 Ha
1998
11685.7 Ha
2750.8 Ha
ULUABAT GÖLÜ (SU YÜZEYLERİ)
SAZLIK-BATAKLIK
0
10 km

Fig. 11

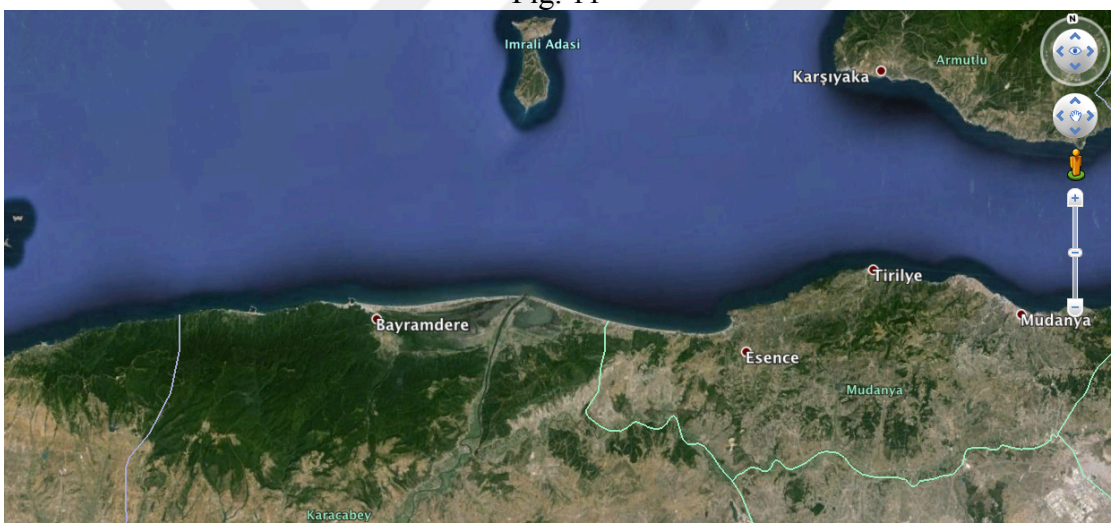

Imrali Adasi
Karşıyaka
Armutlu
Tirilye
Bayramdere
Esence
Mudanya
Mudanya
Karacabey

Fig. 12



Fig. 13



Fig. 14



Fig. 15



Fig. 16



Fig. 17



Fig. 18



Fig. 19



Fig. 20



Fig. 21

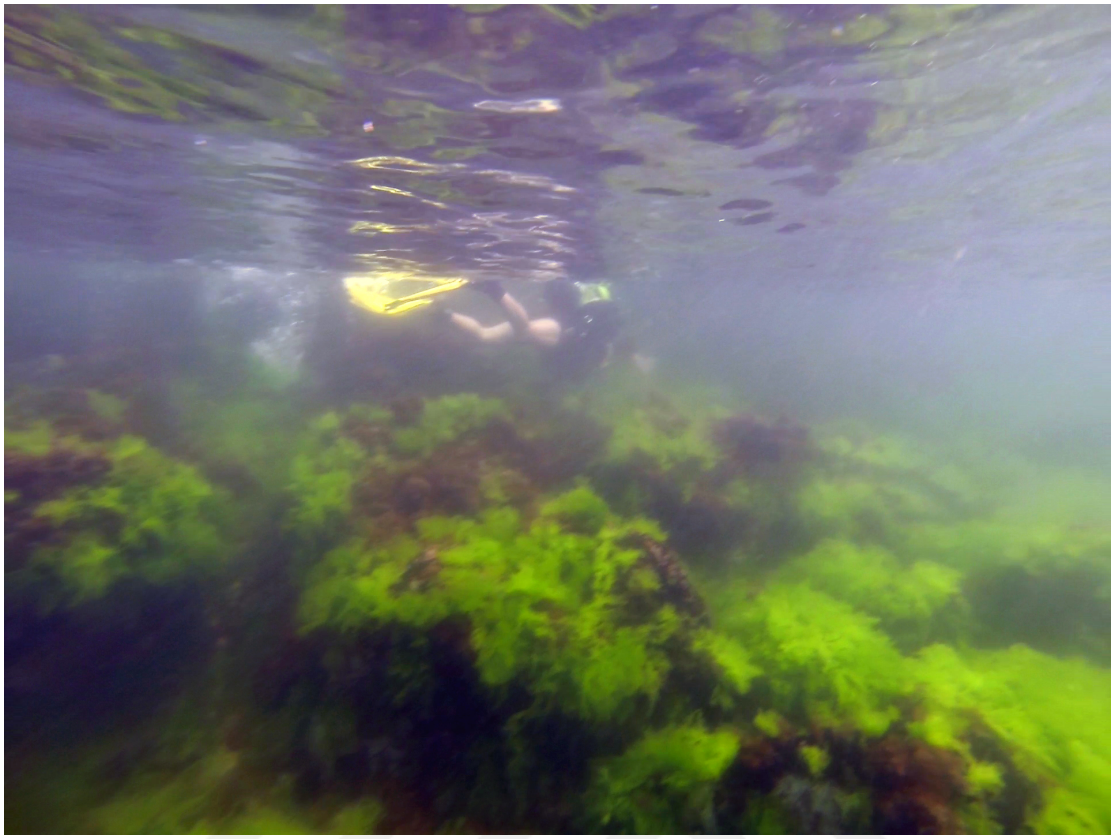


Fig. 22



Fig. 23



Fig. 24



Fig. 25



Fig. 26

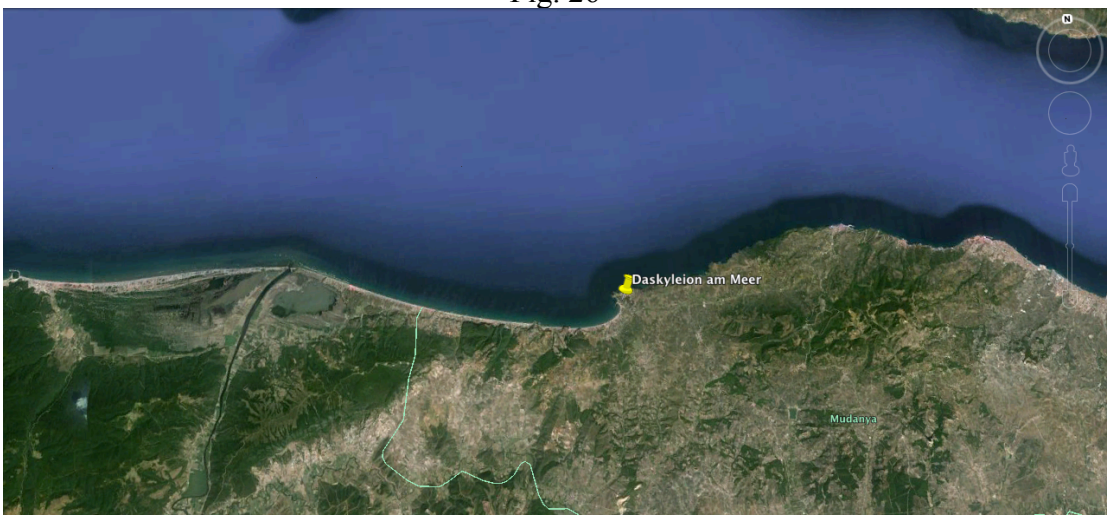


Fig. 27



Fig. 28



Fig. 29



Fig. 30



Fig. 31



Fig. 32



Fig. 33



Fig. 34



Fig. 35



Fig. 36



Fig. 37



Fig. 38



Fig. 39



Fig.40



Fig. 41



Fig. 42



Fig. 43



Fig. 44



Fig. 45



Fig. 46



Fig. 47

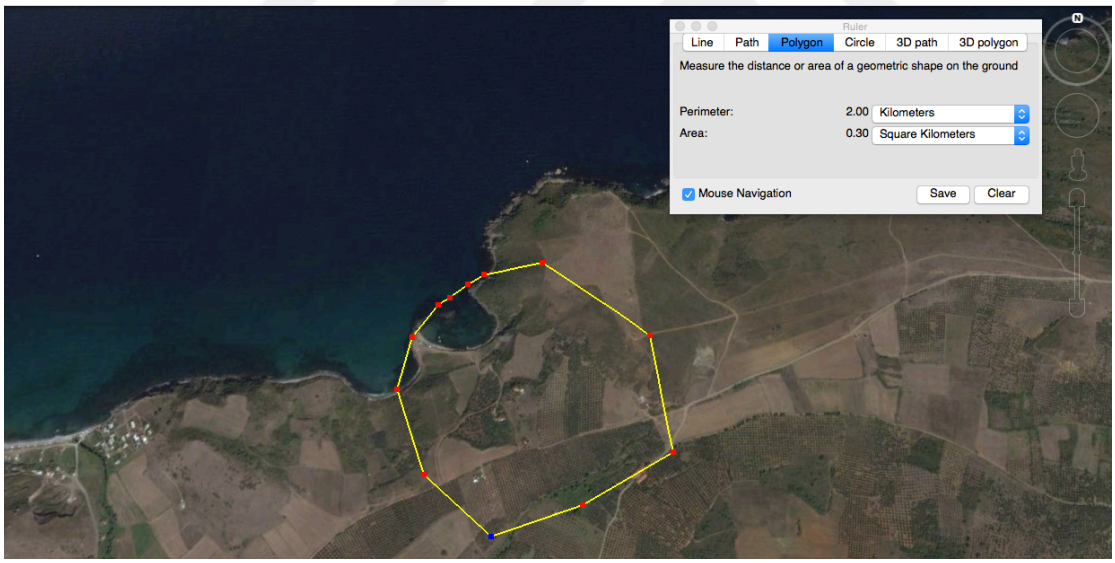

Ruler
Line
Path
Polygon
Circle
3D path
3D polygon
Measure the distance or area of a geometric shape on the ground
Perimeter:
2.00
Kilometers
Area:
0.30
Square Kilometers
Mouse Navigation
Save
Clear

Fig. 48

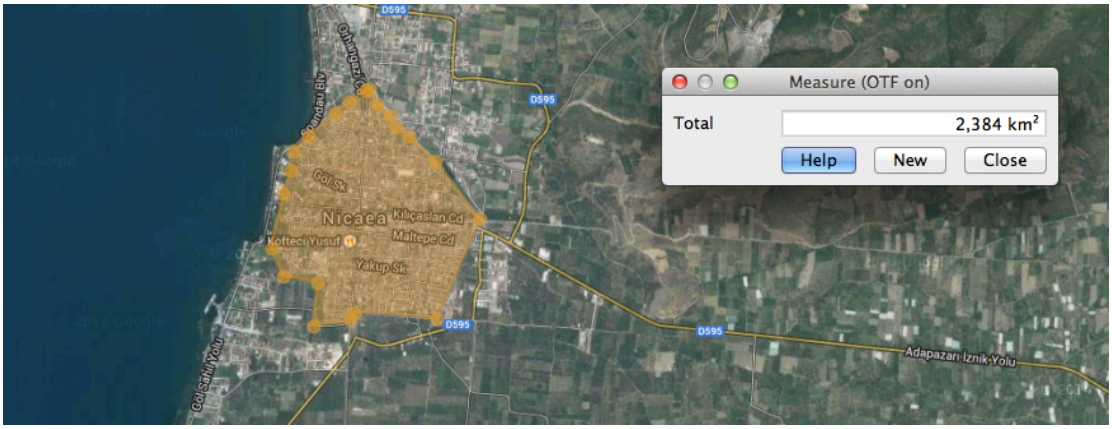


Fig. 49



Fig. 50

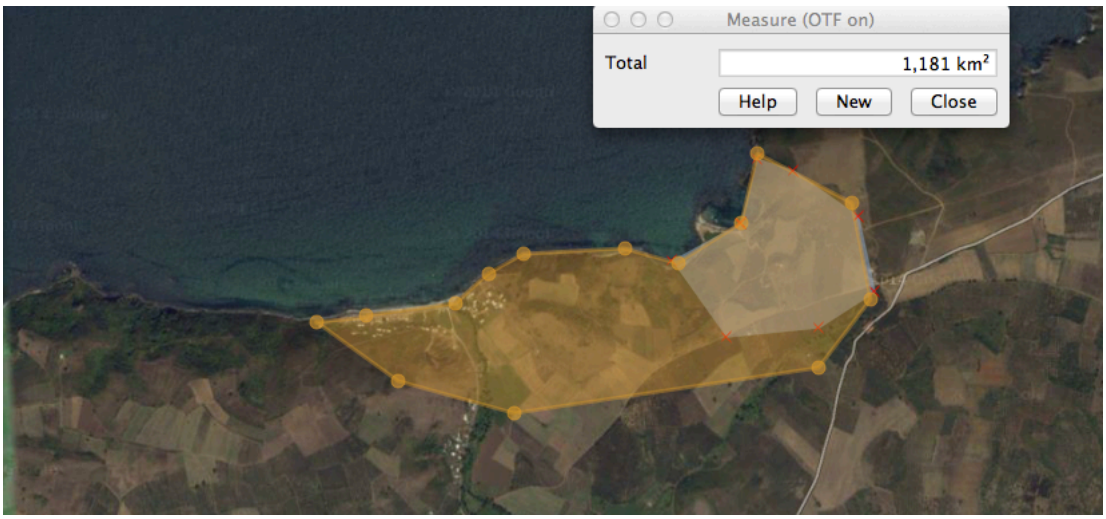


Fig. 51


Daskyleion am Meer
Gelbe
Caesarea Germanica
Apameia/Myrleia

Fig. 52

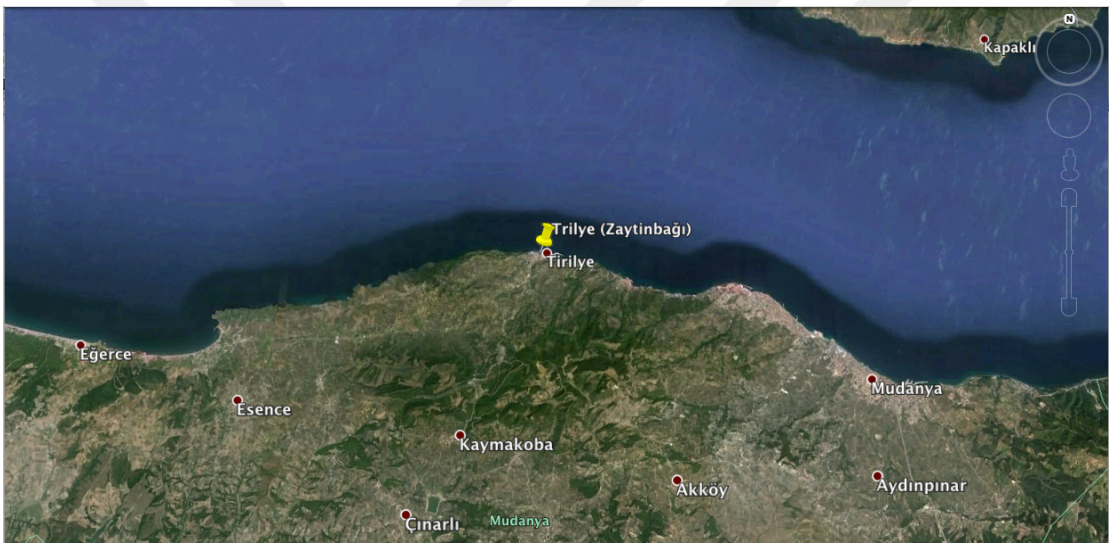

Kapaklı
Trilye (Zaytinbağı)
Tirilye
Egerce
Esence
Kaymakoba
Mudanya
Akköy
Aydınpınar
Çınarlı
Mudanya

Fig. 53



Fig. 54



Fig. 55



Fig. 56



Fig. 57



Fig. 58



Fig. 59



Fig. 60



Mudanya 2010

Fig. 61



Fig. 62



Fig. 63

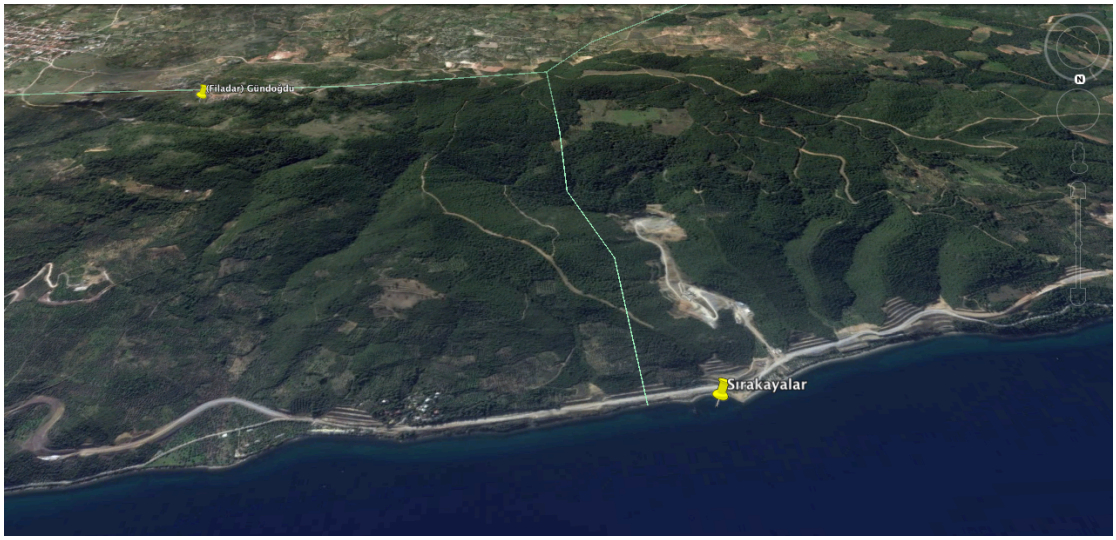


Fig. 64



Fig. 65



Fig. 66

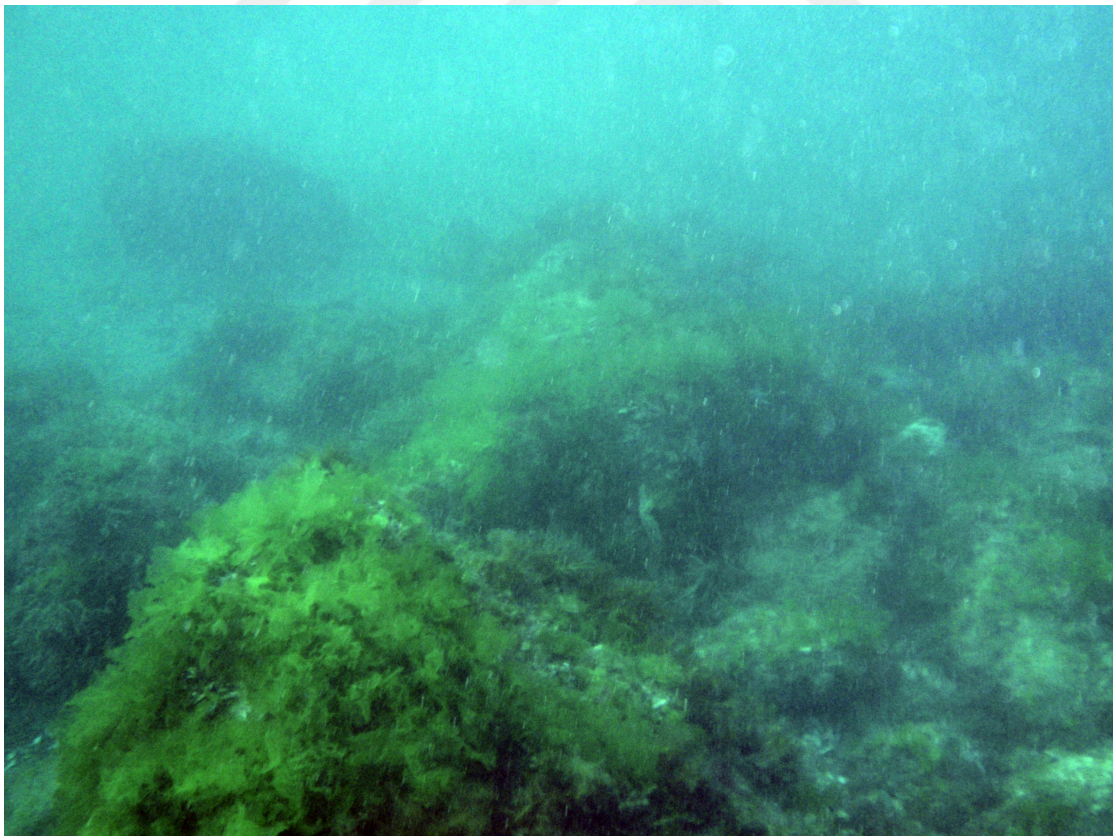


Fig. 67



Fig. 68



Fig.69



Fig. 70



Fig. 71



Fig. 72



Fig. 73



Fig. 74



Fig. 75



Fig. 76



Fig. 77



Fig. 78



Fig. 79



Fig. 80


Altınova
Karamürsel
Gölcük
Yalova
Karşıyaka
Orhangazi
Lake Iznik
Gemlik
Nicaea
Mudanya
Esence
Alaşarköy
Yenikaraağaç
İrfaniye
Yenişehir

Fig. 81



Fig. 82



Fig. 83



Fig. 84



Fig. 85



Fig. 86



Fig. 87



Fig. 88



Fig. 89



Fig. 90

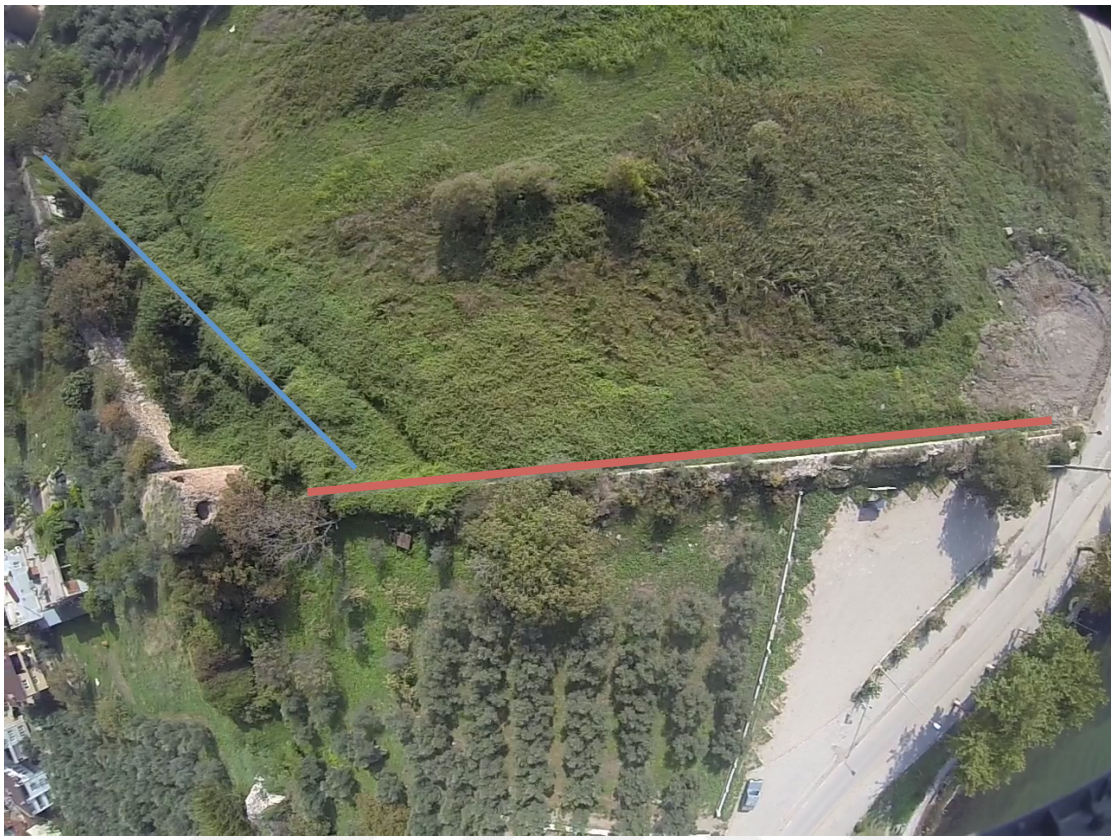


Fig. 91



Fig. 92



Fig. 93



Fig. 94

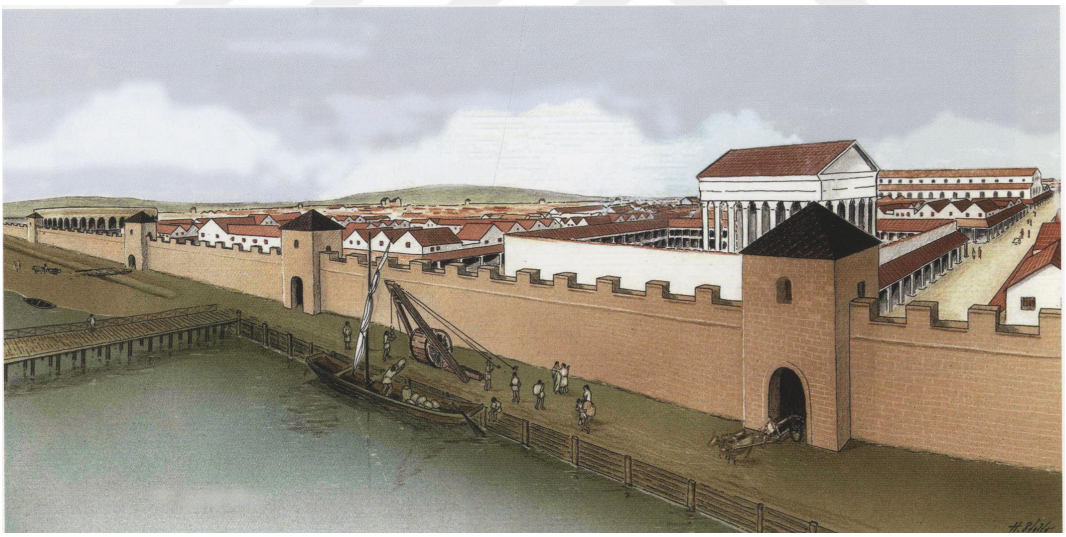


Fig. 95



Fig. 96

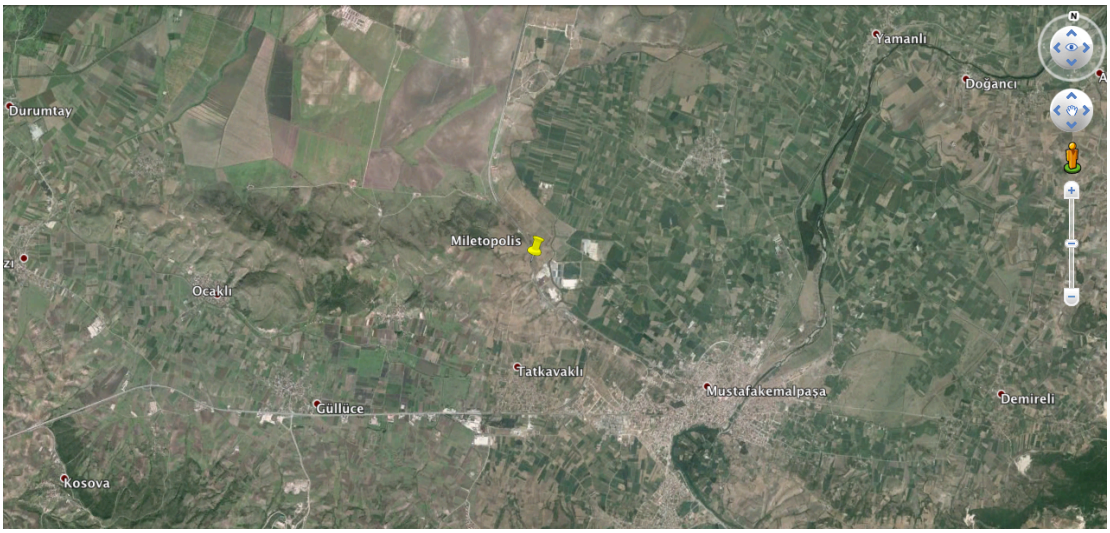

Yamanlı
Doğancı
Durumtay
Miletopolis
Ocaklı
Tatkavaklı
Mustafakemalpaşa
Demireli
Güllüce
Kosova

Fig. 97



Fig. 98

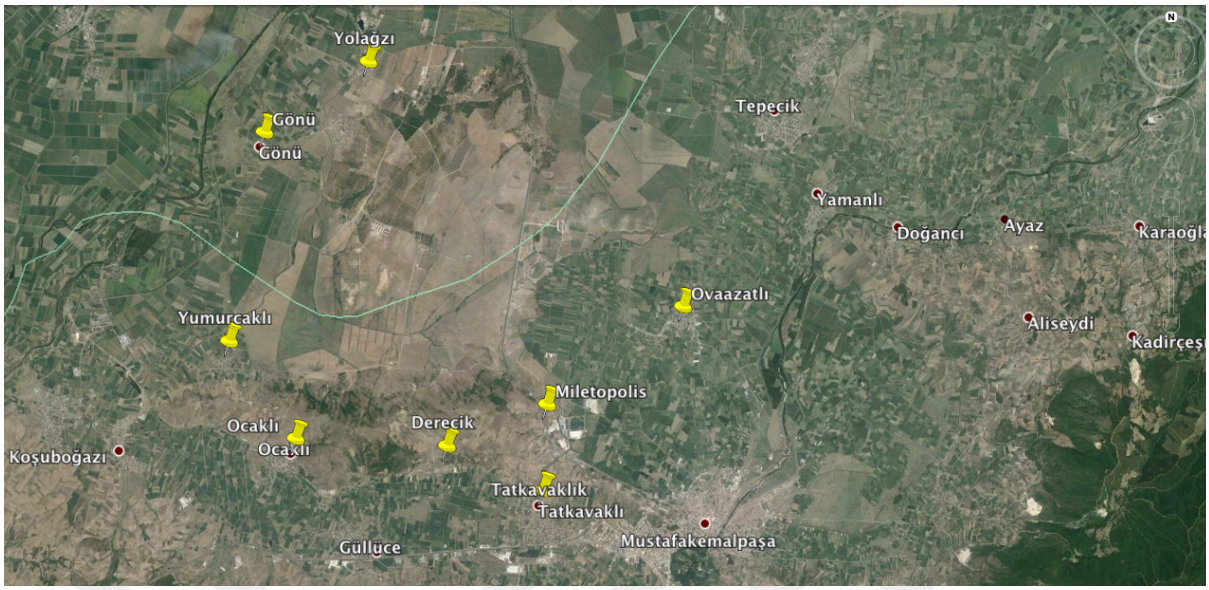


Fig. 99

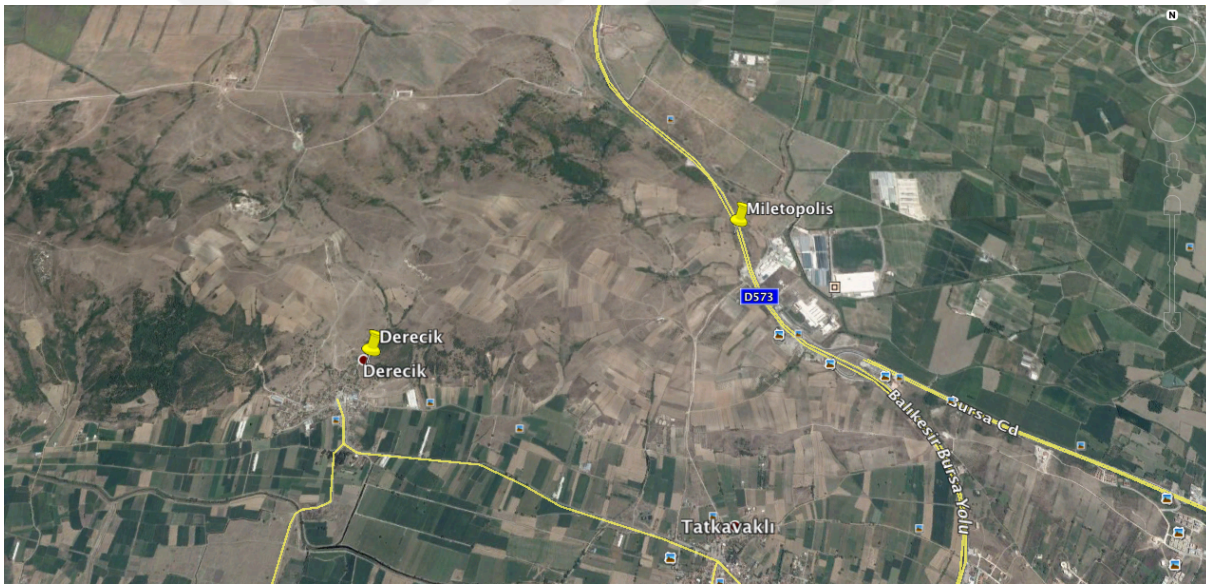


Fig. 100



Fig. 101



Fig. 102

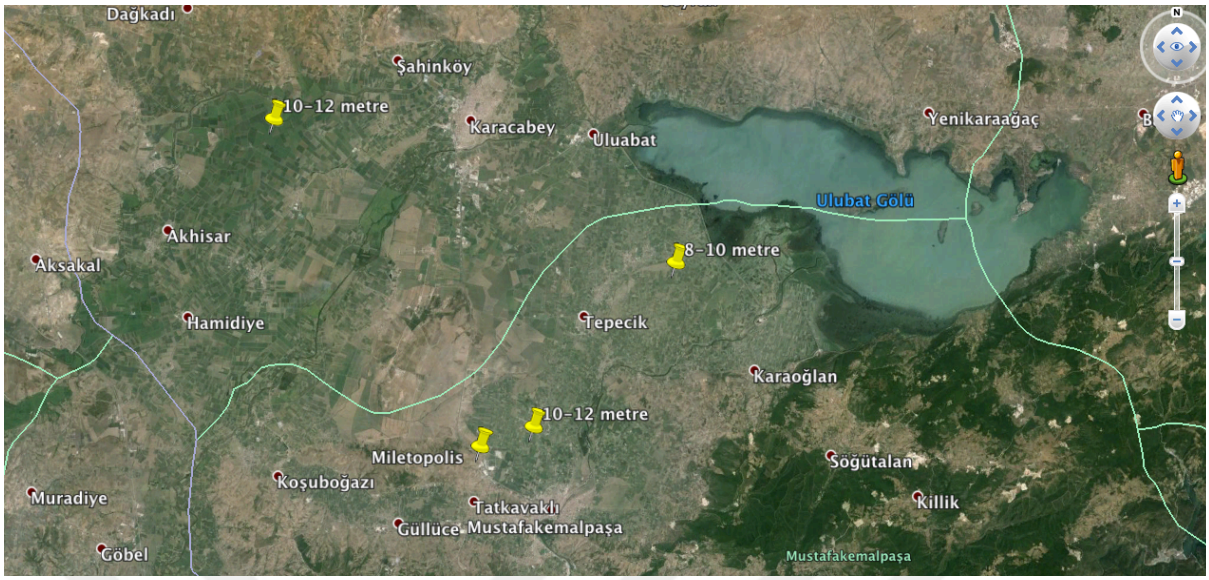


Fig. 103

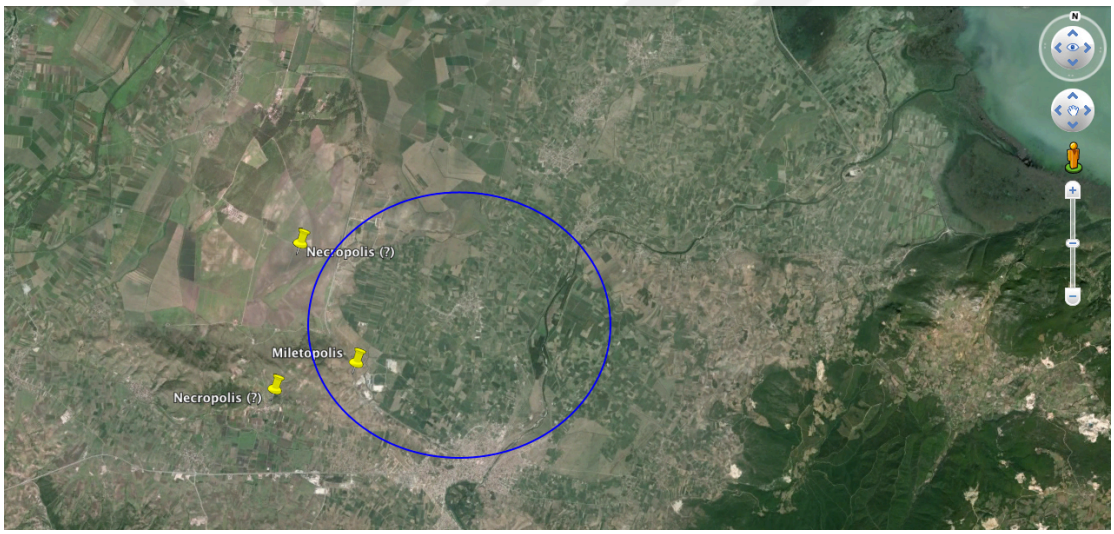


Fig. 104



Fig. 105



Fig. 106



Fig. 107



Fig. 108



Fig. 109



Fig. 110



Fig. 111



Fig. 112

ÖZGEÇMİŞ			
Adı, Soyadı	SERKAN		GÜNDÜZ
Doğum Yeri ve Yılı	ÇANAKKALE		1980
Bildiği Yabancı Diller	İNGİLİZCE		ALMANCA
ve Düzeyi	Upperintermediate		B1
Eğitim Durumu	**Başlama - Bitirme Yılı**		**Kurum Adı**
Lise	1992	1999	Çanakkale Milli Piyango Anadolu Lisesi
Lisans	1999	2003	Akdeniz Üniversitesi
Yüksek Lisans	2004	2008	Uludağ Üniversitesi
Doktora	2009	-	Uludağ Üniversitesi – Hamburg Universitesi
Çalıştığı Kurum (lar)	**Başlama - Ayrılma Yılı**		**Çalışılan Kurumun Adı**
1.	2006	-	Uludağ Üniversitesi
2.			
3.			
Üye Olduğu Bilimsel ve Mesleki Kuruluşlar			
Katıldığı Proje ve Toplantılar	2000- Akdeniz Üniversitesi Patara Kazısı (Öğrenci) 2000- Akdeniz Üniversitesi Tlos Yüzey Araştırması (Öğrenci) 2001- Marmara Adası Çamaltı Burnu –I Batığı Sualtı Kazısı (Öğrenci) 2002- Antalya Müzesi Akdeniz Arkeolojik Sualtı Araştırmaları Merkezi(AASAM) İotape Kurtarma Kazısı Heyet Üyesi 1999 -2003- Antalya Müzesi AASAM ile beraber Phaselis Yüzey Araştırması, Selinus Yüzey Araştırması ve Iotepe Yüzey Araştırması Heyet Üyesi 2003- Efes Kazıları Belevi Mouseleum Projesi (Öğrenci) 2005- Bodrum Sualtı Arkeoloji Müzesi Myndos Antik Kenti Yüzey Araştırması Heyet Üyesi 2005- Muğla Bodrum “Myndos Antik Kenti” Sualtı Araştırmaları ve Yüzey Araştırması Heyet Üyesi 2006 – 2014 - Muğla Bodrum “Myndos Antik Kenti” Sualtı Araştırmaları ve Kara Kazıları Heyet Üyesi 2006 - 2014- Bursa ve Çevresi Kültür Envanteri Projesi Yüzey Araştırması Heyet Üyesi 2008 – Osmanlı Dönemi Batık Kazısı – Macaristan 2014 – Xanten Yüzey Araştırması – Almanya		

Yayınlar:	M. Şahin-D. Şahin-E. Aslan-S. Gündüz, "2005 Myndos Kazilari" XXVIII. K.S.T., 2005, 559-572. M. Şahin – S. Gündüz – E. Aslan, "Myndos Sualtı Araştırmaları - 2006", *Araştırma Sonuçları Toplantısı, Toplantıya Sunulan Bildiriler* 25.1, 2008, ss. 1-10. M. Sahin, S. Gündüz, E. Aslan, "Underwater Research of Ancient Myndos–2006", Symposium On Mediterranean Archaeology, 24-29 April 2007 İstanbul, 337-341. M. Şahin-S. Gündüz, "Archaeológia pod vodou", Klasická Archeológia a Exaktné Vedy Vyskumné Metódy a Techniky I., Trnava 2008, 19-31 S. Gunduz, O. Dumankaya, The Importance of Underwater Research in Ancient Harbour Cities-The Example of Asar Island, Hephaistos (In Publisched)
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