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ADRIATIC SEA ROUTES FROM THE ANTIQUITY TO THE EARLY MODERN AGE

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This paper presents the key results of the author's several-decades-long investigations regarding navigation in the Adriatic from ancient history to the first centuries of modern history. The presented conclusions are corroborated by the latest historical sources, unknown in earlier literature, while relevant literature is indicated to provide further details on particular issues.

Key words: Adriatic, Sea Routes, Antiquity, Middle Age, Early Modern Age, wind, ship, navigation

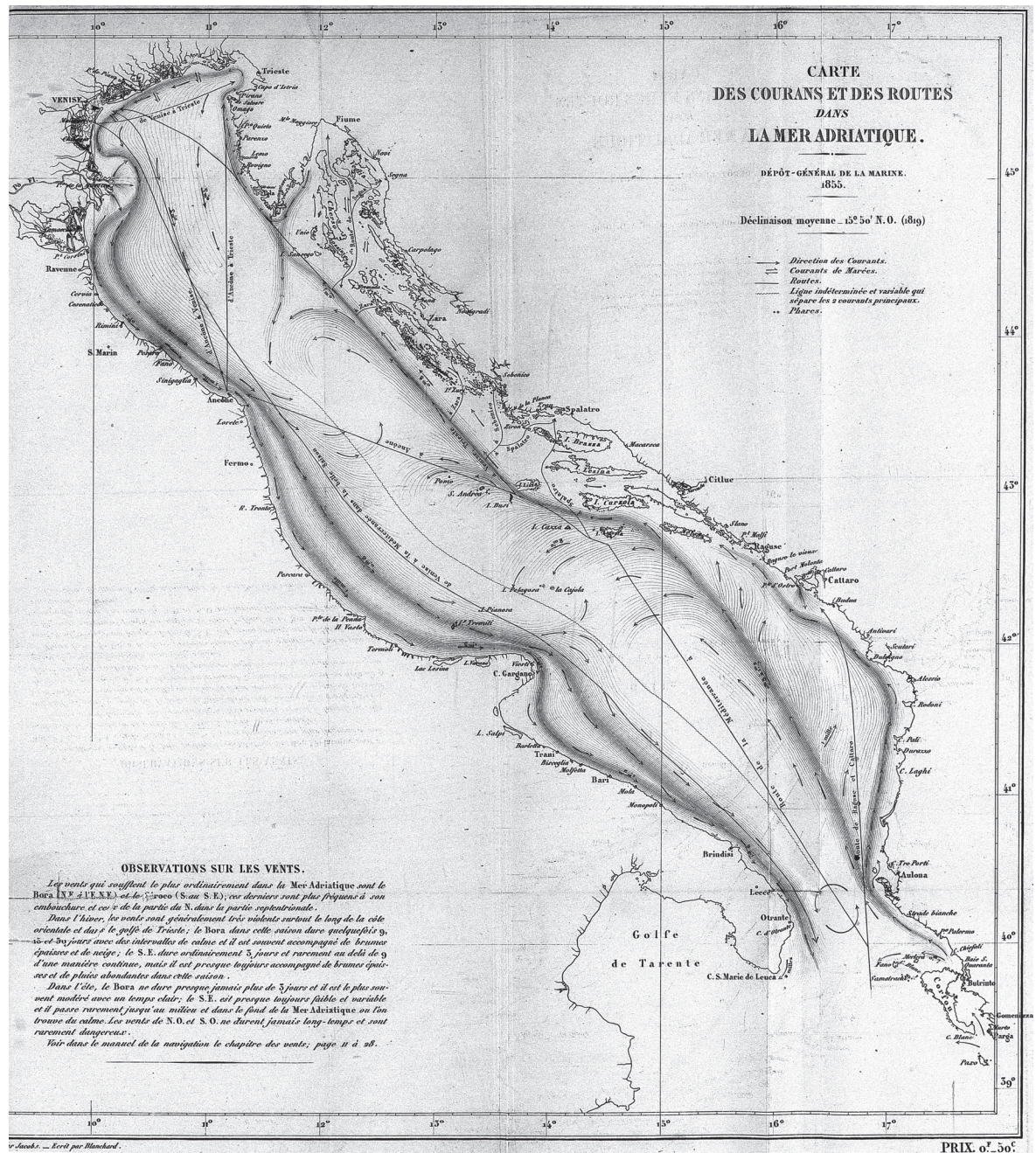
From Antiquity to the Middle Ages, sailing ships only had square sails at their disposal. With the square rig, winds which were blowing in the direction of navigation, so-called tailwinds, could be used. By easing the left sheet and pulling the right one, and vice versa, certain lateral winds could also be used. In addition, the art of navigation was not so developed: the seamen of the Middle Ages had only just started to use the compass, pilots were still using stern oars (the classical steering wheel only started to be used in the Middle Ages), and captains lacked instruments crucial for navigation on their ships. Moreover, the level of education of sea-

men was exceptionally low. However, despite all this, people still navigated. Of course, if the *sea was calm*, that is, if there was no wind, ships could be propelled by rowers. However, only naval ships used rowers usually, because rowers, many of which were needed, were not economically feasible for merchant shipping. Therefore ships, anchored safely in a bay, preferred to wait for favourable winds to be able to continue sailing, which meant that travelling certain distances, because of *calm* seas or unfavourable winds, often lasted much longer than shipowners, captains or maritime traders wanted. With the first centuries of the Modern Age, and the

Fig. 1. The depths of the Adriatic Sea, as shown by the results of modern investigations, are optimal for the navigation of the most varied vessels (Peljar I. *Jadransko more – Istočna obala*, Hrvatski hidrografski institut, Split, 1999, B-I, 9). Over the last two thousand years, the depths of the eastern Adriatic coast have increased by an average of two metres, while they have decreased by the same amount on the western coast. It is important to take into account here the extension of the western coast due to deposits from Italian rivers (W. H. SMYTH, 1854, 34-48).



Fig. 2. Adriatic Sea currents according to investigations published as a special map by the French Dépôt Général de la Marine in Paris in 1855. Standard navigation routes were added which are used almost as they have been used over the last two thousand years (M. KOZLIČIĆ, 2006, 27; W. H. SMYTH, 1854, 165-166).



¹ M. KOZLIČIĆ, 1993.
² M. KOZLIČIĆ, 2000a, 49-124. In addition, footnotes present excerpts of the relevant historical sources, mostly of the 19th century, as certain sum of the millennia experience, including those of 19th century scientific marine research. Those are the confirmation of previous statements. Again, in the body text there are lapidary conclusions of the decades' research by the author of this text. The part of these results could be found in other papers by the same author.
³ M. KOZLIČIĆ, 1990; IDEM, 2000b, 5-25.
⁴ A. BOTRIĆ, 1964, 517-544.
⁵ M. KOZLIČIĆ, 1995.
⁶ PILOT, 1861, 7-9: "The name bora is generally given in the Adriatic to winds between east-north-east and north-north-east. It is very dangerous, and greatly feared, as much for the suddenness of the attack as for its extreme violence; it generally, particularly in winter, blows with the greatest strength after a strong gale from south-east, and is most persistent and violent towards the eastern coast. Its general direction being across the Adriatic, the limited breadth of this sea is certainly one of the causes of the risk attending it, for a vessel unable to keep any longer under sails, is rapidly driven on the coast of Italy, where there is scarcely a good place of shelter for large vessels. // Vessels generally let fly everything to receive the first blast, then bear up to the southward for any port they can fetch; or remain under bare poles till it is exhausted. // Off the Gulf of Cattaro the bora, although less violent, sometimes renders it impossible for vessels to carry any sail, even when overtaken at a short distance from land; very often in this

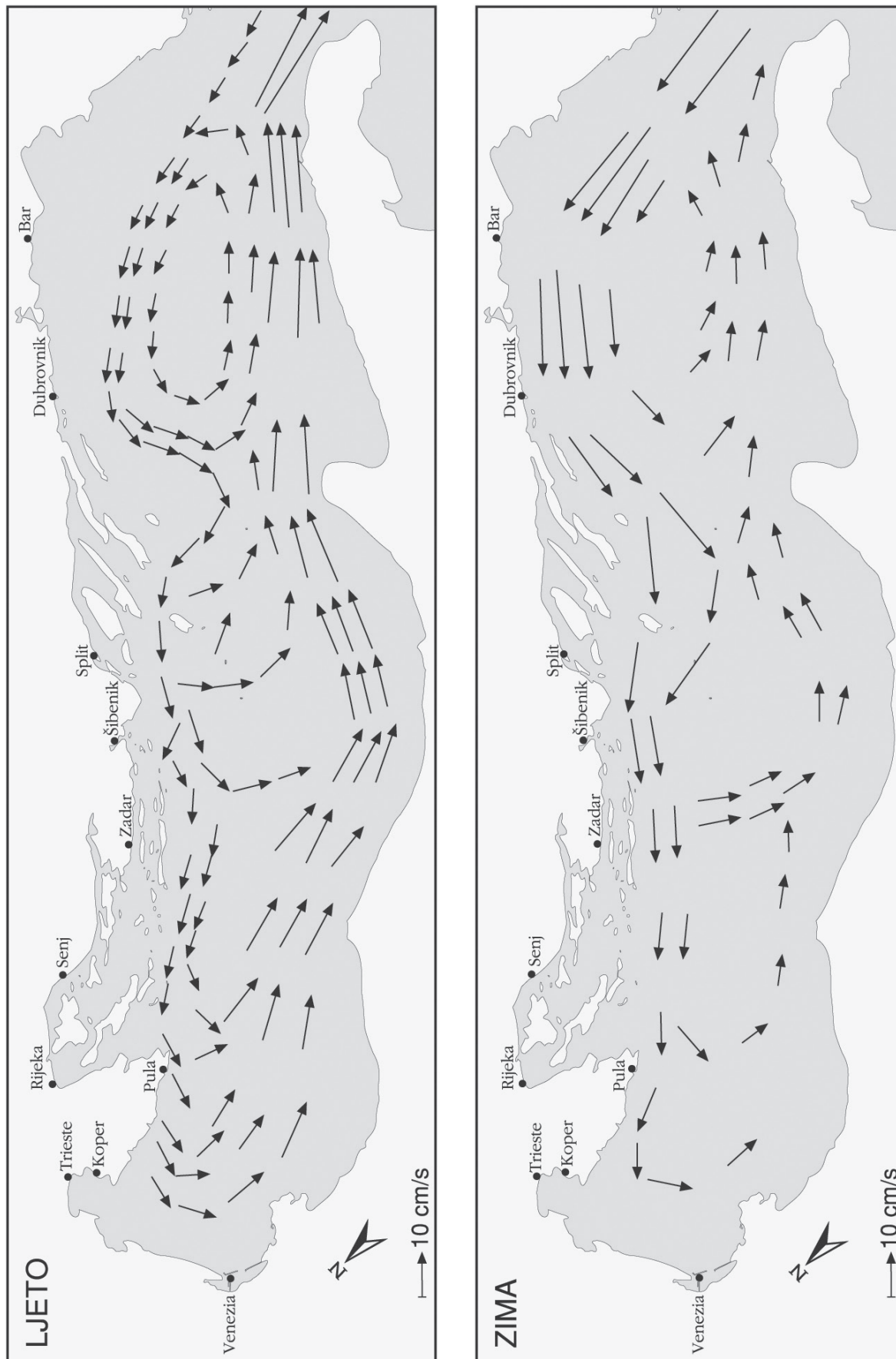


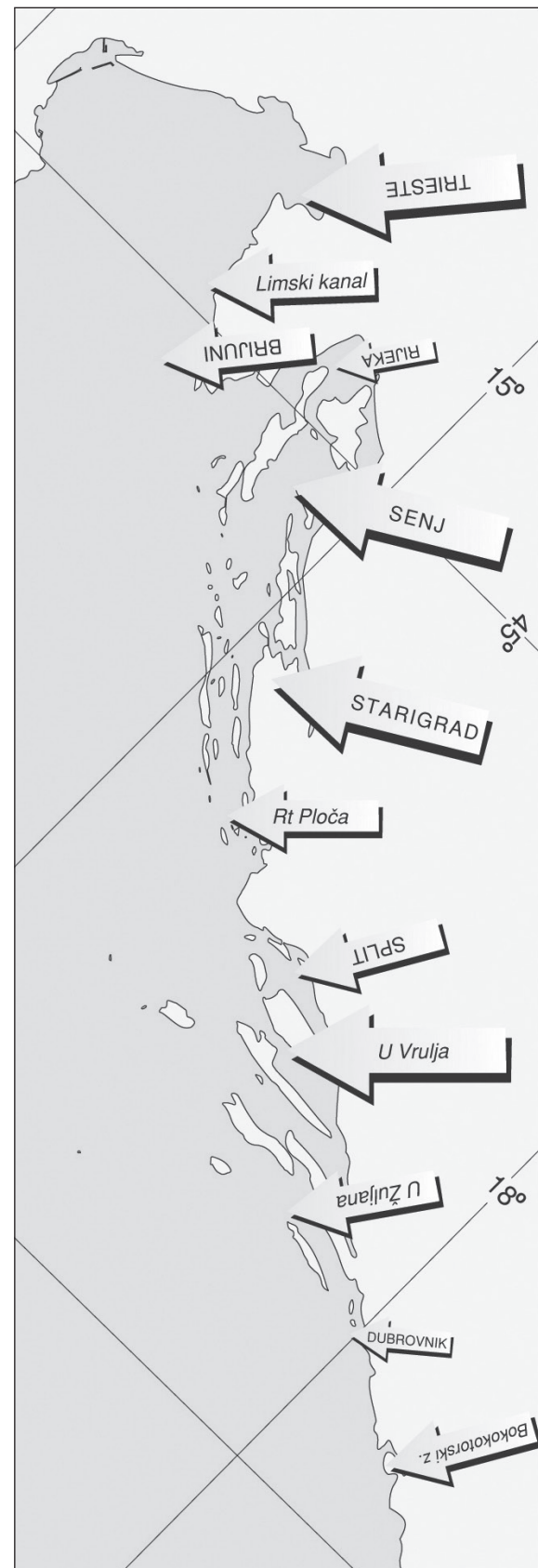
Fig. 3. Adriatic Sea currents according to the results of modern investigations for the summer (upper image) and winter (lower image) seasons, taken from Peljar I. *Jadranskom more – Istočna obala*, Hrvatski hidrografski institut, Split, 1999, B-I, 11. If this figure is compared to Figure 2, it can be observed that the preferred pattern of sea currents in Figure 2 is the summer pattern with which the sea routes are therefore associated. This is consistent with the two-millennia-old tradition that navigation was rare in the colder part of the year (from the middle of autumn, through winter and to the middle of spring) on account of the extremely unfavourable weather conditions in the Adriatic (almost constant shifts between the bora and sirocco winds) (PILOT, 1880, 6-10).

part of the Adriatic, on standing out at once, the wind will be found more moderate, and a vessel may then run for a shelter or keep at sea. // In winter, this wind is to be feared especially in Vrullia bay near Marasca, at the mouth of the Narenta, and off the valley of Giuliana; it is also usually exceedingly fierce between Zuri island and Planca point, from the high land in the vicinity of Sebenico. // In the channels of the Quarnero, and at the entrance of this gulf, too great precaution cannot be taken; the bora here rushes down from the whole like of the Julian Alps with such irresistible fury that it is not only prejudicial to navigation, but extremely so to agriculture, which has in some parts been consequently abandoned; the chief part of the maritime trade of Fiume can only be carried on during the fine season, and the otherwise eligible haven and arsenal of Porto Re are almost useless. Whole districts are rendered uninhabitable, and as not a bush nor a blade of grass can grow on the shores most exposed, local craft usually anchor off the parts where vegetation is most abundant. When Mount Velebich is capped by white clouds, a vessel should not venture into the Quarnero. // The bora sometimes obliges vessels anchored in Trieste road to seek shelter under Salvore point and along the coast of Istria. It is the more dangerous in the channels because it generally takes vessels on the beam and there is but little room; the mariner should at all times keep under the weather island, in order to be able to bear up. // It gives sufficient notice of its approach to an attentive observer to allow of precautions being taken. When small dark clouds are seen rising from the mountains of the eastern coast of the Adriatic and taking irregular directions, and large white, round, isolated clouds to alight on the tops of the high mountains of Dalmatia, a bora may be shortly expected, which will continue to blow untill the former disappear, and the latter no longer adhere to the land. As a

Fig. 4. Areas in the Adriatic with the strongest bora winds (*Peljar I. Jadransko more - Istočna obala*, Hrvatski hidrografski institut, Split, 1999, B-I, 19). For thousands of years, seamen feared the bora to the point of phobia. However, the place where the bora rises, namely the eastern Adriatic, is at the same time the area of more than 1,250 island, islets and reefs, which means that there are at least as many particular havens to shelter from this violent wind. This is why the eastern Adriatic coast was recommended in all known navigation manuals as the optimal navigation route in the Adriatic. The west Adriatic coast has only a few islets, the sea is fairly shallow, while the sea currents are quite strong, usually about one or one and a half knots (nautical miles per hour), while the same currents rarely exceeded half a knot on the eastern shore (M. KOZLIČIĆ, 2006, 21-29).

Fig. 5. Modern navigation routes in the Adriatic (*Peljar I. Jadransko more - Istočna obala*, Hrvatski hidrografski institut, Split, 1999, B-I, 29). If we compare this figure to Figure 2, we can observe that modern ships, being resistant to a variety of sea influences because of their technical and technological achievements, mainly navigate along the middle of the Adriatic. They turn from this general route only to reach a desired destination on the shore. In the previous millennia, due to the meteorological, oceanographic and hydrographical features of the sea, the navigational routes shown in Figure 2 were preferred (M. KOZLIČIĆ, M., 2000a, 49-124; J. W. NORIE, 1831, 148-185; J. PURDY, 1826, 168-193; SEGELHANDBUCH, 1893, 34-46).

general rule, the clouds only leave the sides of the mountains when the wind loses its force and its about to cease. // The barometer, too, is no safe guide, as although the fall of the mercury does occasionally correspond with the violence of the coming wind, yet is must not be depended upon, - indeed it generally rises during a strong gale from this quarter. // The coming on of the heaviest boras are occasionally announced, some hours before hand, by a dense black cloud on the horizon in the north-east, with light fleecy clouds above it, a rather lurid sky, and an unusual stillness of the atmosphere. The general direction is between north and north-east, and the ordinary continuance about fifteen or twenty hours, with heavy squalls, thunder,



more frequent use of the latin rig, navigation was facilitated by the fact that winds unsuitable for the square rig could be used, and that the ship's steering-wheel system had been perfected. However, even then the square rig prevailed, which meant that the latin rig only served as an auxiliary rig.¹ The turning point only occurred at the end of the 18th, and in particular in the 19th century. However, before this time, many other features of navigation were improved, such as navigational instruments, construction quality, the steering system, the art of navigation, and so on. A certain regularity can be observed in all the above in surviving historical sources.²

First, ships most often sailed within reach of the coast (coastal navigation),³ because there was neither a sufficient number of lighthouses nor an awareness that the issue should be systematically addressed to facilitate navigation (this was done in the Adriatic region as late as the 19th century).⁴

Second, such navigation offered relative safety to the ship, crew and cargo, and the practical part of navigation was thus facilitated, for without additional instruments one only had to follow the coastline in either a south-east to north-west or north-west to south-east direction. In this, the remarkable multitude of islands along the eastern coast of the Adriatic, as a number of easily recognisable landmarks, proved to be exceptionally useful in terms of orientation, provided the islands and their position in the geographical area were known. The oldest surviving navigation maps from the early 14th century testify precisely to this, emphasising some fifty prominent islands situated near both Adriatic coasts: Lido in front of the Venetian lagoons, Sveti Nikola off Poreč, Sveti Ivan off Rovinj, the Brijuni Islands, Sveti Jerolim off Pula, the islands surrounding the Kamenjak promontory, Unije, Cres and Lošinj, Krk, Rab, Ilovik, Premuda, Ist, Silba, Olib, Molat, Dugi otok, Pag, Vir, Sestrunj, Ugljan, Pašman, Murter, Kaprije, Žirje, Zlarin, Veli and Mali Drvenik, Šolta, Brač, Hvar, Šćedro, Vis, Biševo, Jabuka, Svetac, Palagruža, the Tremiti Islands, Lastovo, Korčula, the Pelješac peninsula, Mljet, Jakljan, Šipan, Lopud, Koločep, Daksa, Lokrum, the reefs off Cavtat, the Molunat peninsula, Mamula at the entrance to the Bay of Kotor, and Sveti Nikola off Budva.⁵

Third, when the two dominant winds in the Adriatic Sea, the *bora* (the most frequent north-easterly wind)⁶ and the *scirocco* (the south-easterly wind),⁷ were used for navigation, one could sail, before the winds reached gale force, from north-west toward the south-east, and vice versa. Of course, other winds were also used, like the *tramontane*, *mistral*, *levante* and *ponente*, as long as

they were useful, i.e. as long as the ship could be sailed in the desired direction.⁸ If not, regardless of the wind, a safe haven would be sought in the nearest bay until the strength of the wind decreased to an acceptable level, or until a more favourable wind for navigating started blowing.

Fourth, because these winds were the major driving forces along the eastern coast of the Adriatic Sea, two basic anchorages were established very early on: one in the north-west off the western coast of Istria (Poreč - Rovinj), and another in the south-east (the Mljet Channel and also the waters between the mainland and the Elaphiti archipelago off Dubrovnik).⁹ There, protected by the coast, ships would wait for a favourable wind or would sail toward the north-west or from the Adriatic toward the southeast and south. These two points were at the same time the beginning (the waters off Dubrovnik) and the end (the waters off Pula and Poreč) of the eastern Adriatic islands along which ships sailed, and which provided at least some kind of protection to ships which were then unsafe both in terms of navigation and construction. Of course, the waters off Pula and Poreč provided for navigation across the sea toward Venice (east-west), Ancona (north-south) and also Ravenna (north-east to south-west).

Fifth, apart from such coastal navigation, ships also traversed the Adriatic from the east coast to the west. Such navigation regularly occurred on those routes where one could sail on cardinal (east-west, west-east, north-south, south-north) and intercardinal (north-west to south-east, south-east to north-west, north-east to south-west, and southwest to north-east) routes. For such navigation, it sufficed to know one cardinal direction and the direction from which the strongest and, for that journey, most favourable wind was blowing for the destination to be reached. Of course, all such voyages, in particular those across the Adriatic, were limited to daylight navigation, so that the harbours to which seamen sailed were those reachable within a day of sailing. Such routes were typically the following: from Rovinj or Poreč to Venice, Pula - Ancona or Ravenna, Zadar - Dugi Otok - Ancona, the islands in the waters off Split - Vis - Palagruža (Diomed's Island) - Gargano, Dubrovnik - Brindisi or Bari, Valona - Otranto.¹⁰ The following day, the ship would sail to another nearby harbour, navigating along the coast. Sometimes, for example, to enter the Venetian lagoons, maritime pilots were required and boarded the ship in Rovinj or Poreč, and got off when they returned to the starting port.¹¹

Sixth, meteorological, oceanographic, hydrographic and other features of the Adriatic Sea, in terms of

lightning, and rain at intervals. The bora most feared is that which after blowing in sudden gusts for three days, subsides, and then returns for three days longer. // It generally dispels any hovering clouds or fog, and when it blows with great force, the weather is very clear; a few small round clouds moving rapidly being alone visible: if the atmosphere should not be cleared after 24 hours, the wind will probably continue a long time; or a south-easter will spring up. In winter, it is frequently accompanied by thick fogs and snow, causing an excessive coldness. // It usually comes on at the rising or setting of the sun, abating, frequently ceasing, at noon or at daybreak; but should it continue in force at these periods, it may be expected to last a considerable time. // In winter, it is most persistent, sometimes blowing for nine, fifteen or thirty days, with short intervals of calm, during which it is not prudent to make sails. // In summer, it seldom or never lasts longer than three days, and is then usually moderate; if it increases in strength, it is generally for a short time only, and after a great deal of rain; it has, however, some difficulty in rising as long as the mountains of the eastern coast are very wet with rain; when it then occurs it is of short duration, and the force is generally in proportion to the dryness of the land. March, the end of May, and especially the early part of June, seldom pass without a gale. // The bora often succeeds a slight rain following a long drought; should it not blow in such case, south-east winds may be expected. Cfr. SEGELHAND- BUCH, 1893, 20-23.

⁷ PILOT, 1861, 9-10: "South-east or scirocco winds are common throughout the Adriatic; they are usually steady, and only reputed dangerous on account of the thick fogs and heavy sea which, with rain, accompany them; when they occur in winter the land is entirely concealed from view. They are frequently succeeded by a fresh north-west breeze. // The indications are, a very sensible mildness of the atmosphere, even in winter, and dark clouds settling on the summits of the islands and lofty mountains of the eastern coast; these signs occur some time before the wind, which generally passes over the whole sea in gradation. // A swell from the eastward often precedes this wind; this, and an increase of rate in the regular current setting to the north-west along the eastern coast, and a rise of the sea above its ordinary level, are sure omens. // The mercury always falls with a south-east wind, and generally with all winds from the southward; when it continues to fall with the indications described, a south-east wind may be expected to blow with great strength. // If after continuing some time the wind should die away, and be succeeded by a calm or by variables, and the signs above mentioned continue, a renewal may be very soon expected. // It is more frequent in the winter than in any other season, generally blowing alternately with the bora; between the two winds there is nearly always an interval of light variable winds. // It commonly lasts three days, and very seldom beyond nine days in winter. It comes on by degrees, and only blows with violence after 36 or 40 hours: as its direction is right up the Adriatic, the sea gradually increases, the clouds become heavier, rain falls in abundance, and the weather becomes densely foggy, especially in October, Novem-

ber, December, and January. // Vessels may find themselves in peril near, and outside, the islands of the eastern coast should this wind subside immediately after blowing hard and leave a very heavy sea, which often occurs in the evening; when in this locality, vessels should seek a harbour on observing clouds gathering on the summits of the islands. It is also very dangerous on the eastern coast between Ragusa and Drino bay, and especially off the mouths of Cattaro, which are thereby rendered impracticable during a great part of the year. On the whole of the western coast, and along the Venetian shore, where no shelter whatever is found, the sea breaks heavily. // In summer, the wind from this quarter is never strong, and towards the middle of the Adriatic it generally alternates with light breezes from the east, and sometimes from the north-west. In this season, should the clouds collection on the summits of the islands, particularly of Lissa, become detached, and rise in thick globular masses, a north-west wind may be expected to succeed. // When south-easterly winds die away in winter, spring and autumn, they are generally followed at once by those from the west, and north-west to north, which bring fine weather." Cfr. SEGELHANDBUCH, 1893, 23-25.

⁸ PILOT, 1861, 10-14; SEGELHANDBUCH, 1893, 25-28.

⁹ M. KOZLIČIĆ, 1999, 21-32.

¹⁰ M. KOZLIČIĆ, 1996, 39-44; M. KOZLIČIĆ - J. FARIČIĆ, 2004, 35-51; M. KOZLIČIĆ - M. BRATANIĆ, 2006, 107-124.

¹¹ J. W. NORIE, 1831., 160: "To go into the road further than Malamoco, you must have a pilot: indeed, it is customary to get pilots from the Port of Rovigno on the Istrian shore, which lies E.S.E. (S. E. 3/4 E.) from Venice, distant about 57 miles; or from Parenzo, which is 8 1/2 miles north of Rovigno. Should you sail to Venice without a pilot, you will be made to pay for one, and also incur a forfeiture for omitting to take him in. In the summer the pilots are to be obtained from Rovigno, but in winter they remove to Parenzo."

¹² A. DOMIĆ KUNIĆ, 1996., 45; M. KOZLIČIĆ - M. BRATANIĆ, 2006., 107-124.

weather, conditioned navigation to take place at more favourable times of the year, i.e. in the period from midspring to mid-autumn. Seamen also sailed at less favourable times of the year, but due to the weak construction of ships and insufficient port infrastructure throughout the Adriatic during Antiquity, the Middle Ages and the first centuries of the Modern Age, such

voyages rarely occurred and were often dangerous, with the result that seamen, if possible, avoided them.¹²

Antique and mediaeval historical sources offer scarce specific data on the above. However, if these data are compared to Early Modern Age data, when such voyages generally still had the same qualities, it can produce high-quality and well-founded results.

BIBLIOGRAPHY

BASSI, G. D., 1812.,

Costiere del Mare Adriatico Adriatico ovvero Descrizione di tutti i porti, rade, baie, isole ec., Francesco Andreola Stampatore della R. Marina Italiana, Venezia. (Biblioteca Civica - Trieste; Library of Congress - Washington).

BOTRIĆ, A., 1964.,

Razvoj i stanje službe označavanja pomorskih plovnih putova u Jugoslaviji. Svjetioničarstvo na jugoslavenskoj obali Jadrana od početka XIX. stoljeća do danas, *Pomorski zbornik*, 2, 517-544.

CARTA, 1822-1824.

Carta di Cabottaggio del Mare Adriatico, I. R. Istituto Geografico Militare di Milano, Milano. (Državni arhiv - Zadar; Library of Congress - Washington).

DOMIĆ KUNIĆ, A., 1996.,

Classis praetoria Misenaetium s posebnim oblicom na mornare podrijetlom iz Dalmacije i Panonije, *Vjesnik Arheološkog muzeja u Zagrebu*, 3. ser., XXV-XXIX, 39-72.

IMBRAY, J., 1860.,

Sailing directions for the Adriatic Sea and Gulf of Venice, J. Imray and son, London. (Library of Congress - Washington).

KOZLIČIĆ, M. - BRATANIĆ, M., 2006., Ancient Sailing Routes on Adriatic, in: *Les routes de l'Adriatic antique, géographie et économie - Putovi antičkog Jadrana, geografija i ekonomija*, Bordeaux - Zadar, 107-124.

KOZLIČIĆ, M. - FARIČIĆ, J., 2004., The significance of Sv. Andrija Island (Svetac) on a sailing route across Adriatic presented on old geographical maps, *Geoadria*, 9 (1), 35-51.

KOZLIČIĆ, M., 1990.,
KOZLIČIĆ, M., 1993.,

Historijska geografija istočnog Jadrana u starom vijeku, Književni krug, Split.

Hrvatsko brodovlje - Croatian Shipping - Le navi croate, Književni krug - AGM, Split - Zagreb.

KOZLIČIĆ, M., 1995.,

Monumenta cartographica maris Adriatici Croatici. Kartografski spomenici hrvatskog Jadrana. (Izbor karata, planova i veduta do kraja 17. stoljeća), AGM, Zagreb.

KOZLIČIĆ, M., 1996.,

Otok Palagruža na antičkim pomorskim putovima, in: *Zbornik Palagruža. Jadranski dragulj*, Split, 39-44.

KOZLIČIĆ, M., 1999.,

"Tabvla Sinvs Venetici" von W. Barents und ihre Geschichtliche und Geographische Bedeutung, *Geoadria*, 4, Zadar, 21-32.

KOZLIČIĆ, M., 2000a.,
KOZLIČIĆ, M., 2000b.,

The defensive system of Adriatic navigation, *Histria Antiqua*, 6, 49-124.

Adriatic Sailing Routes as reported in the 14th ad 15th century Pilgrims and Travel Reports, *Balkan Studies*, 41 (1), 5-25.

KOZLIČIĆ, M., 2006.,

Istočni Jadran u djelu Beauteemps-Beaupréa. Eastern Adriatic in the Work of Beauteemps-Beaupré, Hrvatski hidrografski institut, Split.

MICHELOT, H., 1805.,

Le portulan de la mer Méditerranée, Nouv. éd.; cor., et augm., J. Mossy, Marseille. (Library of Congress - Washington).

NORIE, J. W., 1831.,

New Piloting Directions For the Mediterranean Sea, the Adriatic, or Gulf of Venice, the Black Sea, Grecian Archipelago, and the Seas of Marmara and Azof, Navigation Warehouse and Royal Academy, London. (Library of Congress - Washington).

PILOT, 1861.,

The Adriatic Pilot. From the surveys of Campana, Visconti, and Smyth, and the Portolano of Marieni, Hydrographic Office - Admiralty, London. (British Library - London).

- PILOT, 1880., *The Mediterranean Pilot. Vol. III. Comprising the Adriatic Sea, Ionian island, the coast of Albania and Greece do Cape Malea, with Cerigo island. Including the Gulfs of Patras and Corint, 1nd ed.*, Hydrographic Office – Admiralty, London. (British Library – London).
- PURDY, J., 1826., *The new sailing directory for the Mediterranean Sea, the Adriatic Sea, or Gulf of Venice, the Archipelago and Levant, the Sea of Marmara, and the Black Sea*, John Purdy – Chart-Seller and Agent (by Appointment) to the Admiralty, &c., London. (Library of Congress – Washington; United Kingdom Hydrographic Office – Taunton).
- SEGELHANDBUCH, 1893., *Segelhandbuch für das Adriatische Meer*, Hydrographischen Amte der K. und K. Kriegsmarine, Pola. (Kriegsarchiv – Wien).
- SMYTH, W. H., 1854., *The Mediterranean. A memoir, physical, historical, and nautical*, J. W. Parker and son, London. (Library of Congress – Washington; Sveučilišna knjižnica – Pula).

SAŽETAK

JADRANSKE PLOVIDBENE RUTE OD STAROGA DO PRVIH STOLJEĆA NOVOGA VIJEKA

Mithad KOZLIČIĆ

Brodovlje od staroga do srednjega vijeka i tadašnje pojave latinskog jedra imalo je na raspolaganju, ako su to bili jedrenjaci, jedino križna jedra. Njima se moglo iskoristiti vjetrove koji su puhali u pravcu plovidbe, tzv. krmene vjetrove, uz činjenicu da se popuštanjem lijeve, a natezanjem desne škote i obratno, moglo iskoristiti i dio bočnih vjetrova. K tome i umijeće plovidbe nije bilo preveliko, kompas je u upotrebi tek od srednjeg vijeka, a kormilari se krmenim veslima. Dakako, ako bi bila tišina na moru, tj. vrijeme bez vjetra, brod se moglo pokretati i uz pomoć vesala, no to se obično činilo kod ratnog brodovlja jer veslački kompleks, uvijek ljudstvom prilično brojan, za trgovačku plovidbu redovito ekonomski nije bio isplativ. Zato se radije, u zaštiti kakve uvale, čekalo povoljan vjetar za nastavak plovidbe, pa je prevaljivanje pojedinih relacija zbog tišina ili nepovoljnih vjetrova često trajalo puno duže nego što su to brodovlasnici, kapetani ili pomorski trgovci željeli. Do prvih stoljeća novoga vijeka, sve većom uporabom i latinskog jedra, plovidbe će biti olakšane činjenicom da se moglo koristiti za križno jedrilje neuporabljive vjetrove, a i sustav upravljanja brodom s pomoću kormila prilično se usavršio. No, čak i tada dominiraju križna jedra što znači da je latinsko jedro tek na razini ispomoci. Prekretnica će biti tek od kraja 18. st., osobito u 19. st., ali će do tog vremena u pomorstvu mnogo toga biti bitno unaprijeđeno (npr. navigacijski instrumentarij, konstrukcijske kvalitete brodovlja, kormilarski kompleks, umijeće plovidbe, itd.).

U svemu navedenome, u očuvanim povijesnim izvorima, mogu se uočiti stanovite zakonomjernosti. *Prvo*, najčešće se plovilo u dohvatu obale (obalna plovidba), jer nije bilo dovoljno svjetionika niti svijesti da se njima treba sustavno pozabaviti te time olakšati plovidbu (to će na Jadranu biti učinjeno tek u 19. st.). *Drugo*, takvim plovidbama ostvarivala se relativna sigurnost broda, posade i tereta, a i praktični dio plovidbe bio je utoliko olakšan što se, bez dodatnih instrumenata, tek trebalo pratiti obalu u plovidbi JI-SZ ili SZ-JI. Pritom se iznimna množina otočja uz istočnu obalu Jadrana, kao niz vrlo prepoznatljivih orijentira, pokazala izvanredno korisnom u orijentacijskom pogledu, dakako ukoliko se to otočje i njegov položaj u geografskom prostoru poznavalo. Najstarije očuvane plovidbene karte s početka 14. st. o tome egzaktno svjedoče, ističući u prvi plan oko pedesetak markantnih otoka, u blizini obje jadranske obale: Lido ispred venetskih laguna, Sv. Nikola ispred Poreča, Sv. Ivan na pučini ispred Rovinja, Brijune, Sv. Jerolim ispred Pule, otočje oko Kamenjaka, Unije, Cres s Lošinjem, Krk, Rab, Ilovik, Premudu, Ist,

Silba, Olib, Molat, Dugi otok, Pag, Vir, Sestrunj, Ugljan, Pašman, Murter, Kaprije, Žirje, Zlarin, Veli i Mali Drvenik, Šoltu, Brač, Hvar, Šćedro, Vis, Biševo, Jabuku, Svetac, Tremitsko otočje, Lastovo, Korčulu, poluotok Pelješac, Mljet, Jakljan, Šipan, Lopud, Koločep, Daksu, Lokrum, Cavtatske grebene, poluotok Molunat, Mamulu na ulazu u Boku kotorsku, te Sv. Nikolu pred Budvom. *Treće*, kako su na Jadranu dva dominantna vjetra, bura (najčešće puše iz smjera SI) i jugo (JI vjetar), već njihovim korištenjem, dok nisu postigli olujnu snagu, moglo se ploviti od SZ prema JI i obratno. Dakako, koristilo se i druge vjetrove, tramontanu, maestral, istočnjak, zapadnjak, ali i njih do mjere uporabljivosti, točnije dok se uz njihovu pomoć moglo koliko-toliko upravljati brodom za plovidbu u željenom smjeru. U suprotnom, bez obzira na vjetar, tražilo se spas u najbližoj uvali, dok snaga vjetra ne opadne na prihvatljivu razinu ili ne počne puhati vjetar koji je optimalan za nastavak plovidbe. *Četvrto*, zbog tih vjetrova kao temeljne pogonske snage na Jadranu, uz njegovu istočnu obalu, vrlo rano su uspostavljena dva temeljna okupljališta (sidrišta) brodovlja: jedno na SZ, uz zapadnu obalu Istre (Poreč - Rovinj) i drugo na JI (Mljetski kanal, često i akvatorij između kopna i dubrovačkih Elafita). Tu bi se, u zaštiti obale, čekalo povoljan vjetar, ili bi se odatle plovilo prema SZ, ili iz Jadrana prema JI i J. To su ujedno bili početak (dubrovački akvatorij) i kraj (akvatorij Pula-Poreč) istočnojadranskog otočnoga niza uz koji se plovilo i koji je osiguravao kakvu-takvu zaštitu tadašnjim maritimno i konstrukcijski nesigurnim brodovima. Dakako, akvatorij Pula - Poreč omogućavao je plovidbu preko mora prema Veneciji (I-Z), Ankoni (S-J), ali i Raveni (SI-JZ). *Peto*, osim takvih obalnih plovidbi, postojale su i prekomorske koje su povezivale dvije obale, istočnu i zapadnu. Redovito su se odvijale na onim rutama gdje se moglo ploviti u kardinalnim (I-Z, Z-I, S-J, J-S) i interkardinalnim rutama (SZ- JI, JI- SZ, SI-JZ, JZ-SI). Za takve rute dovoljno je bilo znati jednu stranu svijeta te smjer odakle puše prevladavajući i za tu plovidbu optimalan vjetar taj dan, pa bi se u nastavku dostiglo luku uplovljenja. Naravno, sve su takve plovidbe, osobito te prekomorske, bile limitirane na plovidbu danju, pa su i luke do kojih se plovilo redovito bile one koje se moglo „dohvatiti“ tijekom jednodnevne plovidbe. Tipične takve rute su Rovinj ili Poreč-Venecija, Pula-Ankona ili Ravena, Zadar-Dugi otok-Ankona, Splitski akvatorij-Vis-Palagruža (Diomedov otok)-Gargano, Dubrovnik-Brindizi ili Bari, Valona-Otranto, da bi se u nastavku, obično sljedeći dan, produžilo do neke druge obližnje luke u obalnoj plovidbi. Ponekad su, primjerice za uplovljenje u lagune Venecije, bili obvezni piloti, koji su se na brod ukrcavali u Rovinju ili Poreču, a u obratnom smjeru su iskrcavali. *Šesto*, meteorološka, oceanografska, hidrografska i druga obilježja Jadrana uvjetovala su plovidbe u vremenski povoljnijem dijelu godine, od sredine proljeća do sredine jeseni. Plovidbe izvan toga razdoblja poduzimalo se, ali su zbog maritimnih i konstrukcijski slabih obilježja onodobnoga brodovlja, te nedovoljno kvalitetne lučke infrastrukture na cjelini jadranskog akvatorija tijekom starog, srednjeg i prvih stoljeća novoga vijeka, bile rijetke i često pogibeljne, pa su, ako je to bilo moguće, izbjegavane.

O navedenome, stari i srednjovjekovni povijesni izvori daju malo konkretnih podataka. No, ukoliko ih se komparira s ranonovovjekovnim, kada te plovidbe i dalje imaju većinom ista obilježja, mogu se postići kvalitetne i utemeljene znanstvene spoznaje.