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Security Nexus Perspectives

# SHIPS BECOME DANGEROUS PLACES DURING A PANDEMIC

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*No man will be a sailor who has contrivance enough to get himself into jail; for being in a ship is being in a jail, with the chance of being drowned… A man in jail has more room, better food, and commonly better company.*

- James Boswell, 1755 [2]

Scottish author James Boswell's description of shipboard life has never been more true than today during the COVID-19 pandemic. With 6,300 people still trapped aboard cruise ships[3] as of this writing, many would wish for jail over imprisonment aboard ship. Authorities all over the world are releasing prisoners short of serving their full terms due to the threat of spreading the coronavirus in crowded settings. Yet others paid money to sail in an environment that is just as crowded, and many did so even after being warned by the World Health Organization that cruise ships are unsafe during pandemics.[4] While we depend on the sea for transportation, for movement of goods, and for defense, the sea has always been a principally dangerous environment for those on it. People are drawn to the sea and must use the sea, even during pandemics, but the sea is particularly unforgiving because of the unique characteristics of ships. This essay compares the effects of the 1918 Spanish Influenza pandemic and the ongoing COVID-19 pandemic using a case study during each event, thereby ensuring that the lessons of history are not lost to time.

During the Spanish Influenza pandemic of 1918, countless crews and passengers suffered the torments of the flu as they crossed the world's oceans and seas. During the pandemic, the proximity of sailors and passengers amplified the rapid transmission of the virulent breath-borne

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[2] (Till 2018)
[3] (Matei April 14, 2020)
[4] (Matei April 14, 2020)

disease.[5] Oddly enough, the qualities that make a ship less likely to sink increase the transmission rate of breath-borne illness among its passengers and crew. To protect a ship from flooding, its spaces are divided into numerous small compartments with relatively poor ventilation compared with other enclosed environments such as homes, offices, and stores. When a ship begins to sink these spaces can be quickly sealed or closed-off to keep the ship afloat. However, when a ship experiences an outbreak of a breath-borne respiratory disease, then the proximity of people in these tight and poorly ventilated compartments creates an ideal environment for this type of disease to transfer rapidly among the people aboard the ship.[6]

The confluence of the 1918 influenza pandemic and the final months of World War I created a disastrous situation in which the American Expeditionary Force (AEF) had to cross the Atlantic Ocean to reach the ongoing conflict in France. Overcrowded troop ships set sail from the United States with only a few AEF soldiers ill with the flu and ended their 3,000 nautical mile (5,500 km) perilous voyage with many dead and hundreds infected with this virulent strain of influenza.

An exemplar of these unfortunate circumstances is the voyage of *USS Leviathan* which was transporting over 200 medical personnel and 9,033 AEF troops from Hoboken, New Jersey to Brest, France from September 29, 1918 to October 6, 1918.[7] Before *Leviathan* set sail, many AEF troops who exhibited flu symptoms were removed from their ranks and left ashore, but the crushing urgency of Allied forces in Europe demanded the flow of AEF troops continue in the midst of the second and most severe wave of the 1918 flu pandemic.[8] On the first full day of *Leviathan's* voyage, troops fell ill with influenza and filled every hospital bed in the ship's sick bay while many more lay in their racks (beds aboard a ship) in the large berthing compartments for AEF troops throughout the ship.[9] Berthing compartments are not generally well ventilated, but *Leviathan's* berthing compartments were even less well ventilated on this voyage. German submarines (U-boats) presented a threat to all Allied vessels crossing the Atlantic, so *Leviathan* had to seal all of her portholes for this voyage to prevent light from escaping her compartments that could be detected by U-boats at night.[10] With portholes and compartments sealed, the air below decks was humid, stifling, hot, oppressive, and stale, all of which amplified the spread of the flu among the troops that could neither receive fresh air nor distance themselves from one another because of the cramped nature of their berthing compartments. An overwhelmed medical staff of 200 personnel exhausted all their efforts in a futile battle against the pandemic aboard *Leviathan*. While definitive statistics may be lost to history, *Leviathan* completed her nightmarish seven-day voyage with over 75 dead, over 2,000 cases of influenza, and over 100 cases of pneumonia.[11] The exhausted and overworked medical staff understandably failed to keep accurate records during the crisis at sea. The day after *Leviathan's* arrival, a cable from Brest, France reported that there were an additional 1,541 influenza and 1,062 pneumonia cases that

[5] (Crosby 2003)
[6] (Crosby 2003)
[7] (Brown 2018)
[8] (Crosby 2003)
[9] (Crosby 2003)
[10] (Brown 2018)
[11] (Brown 2018), (Crosby 2003)

likely originated from the recently docked troop ship *Leviathan*.[12] Despite the Allies' vital need for AEF troops at the Western Front to combat the Central Powers in France, the AEF troops that arrived aboard the *Leviathan* increased the spread of influenza among the Allies during their desperate bid to overwhelm German forces.

A century later, the world is struggling with a new pandemic. This one, named COVID-19, is viewed as the worst since the 1918 Spanish Flu. In addition to causing illness and death throughout the globe, this virus, like that of 1918, has shown itself to be particularly deadly at sea. In this regard, the cruise ship *MV Diamond Princess* offers a useful example of the effects of disease aboard ship. The *Diamond Princess* departed Yokohama, Japan on January 20, 2020 and sailed south to Hong Kong. There, five days later, a sick passenger disembarked who was confirmed positive for COVID-19. The ship returned to Yokohama on February 3 after intermediate stops and was quarantined by Japanese officials at that time. By then, the single infected passenger had spread the disease throughout the ship. A single carrier of COVID-19 set off an infection chain that ultimately resulted in 712 positively screened people in a total ship population of 3,711.[13] According to the U.S. Centers for Disease Control (CDC): "Cruise ships are often settings for outbreaks of infectious diseases because of their closed environment and contact between travelers from many countries."[14] The unique characteristics of ships, designed to efficiently house many people and travel at reasonable speed, necessarily mean cramped accommodations and heavily trafficked common areas. These features of ships result in prolonged exposure and make them dangerous during pandemics. The unfortunate voyage of the *Diamond Princess* resulted in loss of life, but poignantly also probably saved lives.

Much was learned about COVID-19 from the *Diamond Princess*, which offered a good case study of the disease in a closed environment. During the process of testing, 46 percent of the positive cases onboard that ship were asymptomatic at the time of testing.[15] Overall, 18 percent of all infected people on that ship showed no symptoms. The unplanned case study of the *Diamond Princess* outbreak contributed to the discovery that this coronavirus (SARS CoV2) can spread itself through asymptomatic carriers. This is one reason why infection rates are so high globally and why governments in many areas of the world struggle to cope with the number of those who fall ill. The silver lining of the *Diamond Princess* case study is that it confirmed what was until then an unfamiliar transmission path, asymptomatic transmission, which will ultimately lead to more effective response. This discovery may not have occurred soon enough, unfortunately, for two ships more prominent than the *Diamond Princess*.

Recent COVID-19 outbreaks aboard the *USS Theodore Roosevelt (CVN 71)* and the *FS Charles de Gaulle*, both aircraft carriers, resulted in the rapid spread of the disease and necessitated that operational commanders interrupt their combat deployments. The *Theodore Roosevelt* was deployed to the Western Pacific and was forced to make port in Guam earlier than scheduled to deal with the outbreak of COVID-19 onboard. Likewise, the *Charles de Gaulle* was forced to return

[12] (Crosby 2003)
[13] (Moriarty 2020)
[14] (Moriarty 2020)
[15] (Moriarty 2020)

to its homeport early from a deployment combating the Islamic State in the Eastern Mediterranean and drilling with NATO forces in the North Atlantic.[16] Maintaining safety in ships like this will be difficult due to the unique characteristics of both COVID-19 and combat vessels. Despite higher discipline and cleanliness levels, it is apparent that warships can be as dangerous as their civilian equivalents. Outbreaks in the two aircraft carriers, when compared to the outbreak in the *Diamond Princess,* bear this out. This is because spaces are even more confined and ship survivability design makes sleeping and common areas even more cramped. As of this publishing, 94 percent of the *Theodore Roosevelt's* 4,800-member crew completed tests for COVID-19, and 660 personnel tested positive with 60 percent of those sailors presenting no signs of COVID-19.[17] Similarly, 62 percent (1,081 crew members) of the *Charles de Gaulle's* 1,746-member crew tested positive for COVID-19 as of April 19.[18] The aircraft carriers demonstrated infection rates that bracket the cruise ship. The CDC recently issued this guidance regarding cruise ships: "All persons should defer all cruise travel worldwide during the COVID-19 pandemic."[19] Much like the case of the *USS Leviathan*, no such option exists for sailors in modern warships. Neither the U.S. Navy nor French Navy have issued statements similar to the CDC, as operational necessity will dictate that these ships remain deployable.

Due to their unique features, ships become particularly dangerous places during times of pandemic. The outbreaks in the *USS Leviathan* and the *MV Diamond Princess* both point to the same lesson. Ships with their characteristically crowded conditions, small spaces, and poor ventilation increase the transmission rate of breath-borne respiratory illnesses. Let's hope we learn these lessons so that there is not another incident a century from now.

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[16] (Eckstein 2020)
[17] (Williams 2020), (Stewart and Ali 2020)
[18] (Breeden, The New York Times: How an Invisible Foe Slipped Aboard a French Navy Ship 2020), (Eckstein 2020), (Irish, Nikolaeva and Neely 2020)
[19] (Moriarty 2020)

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