

A WORLD OCEAN MEDITERRANEAN

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Abstract

Technology is increasingly “shrinking” the world, yet we continue to accept the artificial division of the world’s waters. The goal of this paper is to break this false paradigm by defining the World Ocean, and with an appreciation for current oceanic affairs, reconceptualize the earth’s salt water for what it is: a unified, interconnected body of water with universal economic, social, and military implications. The Mediterranean Sea provides a useful case study of how human interaction has evolved previously when man has conquered oceanic space with new technologies. The World Ocean, like the Mediterranean, has evolved in terms of trade, the projection of power, and the movement of cultures and people as a maritime conduit connecting nations. The speed and efficiency with which commercial and military ships transit the globe continue to reduce the barrier of distance, and the World Ocean can now be conceptualized in Mediterranean terms. Viewing the World Ocean Mediterranean with a global perspective helps illuminate broad historical currents, provides valuable insight into understanding the world today, and helps identify both threats and opportunities the world will likely face in the future.

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Introduction

Technological innovation has throughout history helped man overcome the challenge of distance. Maritime technologies have transformed the world's oceans from moats separating civilizations into a unified lake of human activity. Only as recently as 1302 with the invention of the compass which enabled mariners to accurately determine direction, and 1765 with the invention of the chronometer which enabled mariners to accurately measure time and thus with celestial observations allow for the computation of longitude, have sailors been able to venture beyond the sight of land and make contact with continents and peoples before unknown.^{1 2} Gradually, and occasionally all at once, over the last several centuries shipbuilding, navigation, and communication technologies have advanced to make oceanic crossings before unfathomable now commonplace. Sextants, sails, and paper charts have yielded the seas to handheld global positioning system (GPS) devices, satellite telephones, and digital mapping. The British ship of the line that once ruled the seas and ensured England's naval supremacy during the age of Pax Britannica has been replaced by the aircraft carrier, modern destroyer, and nuclear powered submarine. The dank, cramped, small cargo vessels that once ferried the world's trade are now dwarfed by today's mega tankers and container ships.

The evolution of naval technology has amounted to an oceanic revolution in the movement of goods, people, and sea power around the world. With a few political exceptions, no longer do the world's oceans serve as moats, separating continents and societies across vast expanses of a watery desert. Instead, the ocean exists as the unifying

¹ Amir D. Aczel, *The Riddle of the Compass* (New York: Harcourt Publishers, 2001), 63.

² Philip de Souza, *Seafaring and Civilization* (London: Profile Books, 2001), 40.

link buoying trade and interaction between nations. The world's oceans hardly present the insurmountable barrier that they once did, and have become the geographic medium centrally important to global affairs. While some have declared "the end of history" and "the clash of civilizations" as the key ideas necessary in understanding the future of international relations, the consistent lapping of waves on the world's shores reminds us that the ocean and geography still matter.

Even if the ocean seems distant and unimportant if living in the hinterland or in a country that faces shoreward instead of seaward, the fact remains that the ocean figures prominently in international affairs. The world's oceans provide the conduit by which 80 percent of the volume of all international trade transits.³ Even though information technologies move data around the world at the speed of light, the most efficient means for moving large amounts of cargo remains by ship, and the ocean serves as the aqua super highway connecting global markets. Furthermore, the ocean's air space, surface, and depths all serve as an arena for the projection of military power and provide a vital link in maintaining international security. Today, American sea power is dispersed throughout all corners of the earth in carrier-led battle groups toting a staggering amount of naval air power and artillery, and submarines carrying conventional and nuclear weapons in their bellies with mobility and ease unmatched by land forces.

The ocean is also a vast reservoir of energy that moderates the world's environment. The ocean is responsible for major phenomena like El Nino and tsunamis as well as generating more subtle influences like weather patterns and sea breezes. Fish are an important commodity in the world diet and account for 16% of the protein

³ United Nations, *Atlas of the Oceans*, (accessed June 11, 2002); available from <http://www.oceansatlas.com>.

consumed worldwide.⁴ The ocean also contributes nearly one-third of the world's natural gas and petroleum energy.⁵ Significantly, a majority of the world's population also lives within fifty miles of a coast.⁶ People choose to live near the salt water that originally spawned human life, and culturally are affected by living on the ocean's shores. The great coastal cities these people live in like Tokyo, Bombay, and New York account for a majority of the world's metropolises. In fact, eight of the top ten largest cities in the world are located on a coast.⁷ Economically, militarily, socially, and in most every other way, the ocean profoundly influences human existence on Earth.

Despite these facts, people still conceive of oceanic waters as bound to individual, disparate basins. A more sophisticated world view free from myopic continental habits reveals a coherent, interconnected World Ocean. For example, the line dividing the Atlantic Ocean and the Indian Ocean south of the Cape of Good Hope has been artificially drawn by man on the world map, and of course in reality does not demarcate where one ocean ends and the other begins. The two oceans are inexorably linked, ebbing and flowing in a ceaseless sharing of water, fish, and human activity. Likewise, the Pacific is linked to the Atlantic south of Cape Horn, through the Panama Canal, and through the Northwest Passage, and does not exist as a separate entity unto itself.

Although not readily apparent in a world atlas that separates ocean basins, all of the world's oceans are connected and can be navigated by the same ship passing from one body of water to the next. Even most of the world's land locked seas are connected

⁴ Food and Agriculture Organization of the United Nations, *Fisheries Global Information System* (accessed August 15, 2002); available from <https://www.fao.org/fi/figis>.

⁵ *Onshore and Offshore Oil Reserves/Resources* (accessed August 15, 2002); available from <http://archive.greenpeace.org>.

⁶ United Nations Atlas of the Oceans.

⁷ Ibid.

to the World Ocean via river, lock, and canal. It is possible for a vessel to leave the Port of New York/New Jersey, travel either through the Panama Canal, circumnavigate South America, or as the Arctic increasingly thaws, to navigate through the Northwest Passage and enter into the Pacific. This same vessel can then steam through the Pacific into the Indian Ocean, then through the Gulf of Aden, Red Sea, and Mediterranean Sea back into the Atlantic or around Africa into the South Atlantic Ocean. The North Sea, Norwegian Sea, Barents Sea, Kara Sea, Laptev Sea, and East Siberian Sea are all connected through the North Sea Route, and progressively more so with the advent of global warming present another path between the Atlantic and the Pacific.⁸ This ship can transit the world's oceans with speed, ease, and safety never before matched in human history. In 1519 it took Magellan's *Armada de Moluuca* three full years to circumnavigate the globe.⁹ Today a modern vessel can make this same trip in only days. This fact becomes even more impressive when the ship in question is an aircraft carrier or a mega tanker loaded with thousands of tons of cargo.

Notwithstanding the geographic realities that technology is increasingly "shrinking" the world, we have allowed ourselves over time to become trapped into the idea that the artificial division of the world's waters does indeed exist. The goal of this paper is to break this false paradigm by defining the World Ocean, and with an appreciation for current oceanic affairs, reconceptualize the earth's salt water for what it is: a unified, interconnected body of water with universal economic, social, and military implications. In so doing, the Mediterranean Sea provides a useful case study of how

⁸ For further information on the development of the Northern Sea Route as a maritime link between the Atlantic and Pacific over Eurasia please see *The International Northern Sea Route Program*; available from <http://www.fnj.no/insrop/>.

⁹ John B. Hattendorf, *Maritime History: the Age of Discovery* (Malabar, Florida: Krieger Publishing Company, 1996), 264.

human interaction has evolved previously when man has conquered oceanic space with new technologies.

The developing World Ocean strikingly resembles the Mediterranean of antiquity. Other historians have made the observation that the Gulf of Mexico in the 19th century, the Arctic from aviation in the 1950's, and the Pacific increasingly in the 1990's all reflect the same maritime processes of increased interaction first witnessed in the Mediterranean Sea.¹⁰ Following these changing concepts of time and space that larger and larger ocean basins reflect Mediterranean tendencies, I propose that the World Ocean should be thought of in Mediterranean terms.

The concept of a World Ocean Mediterranean lends insight into global processes that are shaping the planet on which we live. The World Ocean has evolved much like the Mediterranean in terms of trade, the projection of power, and the movement of cultures and people as a maritime conduit connecting nations. The speed and efficiency with which commercial and military ships transit the globe continues to reduce the barrier of distance and the World Ocean can now be conceptualized in Mediterranean terms. The Mediterranean model, then, when applied to international events provides some useful insights into what the world might look like in the coming years. In so doing, concepts of scale such as an "Arctic Mediterranean," "Gulf of Mexico Mediterranean," and "Pacific Mediterranean" might be expanded to better understand the "World Ocean Mediterranean."

¹⁰ Ellen Semple in *American History and its Geographic Conditions*, Vilhjalmur Stefansson in the article "The North American Arctic," and Paul Blank in the article "The Pacific: A Mediterranean in the Making?" all make the Mediterranean analogy. These three works will be explored in further detail in the following World Ocean Mediterranean section of this paper.

Armed with the concept of a World Ocean Mediterranean, the final section of this paper will examine cartography with a salt water perspective. The first step in this process is to remove the landlubbers' focus on the world map from the continents to the ocean. When viewing earth from space, it is the ocean's blue that provides the common theme on which continents are set. After removing the deceiving colors and lines artificially drawn on political maps, the World Ocean and coast lines take on renewed significance. In keeping with a fresh cartographic approach, the Mercator projection, while accurately depicting direction, distorts shapes and sizes and is not always the best projection with which to view the world. New projections with an eye to the sea will be proposed to illustrate the World Ocean Mediterranean idea. The World Ocean does after all cover 71 percent of the earth's surface (coincidentally the same percentage of water in the human body), and should receive a proportionate amount of cartographic attention.

A World Ocean Mediterranean is very useful to understand some global dynamics, but it goes without saying that there are other frameworks of analysis that are better suited for understanding different processes. No one framework of analysis is all inclusive and different concepts should be applied with their strengths and weaknesses in mind. However, there is much to be gained from studying global processes with an oceanic world view. Developing the idea of a World Ocean Mediterranean is more than renewing the old debate personified by Admiral Mahan versus Sir Halford Mackinder in continental versus oceanic leanings. Instead, the World Ocean Mediterranean seeks to develop a more sophisticated world view beyond just the extension of nation state power to much larger, broader issues. Viewing the World Ocean Mediterranean with a global perspective helps illuminate broad historical currents, provides valuable insight into

understanding the world today, and helps identify both threats and opportunities the world will likely face in the future.

The World Ocean

*Every great epoch of history has had its own sea, and every succeeding epoch has enlarged its maritime field. The Greek had the Aegean, the Roman the whole Mediterranean, to which the Mediaeval made an addition in the North Sea and the Baltic. The modern period has had the Atlantic, and the 20th century is now entering upon the final epoch of the World Ocean.*¹¹

Ellen Churchill Semple

*The Ocean is the world's pathway, it is global trade, it is the direct communication with distant continents it is the road for economic relations between all peoples of the World.*¹²

G.V. Chicherin

*If in the past we have been prone to limit our geographical thinking to the land areas, we have been equally guilty of thinking of the ocean as something other than a single world-girdling sea. Such phrases as "the seven seas" and "the oceans" imply that, in addition to the seven continents, there are several separate and distinct oceans or seas. The sea is, in fact, one global sea.*¹³

H. B. Steward.

Professor Semple made the above prophetic observation in 1908. The First World War, followed by the isolationism of the 1920's and 1930's in the interwar years and the even more disastrous Second World War, would arrest the great epochs of history that Semple had envisioned. The half-century of Cold War that followed World War II would further halt any chance of achieving a World Ocean in a political climate of battling superpowers preaching divergent economic ideologies. After waiting a century, the world has again picked up the mantle of internationalism, of increased trade, and economic integration. The terrorist attacks of September 11, 2001 have caused the world to pause for reflection and question whether we have indeed entered the next great epoch of history. While the pace of history might be out running our ability to comprehend it, the World Ocean has reemerged as a geographical construct about which the modern world is being built.

¹¹ Ellen Churchill Semple, "Oceans and Enclosed Seas: A Study in Anthro-Geography," *Bulletin of the American Geographical Society* 40, no. 4 (1908): 206.

¹² Chicherin, G.V., United Nations Oceans Atlas (accessed June 11, 2002); available from <https://www.oceansatlas.com>.

¹³ H. B. Steward, *Deep Challenge* (Princeton: Van Nostrand, 1966), 6.

If Professor Semple were able to observe the World Ocean today she would be astonished by enormous, efficient, mega tankers easily circumnavigating the globe. She would note that container ships have revolutionized international freight, integrating through inter-modal transport the world ocean with the hinterland by rail and road. Transportation costs are no longer prohibitively expensive in moving goods between nations, and the world ocean ceases to be a barrier that prevents trade. Goods are now kept out of markets by tariffs, artificially imposed to raise prices, instead of by transport costs. Professor Semple would remember the salty shrill of the liner's whistle when pulling into port, but be amazed today to see harbor sides laden with massive cranes processing entire ships' goods in only hours. If Professor Semple were able to inspect the containers buried in these ships' holds, she would find goods from every corner of the earth, all moving in a seamless maritime super-highway linking the world's consumers and producers.

The World Ocean has not just taken the global economy by storm, but has also affected a sea change in military operations. While the great navies of the world in the early 20th century had already abandoned wood for steel and were building the first great dreadnought battleships, they pale in firepower and range to modern naval forces. Today's modern navies are equipped with long range conventional missiles, the most advanced information technologies, and a plethora of nuclear weapons. Consistent with changing oceanic concepts of time and space, naval vessels have continued to grow in size and deadliness.

For example, newly built submarines are the same size as World War II aircraft carriers. AEGIS cruisers are able to link satellite communications, encrypted VHF and

HF transmissions, radar, and even sonar information into one air, surface, and sub-surface picture.¹⁴ These data can then be shared with other naval vessels anywhere on the World Ocean equipped the same technology to form a real time picture of every facet of the maritime environment. Orders can be beamed to a destroyer from a headquarters on land with the exact GPS coordinates of a target, a missile launched, and a target destroyed, all with science fiction-like precision and efficiency.

The ocean provides nations like the United States the ability to project firepower anywhere on earth and allow for military operations like the recent war in Afghanistan. Naval power and transport are a critical consideration in any plans currently being contemplated by the Bush administration in toppling the Iraqi dictator Saddam Hussein. Naval vessels are able to operate on the high seas in international waters with freedom and independence eclipsing the legal, political, and logistical constraints facing land forces. Reflecting the emergence of the World Ocean as a central consideration in future global affairs, military planners in the US are reconsidering the need even to maintain a powerful army, choosing instead to focus resources into naval power and coastal invasion forces like the Marine Corps.¹⁵ Because the World Ocean literally connects every continent and is thus the most effective medium for the world's hegemon to extend nation-state power, tanks are being traded for frigates to win the battlefield of the future.

Professor Semple would also note that today's World Ocean is dotted with oil platforms thrusting their thirsty probes beneath the ocean floor in search of the coveted

¹⁴ AEGIS is a navy acronym for Automatic Electronic Guided Intercept System. United States Spruance and Arleigh Burke class destroyers are equipped with AEGIS technology. The AEGIS system is a super-powered four megawatt radar that is capable of tracking and performing missile guidance functions on over one hundred targets simultaneously. For more information on the AEGIS combat system please see U.S. Navy Fact File, *Aegis combat system*, (accessed August 22, 2002); available from <http://www.chinfo.navy.mil>.

¹⁵ Peter J. Boyer, "A Different War: Is the Army Becoming Irrelevant?" *The New Yorker*, July 1, 2002, 54-67.

black gold. The International Energy Agency (IEA) estimates that oil rigs are pumping out more than five million barrels of oil each day accounting for over 80 percent of total non-OPEC production growth.¹⁶ Les Magoon, a petroleum geoscientist from the U.S. Geological Survey, calls the offshore oil industry “probably the most technologically advanced industry on earth, perhaps second only to the aerospace industry.”¹⁷ Oil rigs continue to grow in size and every day are able to drill in progressively deeper water. The world record for depth of water is held by the Transocean Sedco Forex’s *Discover Spirit* that drilled in 9,687 feet of water in 2001. The current record for oil and gas production is held by Exxon Mobil’s Mica Project in the Gulf of Mexico which pumps 140 million cubic feet of natural gas and 13,000 barrels of oil each day.¹⁸

The sea scapes of the oil rich Gulf of Mexico and Persian Gulf look more like fields of offshore cities rather than barren wastelands of empty waves. These rigs are often placed so close together that on radar they sometimes can appear as land. At night their lights fill the ocean sky and from the air might be confused for bustling metropolises rather than man made atolls extracting petroleum from beneath the ocean’s floor. Offshore drilling of oil and natural gas is growing in its percentage of the world’s energy supply with only 50 billion barrels of offshore oil used from the 400 billion barrels of oil discovered.¹⁹

The World Ocean has historically also provided humans a hunting field rich with food. As long as man has been willing to thrust his hand or a baited line into the salt

¹⁶ International Energy Agency, *Global Offshore Oil Prospects to 2000* (Paris: International Energy Agency Press, 1996).

¹⁷ “Oil Production Curve Causes Concern,” *Australian Energy News*, December 2001.

¹⁸ U.S. Department of the Interior Minerals Management Service, *U.S. Offshore Milestones*, September 2001 (accessed August 15, 2002); available from <https://www.mms.gov/stats>.

¹⁹ *Onshore and Offshore Oil Reserves/Resources*.

water, fish have constituted an important part of the human diet. Fish bones have been found in Mediterranean caves dating back to Mesolithic times, showing that as early as the seventh millennium B.C. fish were an important dietary staple.²⁰ Fish have always been considered a sacred natural resource, and at times nations have even gone to war over the right to catch fish. Britain and Iceland, two NATO allies, fought the infamous Cod War in 1975 and 1976 over the right to catch this unremarkable fish. Despite man's unrelenting efforts to harvest as many fish as possible, fish were still able to out swim old technology, and until the last several decades were able to escape extinction.

Man has since designed more lethal and efficient means for catching all kinds of aquatic species, and as a result today's World Ocean is home to a dwindling supply of fish. In 2001 the total world catch weighed in at 100 million tons and accounted for US \$50 billion in international trade.²¹ The Food and Agriculture Organization of the United Nations reported that in 2000 half of the world's marine stocks were at maximum yield and one quarter were already over fished.²² The Grand Banks, once the Atlantic's seeming limitless supply of the sacred Cod, has turned out to hold a finite number of fish. In 1992, the Canadian government was forced to close the Grand Banks due to dwindling fish stocks. The Grand Banks is still closed and shows no signs of recovery, but it is not alone in this predicament.²³ The rest of the world's fishing stocks are teetering dangerously close on the same precipice of over fishing and face the dire possibility of suffering the same fate of the Grand Banks.²⁴

²⁰ Elisabeth Mann Borgese, *The Oceanic Circle: Governing the Seas as a Global Resource* (New York: The United Nations University Press, 1998), 48.

²¹ United Nations Atlas of the Oceans.

²² Food and Agriculture Organization of the United Nations, *World Fisheries and Aquaculture Atlas 2001*, (accessed August 15, 2002); available from <https://www.fao.org/fi/atlas>.

²³ Deborah Cramer, *Great Waters* (New York: W. W. Norton and Company, 2001), 54-55.

²⁴ Mario Soares, *The Ocean Our Future* (Cambridge: Cambridge University Press, 1998), 84.

Fishing has become a truly global industry with fishing vessels transiting every corner of the World Ocean in search of a lucrative catch. Before man was able to navigate the World Ocean with ease, fishermen confined themselves to relatively familiar fishing grounds. Today, fishing fleets steam night and day following dwindling stocks world wide to feed global masses hungry for salt water delicacies. The competition for what fish remains is fierce, and can even be deadly. On June 26, 2002 a Russian Border Guard commander, General Vitaly Gamov, was assassinated by “fish pirates” angry at his attempts to stop Russian vessels from poaching in the Sea of Okhotsk and selling their catch in South Korea and Japan.²⁵ Fishing fleets are financed by foreign investment and fish have been drawn into transnational production chains with the catch, processing, and eventual sale of fish taking place in many different countries.²⁶

Take, for example, the life of a Blue Fin tuna. This prized fish is chased by multi-national fishing fleets off of the coast of New England. Once landed and cleared for sale by regulatory agencies, the fish is inspected by potential buyers within minutes of hitting the pier. Word travels fast that a Blue Fin has been caught and often international fish entrepreneurs are waiting at the dock before the fishing vessel even returns to port. The fish is then auctioned, and within hours is on a plane en route to Asian fish markets where this delicacy demands a handsome price. Usually by the end of the day the Blue Fin tuna that was once swimming carefree in the Atlantic Ocean is being served up in Tokyo sushi bars to hungry customers on the other side of the world.

²⁵ Sabrina Tavernise, “A Violent Death Exposes Fish Piracy in Russia,” *The New York Times*, June 27, 2002.

²⁶ Becky K. Mansfield, “Globalizing Nature: Political and Cultural Economy of a Global Seafood Industry” (Ph.D. diss., University of Oregon, 2001), 1.

The World Ocean also has other important economic implications. The international shipbuilding industry, ocean tourism, marine biotechnology, underwater mining, and the value of ocean real estate all make substantial contributions to the world economy. The *1998 Year of the Ocean Discussion Papers* cite methane hydrates found deep beneath the ocean floor and underwater mining opportunities of minerals such as manganese, gold, and titanium as showing enormous potential for future economic development.²⁷ The travel and tourism industry is the fastest growing sector in the world economy and in the U.S. alone is the nation's largest employer and second largest contributor to national GDP accounting for over \$700 billion annually. Coastal tourism comprises 85% of all tourism-related revenues.²⁸ Each of these sectors is growing and show enormous potential for the future development.

It is difficult to quantify the exact portion of world output directly related to the World Ocean. Following interest generated from the dialogue surrounding the United Nation's 1998 Year of the Ocean, the United States is one of the first countries attempting to measure the ocean's overall importance in the national economy. The results from this research have not yet been published, but preliminary findings show that ocean related industries comprise a significant portion of the U.S. GDP.²⁹ The ocean undoubtedly has an even larger impact on island nations and coastal countries like South Korea (which has been made politically a virtual island since the Korean War) where

²⁷ U.S. Federal Agencies with Ocean Related Programs, *1998 Year of the Ocean Discussion Papers* (Washington D.C.: Department of Commerce, 1998), D-3 to D20.

²⁸ National Oceanic and Atmospheric Administration, *Turning to the Sea: America's Ocean Future* (Washington D.C.: Department of Commerce, 1999), 12.

²⁹ Charles S. Colgan, "Estimating the Economic Value of the Ocean in National Income Accounting Framework – Preliminary Estimates of Gross Product Originating for 1997" (Working Paper, National Ocean Economics Project, 2000) and Judith T. Kildow, *Developing Better Economic Information About Coastal Resources as a Tool for Integrated Ocean and Coastal Management* (accessed July 5, 2002); available from <http://biology.usc.edu/NOEP/>.

maritime industries like shipbuilding constitute an important part of the national economy. While not readily apparent in International Monetary Fund and World Bank statistics, the World Ocean both directly and indirectly constitutes a significant portion of world economic output.

The World Ocean and Transnational Threats

Like international sea power, the world economy, and energy sources, most transnational threats also have a maritime dimension. The World Ocean is the avenue by which many illegal immigrants set sail north in search of a better life. Haitian and Cuban refugees smuggled in fishing holds riding the Gulf Stream north through the Windward Passage bound for Miami, Florida and Asians fleeing political strife and poverty aboard unseaworthy rafts en route to Australia, Europe, and California choose the salt water as their means to freedom. While world statistics for the amount of migrants who travel by sea are not kept, the United States Coast Guard reports that each year tens of thousands of people try to illegally enter the United States by maritime means.³⁰ More than 4,000 migrants mostly from the Middle East, Central Asia, and China made the perilous sea crossing from Indonesia to Australia just last year.³¹

The World Ocean is not only the most efficient mover of legitimate goods in the world economy, but is also utilized by drug traffickers to ship their toxic contraband from the fields of South America and Central Asia to northern markets with an insatiable appetite for cocaine, marijuana, and heroin. Again, because of a lack of awareness in the

³⁰ U.S. Coast Guard, Alien Migrant Interdiction, *Migrant Interdiction Statistics* (accessed August 15, 2002); available from <https://www.uscg.mil>.

³¹ Dominic Hughes, "Australia's Migrant Policy Under Fire," *BBC News*, March 31, 2001.

international community of the role of the World Ocean in global affairs, worldwide statistics are not kept for the quantity of drugs smuggled by maritime means. The United States Office of National Drug Control Policy did report that in 2001 non-commercial maritime conveyances accounted for more than 80 percent of the five hundred metric tons of pure cocaine that entered the United States from the south.³²

The War on Terrorism also has a maritime dimension. Beyond the fact that the battles in Afghanistan have been fought largely from naval platforms, there is a growing fear that terrorists might seek maritime means to launch their next attack. On September 11th terrorists chose airplanes as instruments of death and destruction. There is a legitimate threat that a future attack could come over water. Eight of the world's largest ten cities are port towns, and as mentioned a majority of the world's population lives within fifty miles of a coast.³³

Similar to international airports, the same economic benefits of open ports processing international shipping as quickly as possible also presents security risks of the potential damage from a rogue vessel commandeered by terrorists or an anonymous container filled with biological, chemical, or even nuclear weapons.³⁴ In 1996, a 69,000 ton tanker lost power in downtown New Orleans, narrowly missing two cruise ships and a casino boat before crashing into the congested waterfront, leveling a shopping mall and the Hilton Riverside Hotel.³⁵ If this scenario were again played out not by a vessel that lost its ability to steer but by a vessel deliberately aimed at coastal targets by terrorists,

³² U. S. Office of National Drug Control Policy, *Interdiction Operations* (accessed August 15, 2002); available from <http://www.whitehousedrugpolicy.gov>.

³³ United Nations Atlas of the Oceans.

³⁴ For further information on coastal security threats in the War on Terrorism see Stephen E. Flynn, "Beyond Border Control," *Foreign Affairs* 79, no. 6 (November/December 2000) and Stephen E. Flynn, "America the Vulnerable," *Foreign Affairs* 81, no. 1 (January/February 2002).

³⁵ James Varney and Mary Judice, "Hope Prevails That No One Died; Round the Clock Search Goes On," *The Times-Picayune*, December 17, 1996, A4.

the results could be catastrophic. The World Ocean then does not just provide positive benefits of linking humanity, but because of the plethora of nuclear reactors, military bases, and population centers along the world's coasts maritime security takes on renewed importance in an age of international terrorism.

The World Ocean is also a conduit and a depository for pollution. Ocean tides ignore national sovereignty and territorial seas and carry sewage, herbicides, and heavy metals indiscriminately. The World Ocean also acts as a transmitter of human diseases. A recent book titled *From Monsoons to Microbes* that explores the affect of the oceans on human health notes that "the distribution of viral, bacterial, and protozoal agents and algal toxins in marine habitats depends on the interplay of currents, tides, and human activities."³⁶ Algal toxins cause "red tides" that strip sea water of life giving oxygen and are increasing in size and frequency. The rise in red tides has been attributed largely to ballast water discharged by vessels making trans-oceanic voyages.³⁷ The role of the World Ocean in funneling trade is transmitting harmful microorganisms on a global scale. NOAA's Sea Grant reported that in 1850 one new species was introduced to America every 36 weeks. By 1985, this rate had surged to one new species introduced every 12 weeks.³⁸ Coastal communities that had never before witnessed red tides are now seeing them poison their environment in almost biblical proportions.

The pollutants man introduces to the sea are not confined to the coasts from where they originally entered the World Ocean. Industrial herbicides flowing into the Gulf of Mexico from the United States affect more than just the growing dead zone at the mouth

³⁶ Committee on the Ocean's Role in Human Health, *From Monsoons to Microbes: Understanding the Ocean's Role in Human Health* (Washington D.C.: National Academy Press, 1999), 2.

³⁷ Committee on Ships' Ballast Operations, *Stemming the Tide: Controlling Introductions of Nonindigenous Species by Ships' Ballast Water* (Washington D.C.: National Academy Press, 1996).

³⁸ Edward Carr, "The Sea – A Second Fall," *Economist*, May 23, 1998, The Sea Survey 5.

of the Mississippi River where aquatic species are choked of life. Concern is growing that nuclear waste dumped into the Kara Sea and the Sea of Japan might be poisoning the Pacific. In 1993, The Russian government released the Yablokov report that detailed the dumping of 16 nuclear reactors in the Kara Sea, and an unknown amount of liquid nuclear waste and spent radioactive material discharged into the Barents Sea and Russian Far East. The international community has demanded that Russia deal with this flagrant violation of environmental standards, but due to budget constraints, the Russian government has not yet been able to do so.³⁹ Russia is not alone in its environmental negligence, and the World Ocean is becoming sick from human refuse.

In her book *Great Waters*, Deborah Cramer is especially sensitive to this fact and notes that the World Ocean transfers pollutants. After summarizing the amount of toxins that enter the salt water at different places around the globe, she notes:

Unseen passengers in atmospheric winds and oceanic currents, chlorinated pesticides, industrial by-products, and radioactive wastes travel thousands of miles away from where they were manufactured, used, or discarded. The persistence of toxic chemicals and their concentration and magnification as they move through the food chain give lie to the notion that what is cast away disappears. Toxic chemicals do not cease to exist simply because the sea is vast, because flowing water and moving wind disperse and dilute them to undetectable levels. Drift buoys, satellite images, chemical tracers, tropical seeds, messages sealed in bottles: all point to the wholeness, the unity of the sea, the connectedness and interdependence of disparate waters. A drop of water swept off a beach in Sitka, Alaska, may eventually appear off of the coast of New England, seawater swept through the Anegada Passage off Cuba may touch the Grand Banks of Newfoundland, the sands of Scotland. Chemical tracers, identifying the sea's tangle of currents, tracking their paths and

³⁹ For a complete review of the alarming presence of nuclear waste in the Arctic, please see U.S. Congress, Office of Technology Assessment, *Nuclear Waste in the Arctic: An Analysis of Arctic and other Regional Impacts from Soviet Nuclear Contamination*, OTA-ENV-623 (Washington, DC: U.S. Government Printing Office, 1995).

destinations, light the darkness of the sea, show the weave of water, the liquid path to the distant reaches of the earth.⁴⁰

The interconnectivity of the World Ocean does not only become apparent from the movement of shipping and sea power between the world's oceans, but sadly is also evident in the growing global oceanic environmental crisis.

Finally, piracy has not been rendered obsolete to exist only in history books and fictional lore, as maritime bandits continue today to terrorize commercial traffic. Contrary to popular belief, piracy remains a serious threat in many of the world's oceans. The Maritime Safety Committee of the International Maritime Organization (IMO) reported in 2001 that the previous year witnessed 471 acts of armed robbery at sea, a 52 percent increase over the amount of similar attacks in 1999. The IMO reported that between 1984 and 2001 2,309 incidents of piracy occurred worldwide.⁴¹ The United Nations still regards piracy as a serious threat to the safety of international shipping and in the 2001 *Oceans and the Law of the Sea Report* the Secretary-General called for a global effort to help purge this international cancer.⁴²

The Fallacy of Distinct Ocean Basins

Despite the fact that globalization has returned with a vengeance after being forced to wait for over a century, historians still view oceans in terms of their distinct basins. They fail to see that while capital flows, climate change, migration (wildlife and

⁴⁰ Cramer, 106-107.

⁴¹ International Maritime Organization, *Report of the Seventy-Fourth Session of the Maritime Safety Committee*, document MSC 74/24, para. 17.2, 2001.

⁴² United Nations, *Report of the Secretary General on Oceans and the Law of the Sea*, 57th Session of the General Assembly, March 7, 2002.

people), the spread of disease and so on do not respect national boundaries, that the age old medium splashing all continents and peoples is also inherently global.⁴³ With track lines fixed in the past, academic studies have developed a strong regional bias. Instead of being founded on the World Ocean, university departments and courses focus instead on individual bodies of water. Courses titled the Atlantic Community, Pacific Affairs, the Adriatic, Caribbean Politics, and so on are offered without any recognition of the larger body of water to which these ocean basins belong.

While these constructs may be useful for understating processes within distinct regions, the world today is becoming increasingly global, ignoring national and regional boundaries. Perhaps in the coming years, consistent with global dynamics and recognizing that all continents rest on a common shore, university departments will change their names and courses from being founded on separate maritime communities to anchoring their studies in a World Ocean.

Almost all of the historiography prior to the 1990's that dealt with the sea was limited in scope to individual ocean basins. This is probably partly due to the fact that political realities over the last half century have prevented a return to the globalization of the 19th century.⁴⁴ Consider for a moment that up until the early 16th century the Indian Ocean and Atlantic were still conceived of as confined lakes, surrounded on all sides by land.⁴⁵ Magellan's historic voyage in 1519 would dispel this myth, but even the most learned still separate in their minds each ocean basin as existing wholly unto itself. For

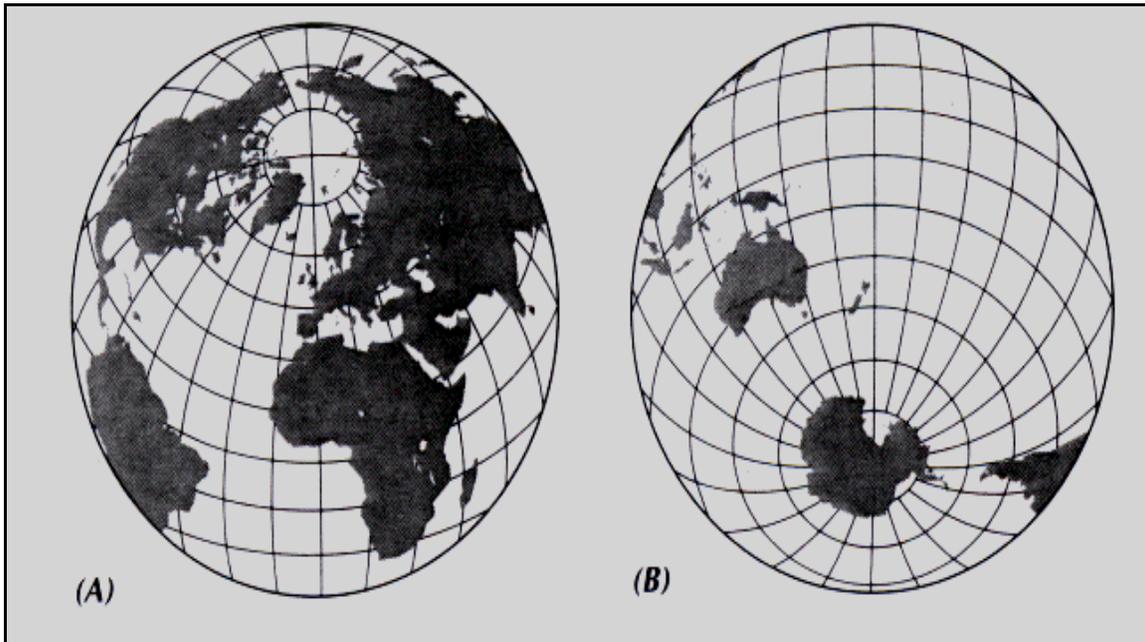
⁴³ For an authoritative article discussing the merits of ocean basins as frameworks of analysis as opposed to the nation state please see Jerry H. Bentley, "Sea and Ocean Basins as Frameworks of Historical Analysis," *The Geographical Review* 89, no. 2 (1999): 215-224.

⁴⁴ For a detailed comparison between the 19th century Atlantic economy and globalization today please see Kevin H. O'Rourke and Jeffrey G. Williamson, *Globalization and History* (Cambridge: The MIT Press, 2000).

⁴⁵ Martin W. Lewis, "Dividing the Ocean Sea," *The Geographical Review* 89, no. 2 (1999): 197-198.

almost five hundred years we have known that the world's seas are all intertwined into one interconnected seaway, but our mental maps have yet to evolve to truly appreciate that unlike continents, the world's oceans form a coherent whole.

Just now are geographers starting to consider the existence of a new ocean. The strength of Pacific economies and the perennial shift of power from east to west have raised a new focus on southern waters. The Southern Ocean has existed in name since Balboa “discovered” the Pacific when looking south from the Panamanian isthmus in 1513, but today it is being thought of as the union of the South Pacific, South Atlantic, and Indian Oceans into one massive body of water. A hemispheric view from this perspective reveals a “water” hemisphere to the south and a “land” hemisphere to the north.



The “land hemisphere” (A) and the “water hemisphere” (B) on the Lambert Azimuthal Equal-Area projection, centered on $47^{\circ}13' \text{ N}$, $1^{\circ}32' \text{ W}$, and $47^{\circ}13' \text{ S}$, $178^{\circ}28' \text{ E}$, respectively.⁴⁶

⁴⁶ Judy M. Olson, “Projecting the Hemisphere,” in *Matching the Map Projection to the Need*, eds. Arthur H. Robinson and John P. Snyder (Bethesda, Md. : American Congress on Surveying and Mapping, 1991).

The French geographer Elisee Reclus was the first to mention a water hemisphere in his book *The Earth: A Descriptive History of the Phenomena of the Life on the Globe* published in 1872.⁴⁷ Like Balboa, who sensed that the ocean at which he stared was massive in size, Reclus comments “[t]he principal accumulation of water is in the southern hemisphere, and the continental masses, on the other hand, are grouped in the northern half of the earth’s surface.”⁴⁸

While most of the earth’s land mass does lie in the northern hemisphere, we should not forget that the earth is three quarters covered by water, and that the earth’s continents swim in the World Ocean in both hemispheres. The realities of modern shipping, naval power, offshore oil and gas exploration, the global fishing industry, the potential of a navigable Arctic, and even the cruising industry necessitate looking beyond the Southern Ocean to take the next step of articulating a World Ocean.

The World Ocean as the Culmination of World History

Before looking forward in assessing the World Ocean’s significance today, however, it is enormously useful to stand on the stern of the ship of time and note the wake from whence we came. As noted, the World Ocean is a relatively recent concept, flirted with temporarily a century ago, and only in the last decade with the end of the Cold War reemerging as a useful geopolinomic construct. The idea of a World Ocean is only possible after combining new technologies with centuries of human energies invested in discovery, imperialism, and trade.

⁴⁷ Elisee Reclus, *The Earth: A Descriptive History of the Phenomena of the Life of the Globe* (New York: Harper and Brothers, 1872).

⁴⁸ *Ibid*, 50-51.

As early as 550 B.C. the Ionian Anaximander of Miletus conceived of the earth's land mass as a world island surrounded by a circular ocean river.⁴⁹ Heavily influenced by the works of Aristotle and Herodotus, this view of the world was discarded by Ptolemy, who drew a world map of the Mediterranean Sea and Atlantic and Pacific Oceans as being landlocked by Europe, Asia, and Libya (then the known extent of Africa).⁵⁰ Ptolemy's world map was embraced as the zenith of classical geographic learning and accepted as truth until the 15th and 16th centuries when with new discoveries mankind would learn that the Earth's true shape was round, and that its surface was dominated by water.

This realization, however, did not occur overnight. It took hundreds of years, indeed millennia, for different civilizations to venture further and further over the horizon. Oceanic worlds prior to 1450 were centered in three distinct spheres: the Mediterranean and Eastern Atlantic, the Indian Ocean, and the South China Sea. Each sphere existed in large part as its own maritime world, separated from the other two without ships or mariners capable of rowing or sailing freely on a regular basis between all three.

The first oceanic sphere of the Mediterranean Sea was a nursery for maritime expansion, providing an enclosed body of water that linked trade, conquest, and interactions between civilizations that will be explored in further detail in the next section. The Mediterranean World was at first confined from the Strait of Gibraltar to the Nile Delta, with this enclosed body of water alone taking centuries to master. The

⁴⁹ Norman J. W. Thrower, *Maps and Civilization: Cartography in Culture and Society* (Chicago: University of Chicago Press, 1996), 19.

⁵⁰ Martin W. Lewis, "Dividing the Ocean Sea," *The Geographical Review* 89, no.2 (1999): 190-191.

mighty Roman Empire expanded the Mediterranean maritime domain to include the North and Baltic Seas, eventually invading the island of Britain in 55-54 BC and again in 43 AD. However, the Mediterranean world largely existed separate from other ocean basins.

In the meantime, African, Arab, and Asian societies were gradually mastering the Arabian Sea and Bay of Bengal, ultimately learning how to navigate across the Indian Ocean. Predictable trade winds facilitated Indian Ocean navigation. New evidence is being unearthed in Egypt's desert that suggests that the Indian Ocean in fact may have provided a maritime trading hub between Mediterranean and Asian societies rivaling even the famed Silk Road.⁵¹ Unfortunately it is easily lost in the Eurocentrism that dominates much of the historical literature that the Indian Ocean was the first ocean basin to be crossed on a regular basis, the first to be linked to established economies, and before Vasco Da Gama sailed in with a vengeance in the 15th century which later released a flood of European imperialism, a maritime environment by which people, goods, and ideas moved freely.⁵²

Likewise, Pacific societies were slowly honing their nautical skills and mustering their courage to discover new maritime domains. The Sea of Japan, East China Sea, and South China Sea yielded their waters to the Philippine Sea and Eastern Pacific Ocean. The Chinese today look shoreward to the Asian continent to define their identity, but for a time in the 15th century China was the world's great maritime power. We should not forget that even with the success of European guns, germs, and steel over the last five

⁵¹ John Noble Wilford, "Under Centuries of Sand, a Trading Hub," *The New York Times*, July 9, 2002, D1.

⁵² Felipe Fernandez-Armesto, "The Indian Ocean in World History," in *Vasco Da Gama and the Linking of Europe and Asia*, ed. Anthony Disney and Emily Booth (New York: Oxford University Press, 2000).

hundred years, for five centuries after the first millennium China was the world's hegemon. Economically, socially, and politically the Chinese empire overshadowed civilizations in the West. This supremacy was reflected in an impressive amount of maritime might that sprang from a complex network of rivers and canals to transport agricultural products and an expanding Chinese population that spread throughout Southeast Asia.

Chinese maritime ambition culminated in the voyages of Cheng Ho from 1405 to 1433. Cheng Ho, a Muslim possibly of Mongol descent, commanded a fleet of 62 junks (the largest ever built by that time which may have displaced an awesome 3,100 tons), 225 support vessels, and 27,800 men.⁵³ This Chinese armada sailed the South Pacific Ocean and the Indian Ocean with the mission of extending China's commercial empire. Felipe Fernandez-Armesto notes in his book *Millenium – A History of the Last Thousand Years* that best estimates put Cheng Ho's last voyage at 12,618 miles, and that in total his fleet visited thirty countries around the Indian Ocean basin "as far south as Zanzibar, as far north as Hormuz, and as far west as Jiddah."⁵⁴ China's maritime pursuits were short lived and the emperor Hung-his backed by Confucian government officials ended China's maritime program and steered the nation back towards land. So shoreward were their sights that the Chinese scholar-elite even destroyed all records of Cheng Ho's trips and ended China's ship building industry.⁵⁵

Geographic advantages, intercontinental and continental migration rates, and state competition would by the 15th century catapult European powers to the forefront of

⁵³ Felipe Fernadez-Armesto, *Millennium – A History of the Last Thousand Years* (New York: Scribner, 1995), 142-143.

⁵⁴ Ibid.

⁵⁵ Ibid, 149.

oceanic discovery. By the 15th and 16th centuries European explorers had the maritime tools necessary to sail the World Ocean. They had traded oars for sail and developed the technology to add cannons to their ships, thus transforming the ocean from an avenue of trade to a political space for the projection of nation state power. The maritime historian J.H. Parry describes this era of world history as “the discovery of the sea,” when Europeans explored and mapped “continuous sea passages from ocean to ocean.”⁵⁶ The Portuguese pioneers, followed by the Spanish, the Dutch, and ultimately the British would sail larger and more sophisticated ships ever increasing distances discovering and uniting the Earth’s seas.

The Portuguese were the first to establish a sea-borne empire that consisted of outposts along both coasts of Africa and around the Indian Ocean, ultimately tying royal coffers to lucrative Asian trade. The Portuguese would in 1500 post their flag in Brazil, but it was the Spanish, symbolized by Pizarro’s incredible capture of the Inca emperor Atahualpa on November 16, 1532, defeating an army of 80,000 Indians with only 62 pieces of cavalry and 106 foot soldiers that were the first to fully exploit the New World.⁵⁷ Pizarro’s men were brought to the new world by ship, and ocean transit enabled Spain to be the first European power to effectively plunder the Americas in the name of Christ and the crown.

The Spanish were followed by the Dutch, perhaps the quintessential maritime society, who in the 17th century set sail upon the very salt water from which their land was claimed to form a vast maritime network of trade. Dutch vessels carried American tobacco, Asian tea, and Brazilian sugar across the world’s oceans to become the leaders

⁵⁶ J.H. Parry, *The Discovery of the Sea* (Berkeley: University of California Press, 1981); xii.

⁵⁷ Jared Diamond, *Guns, Germs, and Steel* (New York: W. W. Norton and Company, 1999), 67-81.

in international shipping. By 1639 the Dutch claimed the best navy, shipbuilding industry, merchant marine, and fishing fleet in the world, eclipsing the maritime might of their former Spanish masters.⁵⁸ The Dutch also had some imperial success with sea power in staking colonial claims in the new world and to this day hold on to some Caribbean islands like Curacao and Saint Martin. Americans sometimes forget that New York was first named New Amsterdam. Often described as miraculous, the success of the natural resource-poor Dutch can be attributed to a nation that fully leveraged oceanic advantages in its ascent to world power.

The Dutch ocean state was followed by British maritime hegemony that furthered European conquest across the globe. Like the Dutch, Britain pursued maritime means to build its empire that eventually stretched across the Pacific, Atlantic, and Indian Oceans. French and Spanish frigates in the 18th century did on occasion gave chase to the British lion's tail, but in 1805 during the Napoleonic Wars Lord Nelson and the island's maritime might at the Battle of Trafalgar secured for Britain the title of master of the seas. Britain's naval supremacy throughout the nineteenth century brought home to England the bounty that overseas trade had to offer. London emerged as a great maritime city and the British Empire, while supported by a growing population and eventually propelled by the industrial revolution, was only made possible by sea power. Britain became the first European power to come close to conquering the World Ocean, but the world was still prohibitively large in the 19th century for the island nation to successfully unite all of the world's water.

⁵⁸ George Raudzens, *Empires – Europe and Globalization 1492-1788* (Great Britain: Sutton Publishing Company, 1999), 75-91.

The twentieth century brought with it the death of sail and the emergence of the United States, Germany, Russia and Japan as new oceanic heavy weights. These emerging naval powers with their battleships and the new submarine forever killed Britain's two power navy rule and opened the seas to increasing amounts of armor and firepower. The new steel monsters belching black smoke from their stacks built by these countries revolutionized sea warfare. Japan's victory over Russia in the Russo-Japanese War of 1904-1905 gave Japan an oceanic sphere of influence in the Pacific. The American naval officer Alfred Mahan observed this war with keen interest and felt that the message that a nation's success depended upon maritime strength passionately espoused in *The Influence of Sea Power Upon History* (1890) and *The Interest of America in Sea Power* (1897) had been affirmed.⁵⁹ A student of oceanic history, Mahan tirelessly advocated that a vibrant merchant marine, a plentiful supply of coaling stations, and a powerful navy were the keys to a nation's success.

History has progressively accelerated in pace, and the twentieth century marred by wars cold and hot has witnessed the rise and fall of Japanese and Russian naval power, the birth of atomic energy at sea, and the beginnings of exploring the underwater frontier. The preceding paragraphs only superficially examine oceanic history, but begin to show how the World Ocean in concept is the culmination of thousands of years of oceanic exploration. Where man first shoved off from shore probably on nothing more than a felled tree venturing only yards from land in search of food, today he navigates the globe with agility and speed inconceivable even one generation removed. Each period of world history has witnessed increased oceanic exploration, trade, and empires founded on sea

⁵⁹ Alfred Thayer Mahan, *The Interest of America in Sea Power* (Boston: Little, Brown, and Company, 1897) and Alfred Thayer Mahan, *The Influence of Sea Power Upon History* (Boston: Little, Brown, and Company, 1890).

power that progressively grew in size linking civilizations and continents. Although this accelerating tide of global integration has been occasioned by hiccups of fits and starts, it has gradually expanded in size and force to include every ocean basin.

Even Mackinder, the geographer pitted against Mahan in the oceanic versus continental debate, acknowledged as early as 1902 the unity of the oceans as the key to world power. Mackinder wrote just six years before Semple's mention of the idea of a World Ocean:

After Columbus, value began to attach to the ocean-highway, which is in its nature universal. Even the great continents are only vast islands and discontinuous; but every part of the ocean is accessible from every other part. In the second century of the Christian era Ptolemy, an Alexandrine Greek, wrote a book which was the classic of geography a thousand years later. He pictured the land as continuous and the sea as divided into vast but separate lakes, Atlantic and Indian. In such a world general maritime empire would have been impossible. The unity of the ocean is the simple physical fact underlying the dominant value of sea-power in the modern globe-wide world.⁶⁰

The Mediterranean Sea, the Indian Ocean, and the Eastern Pacific Ocean were finally linked during the oceanic revolution of the 15th and 16th centuries into one coherent maritime network. The Atlantic Ocean and the rest of the Pacific Ocean were then added during the next three centuries. By the 19th century, all that was left to explore and unite with the burgeoning World Ocean were the polar extremes. The race was then on to explore and map the Arctic and Antarctic regions. Between the years 1878-1880 the Swedish explorer Adolf Eric Nordenskiöld succeeded in navigating his ship the *Vega* through the Northeast Passage.⁶¹ (A monumental voyage that was not

⁶⁰ Sir Halfred Mackinder, *Britain and the British Seas*, (New York: Haskell House Publishers, 1969), 12.

⁶¹ Adolf Eric Nordenskiöld, *The Voyage of the Vega Round Asia and Europe* (New York: MacMillan and Company, 1882).

more trumpeted perhaps because at the time Nordenskiöld was an exiled Swede in Finland.) In 1906, the Norwegian explorer Ronald Amundsen was the first to successfully sail the Northwest Passage.⁶² These accomplishments completed thousands of years of toil and treasure spent in uniting the earth's seas. The completion of the Suez Canal in 1869 and the Panama Canal in 1914 further reinforced the World Ocean as the maritime link that shuttled trade, naval power, people, and ideas around the globe between civilizations.

The motivations behind these historical processes are many. The proselytizing of Islam and Christianity are both responsible for man setting out to sea. Religious zeal in Islam first moving north, the crusades to push the Moors back south, and Islam's move back north again are all partly responsible for oceanic expansion. Growing populations, inter-state competition, and an insatiable European appetite for Asian products and new world metals also fueled man's quest to visit foreign shores. Perhaps the force of Asian markets alone is the greatest driver pushing Europeans off shore.

The lure of a Northwest Passage to bypass the long journey of circumnavigating Africa or South America has beckoned many a sailor out to sea. Christopher Columbus, Magellan, and Sir Francis Drake were all in search of this short cut when they took command of their ships. The idea of a Northwest Passage filled European leaders with excitement (especially the British who were denied access to the Mediterranean when the Spanish took control of the Straits of Gibraltar) of the prospects of a quick trip to Asia. The quest for the fabled Northwest Passage became an obsession beckoning explorers

⁶² Nancy Fogelson, *Arctic Exploration & International Relations 1900-1932* (Fairbanks, AK: University of Alaska Press, 1992), 52.

like Cook, Barrow, Franklin, Hudson, Byrd, Peary, and Larsen to brave the Arctic cold in search of fame and glory.⁶³

Beyond these motivations founded in personal and national material gain there is also the spiritual calling of the sea. Deep within man's soul there is a primal urge to set sail, to test one's endurance against the awesome, often mystical powers locked in the ocean's deep. The salt water from where man came still beckons him to leave land in pursuit of peace and adventure across the mighty blue. This spirit of adventure and addictive drug of sailing the World Ocean is as much responsible for uniting the earth's waters as other historical processes. Religion, the pursuit of wealth, and national ambition are all responsible in world history for man choosing to brave the seas, but the same spirit captured by Ralph Waldo Emerson in the words "[t]he sea, washing the equator and the poles, offers its perilous aid... Beware of me, it says, but if you can hold me, I am the key to all the lands" shares in the realization of Semple's final epoch of achieving a World Ocean.⁶⁴

The World Ocean Made Possible Through Technological Innovation

The World Ocean could not exist, however, with man's intent to conquer ocean space alone. Unifying the World Ocean has only been possible with accompanying advancements in maritime technologies. Naval and commercial technologies have combined with man's ambition to master the waves and render the World Ocean into a

⁶³ For a historiography of the quest to find the Northwest Passage see Ann Savours, *The Search for the North West Passage* (London: Chatham Publishing, 1999).

⁶⁴ U.S. Department of Commerce, National Oceanic and Atmospheric Administration, *Ocean Explorer* (accessed August 15, 2002); available from <https://oceanexplorer.noaa.gov>.

lake of human activity. Bigger, faster, more efficient ships have altered concepts of time and space in merging separate ocean basins into one World Ocean.

The transition from oar to sail helped replace Mediterranean city states with regional kingdoms. Further improvements of masted sailing ships, the ability to take cannons to sea, and evolving nautical science allowed European powers to turn regional spheres of influence into global empires.⁶⁵ Sail gave way to steam, wood to steel, coal to oil, paddle to propeller, and eventually modern innovations such as nuclear powered vessels and the bulbous bow to break down the barrier of distance. In his seminal work *Sea Power in the Machine Age*, Bernard Brodie cites the industrial revolution's impact upon naval technology as a critical factor in shaping world history.⁶⁶ In *The Tools of Empire – Technology and European Imperialism in the Nineteenth Century* Daniel Headrick goes on to point out that the technological marvel of the steamboat was one of the most important tools of imperialism for Europeans to exert their will in Africa and Asia.⁶⁷ Other technological innovations such as the submarine cable, the railroad, and air travel also share in this process, but it is the world's oceans where the propeller meets the water in ferrying people, goods, and ideas from one continent to the next.

Nowhere is this more evident than in the technological advancements of how mariners determine their position at sea. This one elusive navigational skill prevented earlier attempts at trans-oceanic navigation, for while naval architecture built ships capable of covering great distances, seafarers lacked the technical ability of how to get there. (This was further complicated by the fact that navigational charts at the time were

⁶⁵ Elizabeth Mancke, "Early Modern Expansion and the Politicization of Oceanic Space," *The Geographical Review* 89, no. 2 (1999): 225-236.

⁶⁶ Bernard Brodie, *Sea Power in the Machine Age* (Princeton: Princeton University Press, 1943).

⁶⁷ Daniel R. Headrick, *The Tools of Empire – Technology and European Imperialism in the Nineteenth Century* (New York: Oxford University Press, 1981), 17-42.

rudimentary and states considered geographical knowledge top secret, keeping nautical charts under lock and key to prevent rivals from benefiting from the knowledge they contained.) Mariners seldom sailed beyond the sight of the coast so as not to get lost, fearing that without recognizable landmarks they would be lost at sea drifting aimlessly in a desert of blue. While coastal transit did afford known sailing routes, it put vessels in danger of pirates preying on well traveled shipping lanes and greatly increased the amount of transit time from one port to the next.

The ancient art of celestial navigation did help mariners to determine their latitude roughly and thus know how far they had sailed north and south, but the problem of determining longitude, or movement east and west, confounded sailors for centuries. Seafarers became masters of dead reckoning, or guesstimating their position by extending where they should have traveled given their course and speed, but such accounting does not take into account set and drift, or the speed and course actually made good when allowing for wind and current, and dead reckoning was not the ideal form of navigation over long distances when errors were compounded.

By the 15th century the invention of the astrolabe, which is able to take sun and star lines, helped to a degree to solve this problem. The astrolabe, however, could not work correctly on the swaying decks of a ship, and to achieve an accurate reading this device would have to be placed on land. Thus, the astrolabe was a step in the right direction of precision navigation, but ships were still constrained from venturing into the expanses of the World Ocean. It was not until the invention of the sextant in 1757 and the chronometer in 1765 by the English clockmaker John Harrison, who won a 20,000 pound prize from the King's "Board of Commissioners for the Discovery of Longitude at

Sea” competition, that captains could confidently determine their position at sea.⁶⁸ Captain Cook carried a sextant and a Harrison-designed chronometer on his Pacific explorations in 1775. These tools allowed ships to venture further over the horizon and travel distances that were previously impossible.

While Oceania societies sailed distances of thousands of miles millennia ago to inhabit islands throughout the Pacific, these mariners were at the mercy of wind and current to carry them to their destination.⁶⁹ They were extremely skilled at observing birds, sea grass, and the stars to determine their location, but they lacked the technology emerging in European nations to sail the vast Pacific with confidence and consistency. Improvements in nautical technology were centrally important to marauding Europeans to enable them to explore the ocean world and claim discovered lands for the crown that financed their trips.

Celestial navigation is an art form beautiful in its execution, but it requires exceptional skill and complex mathematical computations. Electronic navigation was first applied to radio transmissions in the 1920’s, and soon after the sextant and nautical almanac were replaced with direction finders to plot lines of position. Radio Direction Finding (DF) equipment was superceded by Loran technology which employs transmissions beamed from radio towers built along the World Ocean’s shores to deliver known frequencies that, like sun or star lines, allowed mariners to triangulate their position and fairly accurately determine their position on the high seas. Where it took centuries for man to figure out the riddle of longitude, in only decades electronic

⁶⁸ De Souza, 40-41.

⁶⁹ O.H.K. Spate, “The Pacific as an Artefact,” in *The Changing Pacific: Essays in Honour of H.E. Maude*, ed. Neil Gunson (Melbourne: Oxford University Press, 1978), 32-45 and Ben Finney, “The Other One-Third of the Globe,” *Journal of World History* 5, no. 2 (1994): 273-297.

navigation evolved from crude DF equipment into devices that simply display a vessel's latitude and longitude.

Loran technology went through progressive stages of development and was eventually replaced by Omega systems in the 1970's. Loran-C then again trumped Omega, and both eventually were rendered obsolete by the mid-1980's by the global positioning system, or GPS, which is now the standard technique ships use to determine their position at sea.⁷⁰ GPS is a system of 24 satellites operated by the United States government that continually beam down to transponders lines of sight that allow remarkably accurate navigation. Three GPS satellites allow a ship to determine its position anywhere on the planet within three to five meters, and a fourth satellite even provides elevation data. Like other electronic navigation, GPS technology works rain or shine, at night and at day, in any weather and has revolutionized ocean navigation.

If the sextant and chronometer enabled mariners to brave the high seas and make transoceanic crossings, GPS technology has made World Ocean transit even more accessible by providing an uninterrupted, reliable signal allowing modern mariners to determine their exact position anywhere on the planet. When you combine GPS with new computer mapping or ECDIS (Electronic Chart Display Information System), paper charts are being traded for digital monitors that display a three dimensional picture of depth of water, speed over ground, course made good, and a second by second appraisal of track line completion. Digital maps can now be interfaced with radar information to provide the mariner with an accurate picture of not only where his ship has traveled and where it is going, but also contacts fore and aft along his course line.

⁷⁰ J. Williams, *From Sails to Satellites* (Oxford: Oxford University Press, 1992), 291-297.

GPS is not the only technological advancement at sea that has made the World Ocean central to global affairs. Containerization, or the practice of moving goods in metal boxes by ship, rail, truck, and even air, has become a logistical underpinning of the world economy. The practice of containerization, otherwise known as inter-modal transport, has significantly reduced transportation costs, and by helping to reduce the barrier of distance in international trade, has helped facilitate economic integration. The technological innovation of containerization has allowed for increased efficiency by providing economies of scale and value chain modes of production. Other factors such as trade liberalization, international capital flows, multi-national enterprises, new communications technologies, global capitalism, and the bulk carrier all help to explain why the global economy has become increasingly interconnected in the last fifty years. However, containerization is also an important, often overlooked factor in linking national and regional economies.

While billions of dollars can be easily moved between countries with only the touch of a keypad, the movement of tangible goods between markets still requires physical transport. The most cost effective method of moving goods around the world has always been by ocean shipping. Petroleum products and other liquids are transported in super-tankers, and most all other forms of break bulk cargo are shipped via container. Once processed in global mega-ports such as Hong Kong, Europort, and Los Angeles, these boxes are seamlessly forwarded by land transport to their final destinations. The container has become the principal method for moving goods around the world. In 2000, containers carried over 95 percent of all inter-continental non bulk

cargo.⁷¹ In 2001, more than 175 million containers were used worldwide, and it is estimated that this number will surge to 270 million by 2005 commensurate with the demands of global trade.⁷²

Containers, or TEU's – Twenty Feet Equivalent Units, are nothing more than hollow metal boxes. Boxes that can be sealed, stacked, and easily moved between different modes of transportation. What makes containers so efficient is that the goods inside them need only be loaded and unloaded once – at the points of origin and final destination. This differs from how goods were previously shipped because before the container cargo had to be individually handled along each leg of the journey. Physically moving each cargo item was labor and time intensive, and thus compared to the container, relatively much more expensive. In retrospect, it is amazing that the seemingly obvious and simple idea of containerization was not implemented earlier.

Inter-modal transport was conceived by Malcom Purcell McLean, the “father of containerization.” A truck driver who started his career hauling empty tobacco barrels in an old trailer, McLean realized one day while watching longshoremen toiling on the pier that there must be a more efficient way of loading and unloading ships. In 1956 McLean converted an old World War II tanker named the *Ideal X* into a makeshift container ship, and made the historic transit from Port Newark to Houston with 58 containers lashed to the decks. McLean later founded the Sea-Land company to develop containerization, and forever altered how goods were moved across oceans.⁷³

⁷¹ Arthur Donovan, “Intermodal Transportation in Historical Perspective,” *National Center for Intermodal Transport* (accessed July 12, 2002); available from https://www.ie.msstate.edu/ncit/tech_transfer.html.

⁷² World Bank, *Ports and Logistics Overview* (accessed July 12, 2002); available from https://www.worldbank.org/transport/ports_ss.htm.

⁷³ Wolfgang Saxon, “M.P. McLean, 87, Container Shipping Pioneer,” *The New York Times*, May 29, 2001, C4.

The efficiencies of McLean's concept were readily embraced by the shipping industry, and within a decade, containerization became the standard method for moving goods around the world. No longer were dock hands required to slog cargo in and out of cargo holds. The dock worker played by Marlon Brando in the popular 1954 movie *On the Waterfront* was quickly replaced by massive cranes capable of moving whole containers of goods in only seconds. Dunnage, or material packed around goods to protect them during transit, was no longer needed with the hard shell of the container to protect its contents. Because containers are sealed and locked, costs from pilferage have been all but eliminated, and containers' standard size allow for easy stacking and significant improvements in shipping safety. Because different ports used to have different cargo handling requirements, older ships were required to carry their own cranes to hoist pallets. Today, cranes are located on the pier, freeing more space onboard ship for additional containers. The typical modern container ship is an impressive 906 feet in length, displaces 64,502 gross tons, carries 4,832 containers, travels at a speed of almost 25 knots, and has a cruising range of 20,500 miles.⁷⁴

This awesome capacity to move large amounts of containers at a fraction of previous transportation costs has radically altered how the global economy functions. Mega ports have become economic epicenters where thousands of containers are loaded and unloaded daily. (Please see Annex 1 for the operating statistics of the top 20 world container terminals.⁷⁵) To remain competitive in the global economy, seaports are forced to become more and more efficient, container companies are consolidating into larger

⁷⁴ World Trade Club, *A Primer on Containerization* (accessed July 12, 2002); available from <http://www.worldtradeclub.net/doc/wtArt081.htm>.

⁷⁵ United Nations Conference on Trade and Development, *Review of Maritime Transport 2001* (New York: United Nations Press, 2001), 67.

multi-national firms building bigger container ships, all with the consequence of making freight rates even cheaper than their current historic lows.⁷⁶ Container vessels are even built to the dimensions of the Panama Canal, maximizing the amount of ship that can physically pass through the lock, with only inches between the vessel's bow and stern and the lock doors. Containerization is rendering the geography of distance as no longer prohibitive to global economic integration.

Combining GPS and containerization with other maritime technological improvements has made the World Ocean an economic reality. In the early twentieth century imperial countries maintained coaling stations throughout the Atlantic and Pacific to ensure their naval vessels and merchant marine had the fuel necessary to ply the ocean's waves. The limitless supply of energy from nuclear propulsion and improvements in engineering plants such as putting turbine engines to sea have made these stops unnecessary, and today world shipping steams by these outposts undeterred to their final ports of entry. More advanced than propellers, Z-drives, or propulsion tubes that can be rotated 360 degrees beneath the hull of a ship, now enable vessels as small as a tug or as large as the newest 90,000-ton, 965-foot cruise liner to dance next to a pier in even the most cramped harbors.

The World Ocean as Inherently International

It comes as no surprise then that successive periods of world history rich with oceanic exploration and technological innovations have made the World Ocean a

⁷⁶ William Blair, "No. 1 No More, New York Seeks to Strengthen its Role," *The New York Times*, Sept. 24, 1982, B1.

centerpiece of global affairs. Washing every continent with sea spray, the World Ocean is the universal medium affecting all peoples regardless of race or religion. Baptized by salt water, many global processes are linked to the maritime realm. The International Maritime Economic History Association's journal *Research in Maritime History*, after running various articles over the last several years dealing with different themes and locations, has come to the conclusion that the subject matter is not limited to just one national experience or confined parameters, and that human beings at all corners of the earth have similar experiences with the sea. The journal's editor Frank Broeze notes in the article "Maritime History at the Crossroads: A Critical Review of Recent Historiography" that:

Shipping links different countries, economies and cultures. Ports and port cities are cradles of international exchanges, passenger movements and cosmopolitan thinking. Seafaring constitutes an international labour market. Navies are built primarily against external enemies. Many leading maritime museums implicitly highlight the professed international success of their nation.⁷⁷

Take, for example, the performance of international shipping. The observation has been commonly made that the success of shipping industries roughly mirrors the success of the world economy and the frequency of international trade.⁷⁸ For this reason the shipping industry has had cycles of binge and bust mirroring the performance of the international economy. Or consider that port cities, with their thronging docks where numerous tongues can be heard and large immigrant communities exist, are cosmopolitan in nature while cities located in the interior of a country tend to be more homogenous and isolationist in their politics. The World Ocean and the global processes that occur upon,

⁷⁷ Frank Broeze, "Maritime History at the Crossroads: A Critical Review of Recent Historiography," *Research in Maritime History*, no. 9 (1995):X-XI.

⁷⁸ Hans Ludwig Beth, Arnulf Hader, and Robert Kappel, *25 Years of World Shipping* (Fairplay Publications, 1982).

above, and beneath its waters cannot be understood without a global perspective. Individual ocean basins and their collective whole of the World Ocean as facets of globalization are in their very nature inherently international.

Geography Still Matters

An appreciation for the importance of the World Ocean in international affairs reminds us, then, that geography still matters. Geography has not been rendered obsolete by the internet, cellular telephones, and computers. While these technologies are of paramount significance in understanding how the world functions, geography continues to determine the fate of nations. The Harvard economist Jeffery Sachs is quick to make the point that economic development and geographical access to the ocean go hand in hand. In the section “Geography Matters” of *The U.S. As a Coastal Nation* report co-authored with Jordan Rappaport, Sachs expands “we argue that the coastal concentration of U.S. economic activity reflects a productivity effect of access to navigable water.”⁷⁹

Geographers, economists, and government officials alike have all noted the importance of access to the sea in national development. President Woodrow Wilson in 4 of his 14 points argues that a peace would not be fair unless certain countries had “free and secure access to the sea and absolute freedom of navigation of the seas.”⁸⁰ A 1974 document prepared by the United Nations Conference on Trade and Development titled “A Transport Strategy for Land-Locked Countries” opens with the following statement:

⁷⁹ Jordan Rappaport and Jefferey D. Sachs, “The U.S. as a Coastal Nation,” Research Division Federal Reserve Bank of Kansas City, November 2001.

⁸⁰ Woodrow Wilson, “Address of the President of the United States Delivered at a Joint Session of the Two Houses of Congress, January 8, 1918,” in *Papers Relating to the Foreign Relations of the United States, Supplement 1* (Washington D.C.: GPO, 1918), 12-16.

“Land-Locked developing countries are generally among the very poorest of the developing countries. The lack of territorial access to the sea compounded by remoteness and isolation from the world markets appears to be an important cause of their relative poverty.”⁸¹ The great British Geographer Sir Halford Mackinder in his 1902 book *Britain and the British Seas* cites the sea as the key to Britain’s success in the 19th century:

The sea preserved liberty, and allowed of a fertility of private initiative which was incompatible with supreme military organization. The same sea, by reducing the reserve of men and material needed for the protection of the island home, has permitted the devotion of British initiative and energy to trade and rule abroad. Great consequences lie in the simple statements that Britain is an island group, set in the ocean....⁸²

The economist Adam Smith notes in Book One of the *Wealth of Nations* that access to navigable water is of paramount economic importance:

As by means of water carriage a more extensive market is opened to every sort of industry than what land carriage alone can afford it, so it is upon the sea-coast, and along the banks of navigable rivers that industry of every kind begins to sub-divide and improve itself, and it is frequently not till a long time after that those improvements extend themselves to the inland part of the country.⁸³

And former President Clinton recently declared in a 1998 proclamation commemorating the United Nations Year of the Ocean:

We rely on the ocean as both a source and sustenance of life on our planet. It contains a wondrous abundance and diversity of life, from the smallest micro-organism to the mammoth blue whale. It is a key source of food, medicine, energy, commerce, and recreation for the peoples of the world, and the more we learn

⁸¹ United Nations, United Nations Conference on Trade and Development, *A Transport Strategy for Land-Locked Developing Countries*, (New York: United Nations, 1974), 3.

⁸² Mackinder, 11-12.

⁸³ Adam Smith, *The Wealth of Nations* (London: Dent Publishers, 1910).

about its influence on climate and weather, the more we realize its impact on our safety and quality of life.⁸⁴

There are countless other examples, both old and new, that highlight the geographic role the World Ocean plays economically, militarily, and socially in world affairs.

Bolivia presents a compelling contemporary case study of the detrimental effects of being denied access to the World Ocean. Bolivia lost its only coast on the Pacific Ocean in a war with neighboring Chile in 1879. This fact is largely responsible for condemning Bolivia to a national sentence of poverty. Chile, with its long Pacific Coast line, actively trades with Asian countries and is close to negotiating a bilateral trade agreement with the United States. Chile is one of the richest countries in South America, Bolivia one of the poorest. Bolivia has recently discovered large natural gas reserves in the southern province of Tarija, but lacking access to the World Ocean has no means for selling this natural resource. Bolivians, still angry about the loss of their coast more than a century ago, do not want to build a pipeline to the Pacific through Chile even though it is the shortest route. Bolivians instead would prefer to export their gas through Peru even though to do so would mean that the pipeline would have to be 150 miles longer and cost \$600 million more. International creditors are wary of this additional expense and if this problem cannot be satisfactorily resolved may not fund the pipeline project.⁸⁵ Geography still matters.

The World Ocean is, and has always been, a geographical medium shaping the course of history. Europe and North America have benefited from natural harbors and rivers that connect the hinterland to the ocean super-highway, Africa and Central Asia

⁸⁴ Bill Clinton, *Year of the Ocean, 1998, A Proclamation* (accessed June 11, 2002); available from <http://www.ocean98.org/procyoto.htm>.

⁸⁵ Juan Forero, "Lingering Feud with Chile Threatens Bolivia's Pipeline Plan," *The New York Times*, July 8, 2002, A3.

have suffered from a dearth of these geographical advantages. The Portuguese, Spanish, Dutch, and British empires were built by taking advantage of their geography, while the Chinese have faltered because of their insistence on the continental despite their long coastline. It was on the coast, not on the continental interior, that colonial powers established a stronghold destabilizing China.

Semple's final epoch of a World Ocean might be finally close at hand. Technology and human enterprise have combined to unite the earth's waters. Transit time between continents has been radically reduced, and oceangoing shipping, sea power, and port cities, the diverse pools of internationalism and innovation, are the hubs of modern affairs. The World Ocean has evolved into the common tie that binds. Where centuries ago one could stand on isolated shores and peer off into the horizon wondering what exotic things were transpiring in distant lands, today those imagined are just a short reach over salt water puddles. For these reasons we should not think of the Atlantic, Pacific, or even the Southern Ocean as the geographic constructs about which modern history transpires. The World Ocean has emerged, and is a key piece of the equation in understanding today's globalized world.

A World Ocean Mediterranean

It is easy to imagine and even probable that the life of the sea [the Mediterranean], a vital force, would first of all have taken control of the smallest and least weighty fragments of land, the islands and coastal margins, tossing and turning them at its will, as the northern waves toss the shingle. Growing more powerful and compelling, this force would draw into its orbit the larger land masses, the peninsulas, elevating the history of the sea to a higher level. And the greatest moments of all would be when it was strong enough to attract towards it the great continental blocs: moments that saw Caesar in Gaul, Germanicus beyond the Elbe, Alexander on the Indus, the Arabs in China, or the Moroccans on the Niger.⁸⁶

Fernand Braudel

The nature of a port is determined by whether it is formed by a river, chosen by the land or hinterland, or willed by the sea itself. The virtue of a port depends on the way the sea is present in it and on the population with access to it. The Atlantic and Pacific are seas of distance, the Mediterranean a sea of propinquity....⁸⁷

Predrag Matvejevic

The Mediterranean, much smaller in scale than the oceans, permitted very close and enduring cultural, political, and economic interactions. Thus I argue that it is to Mediterranean history that we should look to find equivalent processes at work that can match the integration made possible by new transportation and communication technologies.⁸⁸

Paul W. Blank

The economic, military, and social exchanges across the World Ocean are new in their scale, but not new as integrating processes across salt water bodies. Other ocean basins have witnessed similar developments at different times in world history. The Indian and Atlantic Oceans both offer examples of geographical regions in which these networks have developed. Historians and political scientists have taken note that the Pacific Ocean in the 1990's has also evolved as a distinct maritime community. The Mediterranean Sea provides the first body of water where human interaction was facilitated by access to the sea. Where the World Ocean is much larger in terms of physical distance, it has developed very similarly to the Mediterranean of antiquity. The march of history has radically altered notions of time and space, but human nature has

⁸⁶ Fernand Braudel, *The Mediterranean and the Mediterranean World in the Age of Philip II* (Berkeley: University of California Press, 1972), 166-167.

⁸⁷ Predrag Matvejevic, *Mediterranean: A Cultural Landscape* (Berkeley: University of California Press, 1999), 14.

⁸⁸ Paul W. Blank, "The Pacific: A Mediterranean in the Making?" *The Geographical Review* 89, no. 2 (1999): 266.

remained the same, and there is much to be gleaned from studying the Mediterranean example.

The development of the Mediterranean offers many striking similarities to the World Ocean today. The Mediterranean region is enclosed by mountains to the north and desert to the south, and like the World Ocean, a majority of Mediterranean's population has always lived along the coast. These people lived in port towns like Tyre, Corinth, and Athens. Time has not changed this demographic reality and a majority of the Mediterranean population still lives in large coastal cities like Barcelona, Naples, and Istanbul. Similar to today's great coastal cities along the World Ocean, the success of these population centers was tied to the sea. Ancient Mediterranean port towns were the epicenters of trade and exchange, and if they became irrelevant from changing shipping routes or new naval architecture that demanded a deeper port than the town could provide, they faded away into the dust bin of history. The ebb and flow of Mediterranean currents brought wealth and took it away from ancient port towns.

Take, for example, the Greek city state of Miletos. Miletos thrived in the ancient world largely because it benefited from a natural harbor and a generous supply of wood needed for ship building. These factors helped Miletos develop into a trading capital with a flourishing economy. This economic activity provided tax revenues for the state to build naval power to fight piracy and defend its coasts from rival city-states. Fishing was also an important industry in Miletos and constituted an important part of the local diet. The citizens of Miletos were acutely aware that their fortune was linked to the sea and they developed numerous cults dedicated to the sea, especially to the Greek goddess of the sea Aphrodite, to which they dutifully paid homage. Over time, however, the

Miletos port silted over, and the city lost its seaborne lifeline. At the same time commercial ships, like today, were growing in size and as a result of a shallower port deeper drafts could no longer call on the Greek city. Miletos, starved from the maritime commerce upon which it was built, eventually wasted away into nothing.⁸⁹

Like Miletos, port cities on the World Ocean are economic epicenters. No different than the shipping transporting goods to and from Miletos, the fate of modern global cities is tied to their ability to tap into maritime trading networks. If a modern global city can no longer keep pace with other competing ports because it can no longer support ever larger ships requiring deeper channels, it becomes marginalized into a hapless bystander in the world economy.⁹⁰ The Port of New York where navigation channels are slowly silting is currently wrestling with this historical truth, and is working hard not to suffer the same fate of Miletos.

Port cities have also historically been cultural melting pots. This was true in the ancient Mediterranean just as it is today. Cities like New York and Amsterdam are just as international as the ships that pass through their harbors. This was also the case in ancient cities where Phoenicians, Philistines, Canaanites, Hittites, and Minoans mixed on Mediterranean piers.⁹¹ Recent archeological evidence from the Bronze Age shows that around 1000 BC the Phoenician peoples actually rose as a polyglot race from maritime intercourse between the ancient Mediterranean Tyrians, Byblians, and Sidonians. In the article “The Phoenicians and the Sea” Alan Millard notes that three hundred years earlier

⁸⁹ Alan M. Greaves, “Miletos and the Sea: A Stormy Relationship,” in *The Sea in Antiquity*, ed. G. J. Oliver, R. Brock, T.J. Cornell, S. Hodkinson (Oxford: BAR International Series 899, 2000), 39-62.

⁹⁰ Charles Bookman, “U.S. Seaports: At the Crossroads of the Global Economy,” *Science and Technology*, (Fall, 1996).

⁹¹ William Culican, *The First Merchant Venturers: The Ancient Levant in History and Commerce* (London: Thames and Hudson, 1966).

“[a] striking example of cultural mixture is displayed by the seals of father and son, kings of Sidon in the thirteenth century B.C.. The seal type and legends are Babylonian, the figures are Egyptian.”⁹² Increased trade in the Mediterranean Sea brought cultural exchange and diversity. Although probably not to the degree that coastal cities are now ethnically diverse, compared to Mediterranean cities farther inland, port cities demographically represented the diversity from merchantmen and fishermen that frequented their piers.

Just as important, if not more so, is the observation that Mediterranean civilizations were culturally affected by living on the coast. Sharing in the Mediterranean sun and experience, people in the Mediterranean had a common bond. Fernand Braudel, the French historian who wrote the seminal work *The Mediterranean and the Mediterranean World in the Age of Phillip II*, notes the sublime as the key to understanding Mediterranean history.⁹³ For example, what Braudel finds important is the common role sponges and salt (both products taken from the sea) played in local economies or the effects on societies from living in a common Mediterranean environment. Predrag Matvejevic echoes this sentiment in his book *Mediterranean: A Cultural Landscape* where he explains a common Mediterranean culture built upon shared experiences with the sea regardless of ethnicity and that Mediterranean history is intrinsically linked to the sea.⁹⁴

The same is also true of the World Ocean. Just as there is huge diversity along the Mediterranean of Christian and Muslim, Arab and European, or brown and white, the

⁹² Alan Millard, “The Phoenicians at Sea,” in *The Sea in Antiquity*, ed. G. J. Oliver, R. Brock, T.J. Cornell, S. Hodkinson (Oxford: BAR International Series 899, 2000), 76.

⁹³ Braudel, both volumes.

⁹⁴ Matvejevic, 7-93.

shores of the World Ocean are also enormously ethnically diverse. While coastal communities around the world are individually unique, they share a common maritime experience. Living near the coast engenders a mutual respect for the threats and the bounty the ocean provides. Sailors from different countries, regardless of national politics, regard fellow mariners as “hermanos de la mar,” or “brothers of the sea.” Coastal communities on the world ocean tend to be incubators of innovation and are more cosmopolitan in their outlook. The ocean occupies a special place in art, literature, and song in these societies. The maritime influences Braudel and Marvejevic identify as important shapers of a Mediterranean culture also help shape a World Ocean culture.

The phenomenon of Mediterranean culture and port cities and their applicability to the World Ocean extends then to the role maritime commerce plays in intertwining nations. Similar to today, the Mediterranean provided the cheapest means by which to transport goods, and served as a commercial highway facilitating trade between Mediterranean societies. The economic integration made possible by Mediterranean transport was a principal factor in connecting outposts along the Mediterranean. Likewise, economic integration made possible by ocean transport links the fate of Los Angeles and Singapore, Antwerp and Shanghai. Port cities that face each other across the World Ocean exchange more than commerce, sharing people, ideas, and culture through oceanic bonds. Miami and Caracas, Bangkok and Jakarta, and Halifax and Reykjavik have relationships built upon the sea. Just as the Mediterranean linked cities more than two thousand years ago, the World Ocean facilitates maritime exchange between the people that live on its coasts.

Maritime commerce was an important factor in the establishment of Athens as one of the largest Mediterranean cities. In addition to reaping the economic benefits from maritime trade, Mediterranean historians have noted that grain imports were one of the principal contributors in allowing Athens to sustain a population larger than what would otherwise be possible on its own food producing capacity. Quite literally, grain imports helped Athens grow into a Mediterranean power. A large percentage of Athens' supply of grain was imported by ship and thus Athenians viewed their maritime trade as critical to the success of their city-state and conducted their foreign policy accordingly.⁹⁵

Maritime exchange facilitated the movement of peoples, ideas, and goods in the very same way that these things now move about the World Ocean. The modern world uses the container as the standard shipping unit, the ancient Mediterranean had the amphora. The amphora is a clay pot seven gallons in volume used to transport the precious ancient commodities of oil and wine. Today shipping capacity is measured in the amount of containers a vessel can carry, in the Mediterranean tonnage was assigned in amphoras.⁹⁶ Braudel was sensitive to the influential role maritime trade played in the Mediterranean noting that “[e]veryday coastal shipping has untiringly spun threads connecting the different areas of the sea which may pass unnoticed in the great movements of history.”⁹⁷ The World Ocean links civilizations on a global scale just as the ancient Mediterranean intertwined societies around a shared body of water.

The Mediterranean Sea can also be separated into bodies of water east and west, both taking time and new technologies to unite and master. The Mediterranean Sea was

⁹⁵ Antony G. Keen, “Grain for Athens’: the Importance of the Hellespontine Route in Athenian Foreign Policy Before the Peloponnesian War,” in *The Sea in Antiquity*, ed. G. J. Oliver, R. Brock, T.J. Cornell, S. Hodkinson (Oxford: BAR International Series 899, 2000), 63-73.

⁹⁶ Semple, *The Geography of the Mediterranean*, 672.

⁹⁷ Braudel, 108.

considered enormous by ancient standards and shipping leapfrogged from one port to the next not daring to lose sight of land. Smaller bodies of water like the Adriatic, Ionian, Aegean, and Tyrrhenian Seas were gradually explored and mastered before mariners ventured into larger bodies of water. Eventually the smaller seas that comprise the Mediterranean were linked by improvements in naval technology and an enterprising spirit to form one connected Mediterranean.⁹⁸ Although much smaller in scale, this process is identical to the same steps of gradually mastering progressive ocean basins in achieving the modern World Ocean.

Like the World Ocean today, the Mediterranean also suffered from transnational threats. The Mediterranean of antiquity was plagued by piracy that required the development of sea power to defeat. Piracy was rampant in the ancient Mediterranean world, wreaking havoc on legitimate shipping attempting to funnel trade from port to port.⁹⁹ Various Mediterranean powers like the Persians and Egyptians fielded impressive navies by ancient standards to deal with this problem, including the development of ramming ships dedicated solely to destroying other vessels as early as the seventh century BC, but the Mediterranean was still too large to be conquered by one state and piracy continued to thrive beyond the reach of this early sea power.¹⁰⁰ Piracy was not effectively neutralized until the Roman Empire united the Mediterranean in the second century BC. The peace the Roman navy brought to the Mediterranean paid huge

⁹⁸ For an authoritative account of the development of naval technology in the Mediterranean please see Lionel Casson, *Ships and Seamanship in the Ancient World* (Princeton: Princeton University Press, 1971).

⁹⁹ For a comprehensive treatment of this subject please see Philip De Souza, *Piracy in the Graeco-Roman World* (Cambridge: Cambridge University Press, 1999).

¹⁰⁰ Alan B. Lloyd, "Saite Navy," in *The Sea in Antiquity*, ed. G. J. Oliver, R. Brock, T.J. Cornell, S. Hodkinson (Oxford: BAR International Series 899, 2000), 81-91.

dividends in increased shipping that could sail freely without the threat of losing life and cargo to the piracy menace.

The Roman Empire was the first to rule the entire Mediterranean world, and the first naval power to control all of the Mediterranean Sea. The analogy between the Roman Empire and the United States today is striking. The undisputed world hegemon, the United States claims the world's largest navy, sailing the World Ocean with agility and ease. Never before in history has one country so dominated the oceanic realm. The British Navy during the age of Pax Britannica is the only other force to come relatively close to the United States' current naval dominance. The World Ocean was still prohibitively large, however, in the 19th century, and piracy still thrived in many places like the Caribbean and Pacific. The Russian navy was a formidable force in the Cold War, but they shared the seas with the Americans, and neither superpower could claim absolute oceanic supremacy. The Russian Navy today rots at its piers and is only a skeleton of its earlier Cold War days of glory.

The United States Navy alone rules the World Ocean with the same disparity in force enjoyed by the Roman Navy two centuries ago. The U.S. defense budget is as big as the next nine national defense expenditures combined.¹⁰¹ The U.S. claims 13 aircraft carriers, each manned by a crew of more than 3,200 sailors to run the ship and an additional contingent of 2,400 pilots and air crew to fly the 70 war birds housed on its decks. These floating airfields can steam at more than 30 knots and are capable of being deployed around the world for months at a time uninterrupted to defend American interests. Add modern submarines, destroyers, and frigates to this equation and the United States commands the most powerful naval force in world history. Rome knew

¹⁰¹ Paul Kennedy, "The Eagle has Landed," *The Financial Times*, February 2, 2002.

that it could only keep its empire together with the advantages it enjoyed on the sea, and the United States equally values its naval might as indispensable in securing a global reach.

In addition to the role maritime commerce plays in integrating societies, and the cultural impacts from living near the water, port dynamics, and sea power, there are also other compelling parallels between the World Ocean and the ancient Mediterranean. Fishing and its related commerce plays an important role in both as a crucial food source.¹⁰² Both bodies of water serve as maritime avenues for the movement of people, ideas, and religion between north and south. Both have witnessed cultural interchange and cooperation between diverse peoples, and both have had their share of conflict over maritime issues.

Changing notions of time and space cement the World Ocean Mediterranean analogy. The move from oar to sail helped Mediterranean travelers master distance in the same way that nuclear technology and GPS have helped create the World Ocean. Where the Mediterranean was once considered massive in scale, it now seems tiny when compared to other ocean basins. The Mediterranean has evolved into a highly integrated space with complex webs of economic, military, and social processes. For this reason the Mediterranean has been used as a model to help explain similar evolutions in other spaces. Before the realization of the World Ocean Mediterranean, historians have declared the Gulf of Mexico Mediterranean, the Arctic Mediterranean, and most recently, the Pacific Mediterranean.

¹⁰² For a discussion of the role fishing industries played in the ancient Mediterranean see Ellen Churchill Semple, *The Geography of the Mediterranean Region – Its Relation to Ancient History* (New York: Henry Hold and Company, 1931), 593-595.

The first reference to a body of water displaying Mediterranean attributes was made by Ellen Churchill Semple in her book *American History and its Geographic Conditions*.¹⁰³ In the chapter “The United States in Relation to the American Mediterranean” she observes that the same processes discussed above had by the early twentieth century developed in the Gulf of Mexico. She notes that both bodies of water supported active maritime trading between natural harbors along their coasts and that both could be separated into two mini basins (east and west in the Mediterranean and north and south in the Gulf of Mexico). Semple compares the opening of the Panama Canal to the same role of the Suez Canal in creating access to the Pacific Ocean and linking the enclosed bodies of water to global trade. Semple argues that both Mediterraneans “seem destined by nature as great transit basins.”¹⁰⁴ For Semple, the Mediterranean offers a compelling example to better understand the geographical determinants of the Gulf of Mexico.

The experiences of lend-lease support through the air over the top of the world from the United States to Russia in World War II and a new cartographic awareness that the post war super powers “faced” each other over the frozen Arctic naturally led to the next geographic extension of an Arctic Mediterranean. The Arctic explorer and political geographer Vilhjalmur Stefansson was the first to coin the phrase “Arctic Mediterranean” in his article “The North American Arctic” published in 1947.¹⁰⁵ The concept of an Arctic Mediterranean is not founded on sea transport, but rather upon the new role aviation was playing in world affairs. The Arctic, of course, presents the shortest

¹⁰³ Ellen Churchill Semple, *American History and its Geographic Conditions* (Boston: Houghton Mifflin Company, 1933).

¹⁰⁴ *Ibid*, 406.

¹⁰⁵ Vilhjalmur Stefansson, “The North American Arctic,” in *Compass of the World*, ed. Hans W. Weigert and Vilhjalmur Stefansson (New York: The Macmillan Company, 1947), 264-265.

geographical route between the United States and Russia (a fact easily lost with a Mercator world view) and emerged from obscurity into the principal ocean basin about which the Cold War was being staged. In making his Mediterranean analogy, Stefansson argues “there is certain to develop (through the sphericity of the earth, and the opposite location of great cities across the polar basin from each other) a network of trans-Arctic air commerce.”¹⁰⁶ For Stefansson, the Mediterranean provides the best historical example of how aviation was transforming the Arctic into a centerpiece of military and economic activity.

The most recent Mediterranean comparison has been made with the Pacific Ocean. Professor Blank, a Mediterranean and Pacific historian, in the article “The Pacific: A Mediterranean in the Making?” conducts the same analysis explored earlier with the World Ocean.¹⁰⁷ Professor Blank notes the emergence of “mirror cities” across the Pacific functioning as nodes in a web of maritime commerce. Blank sees advances in maritime technology as responsible for transforming the vastness of the Pacific Ocean like the Mediterranean into a highly integrated body of water. Identical to how Mediterranean cities became more cosmopolitan in nature with increased trade, he observes the same phenomenon occurring in the 1990’s in the Pacific and the tensions that can develop between conservative population centers in the hinterland and the foreign influences introduced in coastal cities. Blank concludes his study with the following statement: “The Mediterranean has a long history of human interaction, and it was the first significant sea basin to undergo the processes of interchange and integration that have now extend to the global arena. Humankind has achieved a mastery of distance

¹⁰⁶ Ibid, 265.

¹⁰⁷ Blank, 255-277.

that now puts the Pacific on the threshold of a similar cultural and economic synthesis.”¹⁰⁸ For Blank, transportation and communication technological advancements are rendering the Pacific Ocean into a Mediterranean.

The final step in this evolution of time and space is the World Ocean Mediterranean. It is my proposition that the modern World Ocean has been created much like earlier examples of the Gulf of Mexico Mediterranean, the Arctic Mediterranean, and most recently the Pacific Mediterranean. The World Ocean is the Mediterranean played out on a larger stage, for while technologies may have changed, human nature has remained consistent. For this reason we can expect that like the Mediterranean, the World Ocean will continue to see a majority of the earth’s population reside on its coasts. As these populations grow in size, they will probably repeat the example of earlier Mediterranean societies in fighting over ocean space. Indeed, with the 200 mile Exclusive Economic Zone and 12 mile Territorial Sea afforded by the 1982 Law of the Sea Convention, countries are vying to control as much ocean space as possible no different than their earlier Mediterranean brethren.¹⁰⁹

As evidenced by the 1998 Year of the Ocean, the World Ocean will witness impressive efforts of international cooperation, but will also be an arena of nations competing to secure their maritime self-interest. Global World Ocean maritime cities will continue to grow in size and steer the commanding heights of the world economy. Saskia Sassen in her book *The Global City* which studies the international significance of New York, London, and Tokyo (all coastal cities) concludes that these cosmopolitan

¹⁰⁸ Ibid, 276.

¹⁰⁹ National Intelligence Council, *Law of the Sea: The End Game* (Washington D.C.: Library of Congress, 1996).

metropolises define the financial and economic architecture of globalization.¹¹⁰ Sea power will continue to influence the course of world history in the same fashion of the Persian, Egyptian, and Roman experience. The sublime influences of the maritime environment defined by Braudel will culturally affect inhabitants residing on World Ocean shores just as they did their Mediterranean ancestors. The World Ocean defined in the first section of this paper can now be qualified as a World Ocean Mediterranean.

¹¹⁰ Saskia Sassen, *The Global City* (Princeton: Princeton University Press, 2001).

World Ocean Cartography

The next step in articulating a World Ocean Mediterranean is representing this idea cartographically. Because the World Ocean is a new concept it requires original thought to capture its global nature pictorially. Most world maps in circulation are poor at showing the interconnectivity of the World Ocean if they even focus on the water at all. This section of the paper will present several images that offer a new way of looking at the world with a salt water perspective. The problem of choosing the right cartographic projection will be discussed and several projections offered as the best images with which to represent the World Ocean.

Perhaps part of the reason the World Ocean has not before now been conceptualized is because of the dearth of good oceanic maps. Most maps focus on land and only show the world's oceans as insignificant back drops to the continental foreground. Take, for example, the following Mercator projection that marginalizes the oceans behind continents exaggerated in size.



These types of representations are generally the standard way in which the world is represented and show a lack of appreciation for the role the World Ocean plays in international affairs. Besides distorting the true size of continents which reduces the impression of the significance of the World Ocean, it is totally continental in focus, thereby reducing the world's oceans to nothing more than empty space.

With their feet planted solidly on terra firma, most map makers have neglected the ocean in their art. When the ocean is the focus of a map it is almost always separated into individual basins. Even *The Times Atlas of the Oceans* and *The Rand McNally Atlas of the Oceans*, atlases devoted exclusively to oceanic issues, do not offer any original oceanic representations to show global maritime processes.¹¹¹ Each section of these atlases is broken down into Atlantic, Pacific, Indian, etc. that reinforces a Ptolemy world view of ocean basins existing wholly unto themselves. Lines are even drawn on world maps demarcating where one ocean begins and the other ends. Such a world view may prove useful when dealing with specific ocean basins, but it fails in representing the global dynamics of the World Ocean. What is needed is a fresh global perspective that places the World Ocean in cartographic focus.

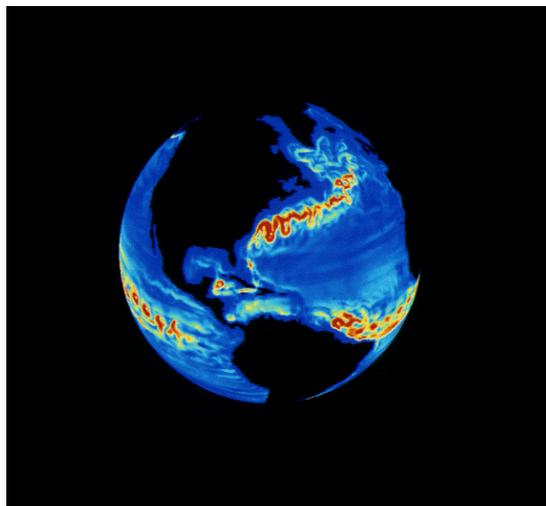
Perhaps the best way to start this process is to return to the fact that when viewing earth from space, it is the World Ocean that dominates the picture. Unlike the typical continental map shown before, our eyes are not first drawn to the earthy greens and browns, but rather the vast expanses of the ocean blue.

¹¹¹ *The Times Atlas of the Oceans* (New York: Van Nostrand Reinhold Company, 1983) and *The Rand McNally Atlas of the Oceans* (New York: Rand McNally and Company, 1977).



This picture reminds us that we live on a planet dominated by water. Our earth is not mostly earth at all, but rather a bowl of water spinning through space.

The next step in developing World Ocean cartography is to reverse the learned habit of focusing on land instead of water. A telling testimony as to how continental most world maps are was the difficult search to find a map that highlighted the oceans. The United States Library of Congress which houses the largest map collection in the world does not hold one map that makes the World Ocean its principal concern. The following image is intended to show ocean currents, but is useful for our purposes in presenting an alternative oceanic world view.



This image does lie in the sense that does the opposite of most maps in minimalizing continents, but it succeeds in refocusing the observer's eyes to the oceans.

One of the most telling images that reflect the idea of a World Ocean is a picture of the earth's lights from space at night. This image clearly shows that a majority of the earth's population resides near the coast.



The shapes of South America, Africa, and Australia can be traced by outlining the lights from the populations who live on the World Ocean's shores. The lights on the other continents also clearly show the proximity of the majority of the world's population to salt water. The Arabian Peninsula and Northern Africa especially highlight that people live near water, with the continental expanses behind them left black and empty.

Part of the problem in representing a World Ocean cartographically lies in the fact that two dimensional map cannot accurately show a three dimensional object. For this reason, every map regardless of projection is never perfect and is in some degree distorted. A Mercator projection is a favorite of mariners because it retains the attribute of direction, but in so doing exaggerates shapes. On Mercator projections Greenland is

almost as big as South America and of course in reality is not near this size. The Mercator projection has also quite infamously been criticized for shrinking the continents in the Southern Hemisphere. The Gnostic projection does a better job at showing the earth's sphericity because all great circles are straight lines, or rhumb lines, but this projection distorts both size and direction. Thus, some experimentation is required to find the right projection that shows the interconnectivity of the World Ocean without completely misrepresenting other geographical features.

Dr. Athelstan Spilhaus, a visionary geophysicist, set out in the 1980's to create a World Ocean map with the mission of raising awareness to oceanic environmental issues. By 1987 Dr. Spilhaus had created the Spilhaus projection which is the best (and only!) projection that attempts to show the World Ocean. (please see enclosed Spilhaus World Ocean Map.¹¹²) This beautiful and visionary map maintains the correct area of the continents and oceans while showing how the world's oceans unite into one. The Spilhaus projection peels the oceans off a globe, then attaches them back together again on a flat surface. The enclosed World Ocean map was produced by the Geolearning Corporation to ask "where we were, where we are, and where we're going" with regards to using ocean resources, but it fits perfectly into the concept of a World Ocean Mediterranean in reconceptualizing the interconnectivity of the earth's waters.

Another map that indirectly shows the World Ocean as proposed in this study is Richard Edes Harrison's "One World One War" map. (Please see the enclosed Harrison map.¹¹³) This map was created in 1942 to impress upon the American public the global

¹¹² "World Ocean Map," Spilhaus Projection (Geolearning Corporation: Copyright Athelstan Spilhaus, 1987); available from the Harvard Library Map Collection.

¹¹³ Richard Edes Harrison, "One World One War Map," Azimuthal Equidistant Projection, *Fortune*, March 1942; available from the U.S. Library of Congress.

extent of the Second World War. Harrison, the renowned State Department geographer whose cartography for years influenced how American policy makers conceptualized the world, set out to show the “Atlantic bridge” between the United States and the Allies in Europe and the “Pacific vastness” and the associated logistical challenges in fighting Japan. An oceanic world view highlights the importance of maritime lines of communication and the significance of the World Ocean intrinsically in the comments in the margin. Harrison sees the “three life lines” that “connect America with the battle for three continents” all traveling through the Atlantic. Harrison’s influential Azimuthal Equidistant projection when viewed through an oceanic lens compliments the Spilhaus projection in conceptualizing a World Ocean.

The Spilhaus projection and Harrison’s “One World One War” map offer a good starting place to create a new World Ocean Map that takes into account the globalization dynamics discussed in this study. Like Harrison’s map, this Azimuthal Equidistant projection centered on 0° latitude and 90° longitude, or the North Pole, better represents the sphericity of the earth while still showing the World Ocean’s interconnectivity. (Please see the enclosed World Ocean map.) In this map, colors help emphasize the World Ocean over the continents. The world’s ten largest cities, eight of them residing on the coast as previously mentioned, are shown along with the world’s ten busiest container terminals. The ocean location of U.S. carrier battle groups on 1 September ten days before the 2001 terrorist attacks are also included to show global dispersion of American sea power. A more up-to-date stationing of carrier battle groups cannot be included because since the attacks the U.S. Navy no longer posts this information on its web site. The size and reach of U.S. carrier battle groups as shown on this map

underscores how, as with the Roman navy, the World Ocean has become the United States' Mediterranean. Trans-oceanic trade routes are included to show how international commerce shuttles between continents.

This map is a radical departure from traditional cartographic world views. A hybrid of the ideas contained in the Spilhaus projection and the Harrison "One World One War" map combined with the World Ocean Mediterranean argument in this paper, this World Ocean map presents a foundation for future World Ocean cartographic representations. As the World Ocean continues to evolve as a key consideration in global affairs there will be a growing need for further development of World Ocean maps. Such an enterprise will not be easy because it will require mapmakers and political geographers to set aside their learned continental prejudices and see the world anew. Even the book titled *The Myth of Continents – A Critique of Metageography* cannot break free from cartographic myths and only argues for a re-appreciation of how continents are catalogued and ordered.¹¹⁴ Original cartography is an important step in representing the World Ocean's significance, and like Harrison and Spilhaus, will require cartographic imagination to capture this oceanic world view on paper.

¹¹⁴ Martin W. Lewis and Maren E. Wigen, *The Myth of Continents* (Berkeley: University of California Press, 1997).

Conclusion

Much of modern scholarship is devoted to understanding global processes. This pursuit has become even more important since last September's terrorist attacks. The need to understand the transparency of borders, the unequal distribution of resources among nations, the north-south divide, and the complexities of global capitalism becomes increasingly urgent as history accelerates in pace. Mankind continues to grapple with the complex world in which we live and to secure a peaceful future now more than ever needs to gain insight into the human condition and the nature of global affairs. The ship of time has before sailed through periods of calm seas and rough waters and now rests at a waypoint of divergent courses. The World Ocean Mediterranean needs to be considered in this discussion.

The concept proposed in this paper of a World Ocean Mediterranean presents one new way of looking at the world. An oceanic perspective highlights global processes that might otherwise be obscured with a continental approach. New communication and transportation technologies have integrated the oceans to a degree never before witnessed in world history. The World Ocean which Professor Semple prophesized over a century ago has emerged as an integral facet of globalization. The World Ocean is the prime mover of international commerce, an arena for the projection of sea power, an important source of food, and accounts for one third of the world's energy production. An awareness of the World Ocean is also important because the maritime environment is host to a number of transnational evils. Piracy, drug trafficking, illegal immigration, poaching, and terrorism all have an oceanic dimension.

The realization of a World Ocean illuminates the continued importance of geography. Nations blessed with natural harbors and extensive waterways that connect the hinterland to the World Ocean's lifeline of trade have excelled. Nations that lack these geographical advantages or have by choice turned their back to the sea have faltered. The architects of the international economy and decision making bodies that work towards world peace need to be sensitive to this reality. The emergence of the World Ocean underscores the precept that despite the information revolution (and perhaps because of it) geography remains important.

The World Ocean also lends insight into the importance of culture. Port cities tend to be cosmopolitan in their outlook, inland cities tend to look inward. Like the struggle between coastal cities and their inland peers in the ancient Mediterranean, the World Ocean is likely to facilitate this process on a global scale. In the United States, for example, New York City, San Francisco, and Miami tend to be international in their world view, while inland cities like Chicago, Cincinnati, and Denver are more insular. In the coming years, as a majority of the world's population moves to the coast, tensions will mount between these epicenters of internationalism and capitals located further inland. This dynamic can already be seen between cities like Shanghai and Beijing, one thriving from its connection to the World Ocean, the other reeling from its influence.

This study offers a starting place for the discussion of a World Ocean Mediterranean. Continued efforts are needed to more fully explore World Ocean dynamics such as the influence of intermodal transport in the global economy, the oceanic spread of harmful micro-organisms, and the future role of sea power. The realization of a World Ocean can be interpreted as either positive or negative for

humanity, but those who ignore its existence do so at their own peril. Issues such as the future navigability of the Arctic, the deep ocean frontier, underwater mining, energy production, and oceanic biomedical research all hold important implications for the future. Russia launched the Sputnik satellite in 1957 and the United States put a man on the moon in 1969, but today the ocean's deep remains largely unexplored. These issues also mandate new cartography that holds the World Ocean as its focus.

Finally, while there are many other valuable frameworks of analysis that take into account global processes, the World Ocean offers a unique global perspective. Comparing the World Ocean to how the Mediterranean developed similar to previous Gulf of Mexico, Arctic, and Pacific analogies not only helps illustrate changing concepts of time and space, but also reminds us that while the march of time never stands still, human nature is somewhat predictable. The World Ocean presents us a mirror into man's soul, a mirror that shows an incredible capacity for cooperation and perseverance in the face of hardship, but unfortunately also an ability to squander earth's resources and persecute each other. Only time will tell which image the World Ocean will reflect.

BIBLIOGRAPHY

- Aczel, Amir D. *The Riddle of the Compass*. New York: Harcourt Publishers, 2001.
- Bentley, Jerry H. "Sea and Ocean Basins as Frameworks of Historical Analysis." *The Geographical Review* 89, no. 2 (1999): 215-224.
- Blair, William. "No. 1 No More, New York Seeks to Strengthen its Role." *The New York Times*, Sept. 24, 1982, B1.
- Blank, Paul W. "The Pacific: A Mediterranean in the Making?" *The Geographical Review* 89, no. 2 (1999): 265-277.
- Bookman, Charles. "U.S. Seaports: At the Crossroads of the Global Economy." *Issues in Science and Technology*, Fall 1996.
- Borgese, Elisabeth Mann. *The Oceanic Circle: Governing the Seas as a Global Resource*. New York: The United Nations University Press, 1998.
- Boyer, Peter J. "A Different War: Is the Army Becoming Irrelevant?" *The New Yorker*, July 1, 2002, 54-67.
- Braudel, Fernand. *The Mediterranean and the Mediterranean World in the Age of Philip II*. Berkeley: University of California Press, 1972.
- Broad, William. *The Universe Below*. New York: Simon and Schuster, 1997.
- Brodie, Bernard. *Sea Power in the Machine Age*. Princeton: Princeton University Press, 1943.
- Broeze, Frank. "Maritime History at the Crossroads: A Critical Review of Recent Historiography." *Research in Maritime History*, no. 9 (1995):IX-XXI.
- Bookman, Charles. "U.S. Seaports: At the Crossroads of the Global Economy." *Science and Technology*. Fall, 1996.
- Carr, Edward. "The Sea." *The Economist*, May 23, 1998, The Sea Survey 3-18.
- Cartier, Carolyn. "Cosmopolitics and the Maritime World City." *The Geographical Review* 89, no. 2 (1999): 278-289.
- Casson, Lionel. *Ships and Seamanship in the Ancient World*. Princeton: Princeton University Press, 1971.
- Clinton, Bill. *Year of the Ocean, 1998, A Proclamation*. Accessed June 11, 2002. Available from <http://www.ocean98.org/procyoto.htm>.

- Colgan, Charles S. "Estimating the Economic Value of the Ocean in National Income Accounting Framework – Preliminary Estimates of Gross Product Originating for 1997." Working Paper, National Ocean Economics Project, 2000.
- Committee on the Ocean's Role in Human Health. *From Monsoons to Microbes: Understanding the Ocean's Role in Human Health*. Washington D.C.: National Academy Press, 1999.
- Committee on Ships' Ballast Operations. *Stemming the Tide: Controlling Introductions of Nonindigenous Species by Ships' Ballast Water*. Washington D.C.: National Academy Press, 1996.
- Cramer, Deborah. *Great Waters*. New York: W.W. Norton and Company, 2001.
- Culican, William. *The First Merchant Venturers: The Ancient Levant in History and Commerce*. London: Thames and Hudson, 1966.
- De Souza, Philip. *Piracy in the Graeco-Roman World*. Cambridge: Cambridge University Press, 1999.
- De Souza, Philip. *Seafaring and Civilization*. London: Profile Books, 2001.
- Donovan, Arthur. "Intermodal Transportation in Historical Perspective." *National Center for Intermodal Transport*. Accessed July 12, 2002. Available from https://www.ie.msstate.edu/ncit/tech_transfer.html.
- Dharmasena, K. "Bombay and Colombo 1948-1984: A Study in Port Development with Special Reference to Containerisation." *The Great Circle* 9, no. 2 (1987): 119-133.
- Diamond, Jared. *Guns, Germs, and Steel*. New York: W. W. Norton and Company, 1999.
- Dickinson, Bob and Andy Vladimir. *Selling the Sea: An Inside Look at the Cruise Industry*. New York: John Wiley and Sons, 1997.
- Earle, Sylvia Alice. *National Geographic Atlas of the Ocean*. Washington D.C.: National Geographic, 2001.
- Earle, Sylvia Alice. *Sea Change: A Message of the Oceans*. New York: G.P. Putnam's Sons, 1995.
- Fernandez-Armesto, Felipe. *Millennium – A History of the Last Thousand Years*. New York: Scribner, 1995.

- Fernandez-Armesto, Felipe. "The Indian Ocean in World History." In *Vasco Da Gama and the Linking of Europe and Asia*, ed. Anthony Disney and Emily Booth. New York: Oxford University Press, 2000.
- Finney, Ben. "The Other One-Third of the Globe." *Journal of World History* 5, no. 2 (1994): 273-297.
- Flynn, Stephen E. "America the Vulnerable." *Foreign Affairs* 81, no. 1 (January/February 2002): 60-74.
- Flynn, Stephen E. "Beyond Border Control." *Foreign Affairs* 79, no. 6 (November/December 2000): 57-68.
- Fogelson, Nancy. *Arctic Exploration & International Relations 1900-1932*. Fairbanks, AK: University of Alaska Press, 1992.
- Food and Agriculture Organization of the United Nations. *Fisheries Global Information System*. Accessed August 15, 2002. Available from <https://www.fao.org/fi/figis>.
- Food and Agriculture Organization of the United Nations. *World Fisheries and Aquaculture Atlas 2001*. Accessed August 15, 2002. Available from <https://www.fao.org/fi/atlas>.
- Forero, Juan. "Lingering Feud With Chile Threatens Bolivia's Pipeline Plan." *The New York Times*, July 8, 2002, A3.
- Greaves, Alan M. "Miletos and the Sea: A Stormy Relationship." In *The Sea in Antiquity*, ed. G. J. Oliver, R. Brock, T.J. Cornell, S. Hodkinson. Oxford, BAR International Series 899, 2000.
- Harrison, Richard Edes. "One World One War Map." Azimuthal Equidistant Projection. *Fortune*, March 1942. Available from the U.S. Library of Congress.
- Hattendorf, John B. *Maritime History: the Age of Discovery*. Volume 1. Malabar, Florida: Krieger Publishing Company, 1996.
- Headrick, Daniel R. *The Tools of Empire – Technology and European Imperialism in the Nineteenth Century*. New York: Oxford University Press, 1981.
- Hughes, Dominic. "Australia's Migrant Policy Under Fire." *BBC News*. March 31, 2001.
- Independent World Commission on the Oceans. *The Ocean our Future*. Cambridge: Cambridge University Press, 1998.

- International Energy Agency. *Global Offshore Oil Prospects to 2000*. Paris: International Energy Agency Press, 1996.
- International Maritime Organization. *Report of the Seventy-Fourth Session of the Maritime Safety Committee*. Document MSC 74/24, para. 17.2, 2001.
- Intertanko. *US Ports and Terminal Safety Study*. Intertanko, 2002.
- Keen, Antony G. "Grain for Athens': the Importance of the Hellespontine Route in Athenian Foreign Policy Before the Peloponnesian War." In *The Sea in Antiquity*, ed. G. J. Oliver, R. Brock, T.J. Cornell, S. Hodkinson. Oxford, BAR International Series 899, 2000.
- Kennedy, Paul. "The Eagle has Landed." *The Financial Times*. February 2, 2002.
- Kildow, Judith T. *Developing Better Economic Information About Coastal Resources as a Tool for Integrated Ocean and Coastal Management*. Accessed July 5, 2002. Available from <http://biology.usc.edu/NOEP/>.
- Lloyd, Alan B. "Saite Navy." In *The Sea in Antiquity*, ed. G. J. Oliver, R. Brock, T.J. Cornell, S. Hodkinson. Oxford: BAR International Series 899, 2000.
- Loads, David. *England's Maritime Empire*. New York: Pearson Education Limited, 2000.
- Lewis, Martin W. "Dividing the Ocean Sea." *The Geographical Review* 89, no.2 (1999): 188-214.
- Lewis, Martin W. and Karen E. Wigen. *The Myth of Continents*. Berkeley: University of California Press, 1997.
- Mahan, Alfred Thayer. *The Influence of Sea Power Upon History*. Boston: Little, Brown, and Compnay, 1890.
- Mahan, Alfred Thayer. *The Interest of America in Sea Power*. Boston: Little, Brown, and Company, 1897.
- Mancke, Elizabeth. "Early Modern Expansion and the Politicization of Oceanic Space." *The Geographical Review* 89, no. 2 (1999): 225-236.
- Mansfield, Becky K. "Globalizing Nature: Political and Cultural Economy of a Global Seafood Industry." Ph.D. diss., University of Oregon, 2001.
- Matvejevic, Pedrag. *Mediterranean: A Cultural Landscape*. Berkeley: University of California Press, 1999.

- Millard, Alan. "The Phoenicians at Sea." In *The Sea in Antiquity*, ed. G. J. Oliver, R. Brock, T.J. Cornell, S. Hodkinson. Oxford, BAR International Series 899, 2000.
- National Intelligence Council. *Law of the Sea: The End Game*. Washington D.C.: Library of Congress, 1996.
- National Oceanic and Atmospheric Administration. *Turning to the Sea: America's Ocean Future*. Washington D.C.: Department of Commerce, 1999.
- Nordenskiold, Adolf Eric. *The Voyage of the Vega Round Asia and Europe*. New York: MacMillan and Company, 1882.
- Ocean Studies Board. *Oceanography in the Next Decade*. Washington D.C.: National Academy Press, 1992.
- "Oil Production Curve Causes Concern." *Australian Energy News*. December 2001.
- Olson, Judy M. "Projecting the Hemisphere." In *Matching the Map Projection to the Need*. Eds. Arthur H. Robinson and John P. Snyder. Bethesda, Md. : American Congress on Surveying and Mapping, 1991.
- O'Neill, Brian and Michael Oppenheimer. "Dangerous Climate Impacts and the Kyoto Protocol." *Science* 296, no. 5575 (2002): 1971-72.
- Onshore and Offshore Oil Reserves/Resources*. Accessed August 15, 2002. Available from <http://archive.greenpeace.org>.
- O'Rourke Kevin H. and Jeffrey G. Williamson. *Globalization and History*. Cambridge: The MIT Press, 2000.
- Ostreg, Willy. "'The Insrop Sweat', What was it All about and how was it handled?" In *The Natural and Societal Challenges of the Northern Sea Route*, ed. Willy Ostreg. 1-46. Boston: Kluwer Academic Publishers, 1999.
- Parry, J.H. *The Discovery of the Sea*. Berkely: University of California Press, 1981.
- Plotkin, Mark. *Medicine Quest*. New York: Viking, 2000.
- President's Panel on Ocean Exploration. *Discovering Earth's Final Frontier: A U.S. Strategy for Ocean Exploration*. Washington D.C.: University Corporation for Atmospheric Research, 2000.
- Rappaport, Jordan and Jefferey D. Sachs. "The U.S. as a Coastal Nation." Research Division Federal Reserve Bank of Kansas City, November 2001.

- Raudzens, George. *Empires – Europe and Globalization 1492-1788*. Great Britain: Sutton Publishing Company, 1999.
- Reclus, Elisee. *The Earth: A Descriptive History of the Phenomena of the Life of the Globe*. New York: Harper and Brothers, 1872.
- Rudolph, Wolfgang. *Harbor and Town: A Maritime Cultural History*. Germany: Druckerei Fortschritt Erfurt, 1980.
- Saores, Mario. *The Ocean Our Future*. Cambridge: Cambridge University Press, 1998.
- Sassen, Saskia. *The Global City*. Princeton: Princeton University Press, 2001.
- Savours, Ann. *The Search for the North West Passage*. London: Chatham Publishing, 1999.
- Saxon, Wolfgang. “M.P. McLean, 87, Container Shipping Pioneer.” *The New York Times*, May 29, 2001, C4.
- Semple, Ellen Churchill. *American History and its Geographic Conditions*. Boston: Houghton Mifflin Company, 1933.
- Semple, Ellen Churchill. “Oceans and Enclosed Seas: A Study in Anthro-Geography.” *Bulletin of the American Geographical Society* 40, no. 4 (1908): 206.
- Semple, Ellen Churchill. *The Geography of the Mediterranean Region – Its Relation to Ancient History*. New York: Henry Hold and Company, 1931.
- Smith, Adam. *The Wealth of Nations*. London: Dent Publishers, 1910.
- Spate, O.H.K. “The Pacific as an Artefact.” In *The Changing Pacific: Essays in Honour of H.E. Maude*, ed. Neil Gunson. Melbourne: Oxford University Press, 1978.
- Stefansson, Vilhjalmur. “The North American Arctic.” In *Compass of the World*, ed. Hans W. Weigert and Vilhjalmur Stefansson. New York: The Macmillan Company, 1947.
- Steward, H. B. *Deep Challenge*. Princeton: Van Nostrand, 1966.
- Tavernise, Sabrina. “A Violent Death Exposes Fish Piracy in Russia.” *The New York Times*, June 27, 2002.
- The International Northern Sea Route Program. *The International Northern Sea Route Program*. Available from <http://www.fni.no/insrop/>.
- The Rand McNally Atlas of the Oceans*. New York: Rand McNally and Company, 1977.

- The Times Atlas of the Oceans*. New York: Van Nostrand Reinhold Company, 1983.
- Thrower, Norman J. W. *Maps and Civilization: Cartography in Culture and Society*. Chicago: University of Chicago Press, 1996.
- United Nations Atlas of the Oceans. Accessed August 15, 2002. Available from <http://www.oceansatlas.org>.
- United Nations. *Report of the Secretary General on Oceans and the Law of the Sea*. 57th Session of the General Assembly, March 7, 2002.
- United Nations. United Nations Conference on Trade and Development. *A Transport Strategy for Land-Locked Developing Countries*. New York: United Nations, 1974.
- U.S. Coast Guard, Alien Migrant Interdiction. *Migrant Interdiction Statistics*. Accessed August 15, 2002. Available from <https://www.uscg.mil>.
- U.S. Congress, Office of Technology Assessment. *Nuclear Waste in the Arctic: An Analysis of Arctic and other Regional Impacts from Soviet Nuclear Contamination*. OTA-ENV-623. Washington, DC: U.S. Government Printing Office, 1995.
- U.S. Department of the Interior Minerals Management Service. *U.S. Offshore Milestones*. September 2001. Accessed August 15, 2002. Available from <https://www.mms.gov/stats>.
- U.S. Federal Agencies with Ocean Related Programs. *1998 Year of the Ocean Discussion Papers*. Washington D.C.: Department of Commerce, 1998.
- U.S. Navy Fact File. *Aegis Combat System*. Accessed August 22, 2002. Available from <http://www.chinfo.navy.mil>.
- U. S. Office of National Drug Control Policy. *Interdiction Operations*. Accessed August 15, 2002. Available from <http://www.whitehousedrugpolicy.gov>.
- Varney, James and Mary Judice. "Hope Prevails That No One Died; Round the Clock Search Goes On." *The Times-Picayune*, December 17, 1996, A4.
- Weigend, Guido G. "Some Elements in the Study of Port Geography." *Geographical Review* 48, no. 2 (1958): 185-200.
- Wilford, John Noble. "Under Centuries of Sand, a Trading Hub." *The New York Times*, July 9, 2002, D1.

- Williams, J. *From Sails to Satellites*. Oxford: Oxford University Press, 1992.
- Wilson, Woodrow. "Address of the President of the United States Delivered at a Joint Session of the Two Houses of Congress, January 8, 1918." *Papers Relating to the Foreign Relations of the United States, Supplement 1*. Washington D.C.: GPO, 1918.
- World Bank. *Ports and Logistics Overview*. Accessed July 12, 2002. Available from https://www.worldbank.org/transport/ports_ss.htm.
- "World Ocean Map." Spilhaus Projection. Geolearning Corporation: Copyright Athelstan Spilhaus, 1987. Available from the Harvard Library Map Collection.
- World Trade Club. *A Primer on Containerization*. Accessed July 12, 2002. Available from <http://www.worldtradeclub.net/doc/wtArt081.htm>.
- Zacher, Mark W. and Brent A. Sutton. *Governing Global Networks: International Regimes for Transportation and Communications*. Cambridge: Cambridge University Press, 1996.