A Case for Sino-American Cooperation Against Climate Change

Kevin Johnston

Abstract: The United States and China's continued aggressive actions in the South China Sea threaten to spark a war between two of the world's largest military and economic powers. Meanwhile, Climate Change continues to harm people and infrastructure in both countries. To overcome the threat posed by Climate Change, the United States and China must work together toward a mutually beneficial goal.

Keywords: climate change, global warming, Sino-American cooperation, power projection, Belt and Road Initiative

In Medias Res

An opportunity exists to improve relations between the United States and China by jointly confronting Climate Change.[1] It is a relationship in great need of repair. Military tensions in the South China Sea, conjoined with an ongoing trade war, have strained Sino-American relations.[2] Each country is suspicious of the other based on perceived provocations. The United States sought five members of the People's Liberation Army (PLA) in 2014, alleging the men had breached the federal government's Office of Personnel Management.[3] China's land-reclamation project in the South China Sea has

Kevin Johnston is an Army veteran who currently works as a DOD contractor. From 2011 to 2015, he served as a logistics officer in the 4th Sustainment Brigade. He completed his bachelor's degree from Dickinson College, Carlisle, PA, in 2011 and his master's degree from Saint Mary's University, San Antonio, TX, in 2015. He would like to thank the following individuals who lent their time to help him edit this article: LtCol Jeannette G. Haynie, PhD; Maj Jason Bogden, PhD; 2dLt Amelia Snyder; and Daniel Gagliano, master's student at Johns Hopkins University School of Advanced International Studies.

transformed uninhabited coral reefs into air and naval bases, greatly increasing China's military presence in the area.[4] In response, the United States conducted military exercises in the South China Sea throughout 2018.[5] Both countries continue to increase their military footprint in the area, either unilaterally or with allied forces.[6] These growing tensions remain unabated, making warfare between the two countries more likely in the near future. At the same time, Climate Change threatens the people and infrastructure of both countries. Therefore, working together to overcome Climate Change is the best opportunity for the United States and China to avoid military conflict.

As China expands its economy and strengthens its military, it looks to break further onto the world stage. Opposing this growth is the United States, the sole remaining superpower after the end of the Cold War. Both countries have conflicting interests, creating a situation ripe for military conflict. But the Sino-American relationship is filled with examples of pragmatic diplomacy.

The United States and China have a history of strong diplomatic cooperation and of overcoming difficult obstacles to reach peaceful solutions. Rapprochement with China, led by President Richard M. Nixon, began during the Cold War, after years of American efforts to "disrupt, destabilize, and weaken China's communist government."[7] The two countries normalized relations in 1979, reaching an understanding wherein the United States ceded that there was only one China, and wherein China recognized that the United States could continue to trade with Taiwan.[8] In 2014, the United States and China released a joint announcement on Climate Change, and both pledged to increase their efforts to reduce emissions.[9] In each agreement, both countries put aside their ideological differences to accomplish a mutually beneficial goal.

Climate Change threatens the future of both the United States and China. The National Aeronautics and Space Administration (NASA) defines *Climate Change* as

> a broad range of global phenomena created predominantly by burning fossil fuels, which add heat-trapping gases to Earth's atmosphere. These phenomena include the increased temperature trends described by global warming, but also encompass changes such as sea level rise; ice mass loss in Greenland, Antarctica, the Arctic and mountain glaciers worldwide; shifts in flower/plant blooming; and extreme weather events.[10]

NASA further states that global warming is "due to the increase in fossil fuel emissions since the Industrial Revolution."[11] Disruptive events such as sea level rise, extreme weather events, and shifts in plants blooming threaten the goals of both nations.

China wants to thrive economically, meaning it will need healthy citizens,

and the United States wants to protect itself from foreign military threats. These are both Climate Change–related issues. Currently, the effects of emissions kill thousands of Chinese every year and threaten the security interests of the United States around the globe. Military installations, such as Diego Garcia, are threatened by a rise in sea level.[12] In the future, Climate Change could cause droughts and famines in China, while harming the security of the United States by degrading operational readiness and by destroying equipment and military installations. Overcoming Climate Change together will strain the ambitions and resources of each country, but it is ultimately imperative for the survival of billions of people around the world.

Rising Dragon versus Wounded Eagle

The United States and China support the most powerful economies on Earth, and their militaries both possess atomic weapons. Following the end of the Cold War, the United States emerged as a lone global superpower with a powerful military and a robust economy. Ongoing military conflicts, rising debts, and the Great Recession negatively impacted the United States' ability to project power. While the United States floundered, China surged forward and surpassed the United States in 20 economic indicators, including steel production and manufacturing.[13] In doing so, China's emissions surpassed those of the United States, due to its heavy reliance on coal for energy.[14] This newfound economic prowess allows China to act more assertively around the world, through the Belt and Road Initiative and increased military activity in the South China Sea.

In 2013, China announced the Belt and Road Initiative, designed to link Africa and Europe to China. Disguised as economic expansion, the initiative allowed China to accomplish military objectives without using military force. Building more than a dozen new ports as far away as Djibouti, China plans to extend its economic prowess far beyond its borders.[15] China coerces other countries by taking control of their foreign debt and utilizes debt-trap diplomacy to achieve strategic goals. Notable victories include taking land from Tajikistan and leasing a port from Sri Lanka for 99 years.[16] These nonmilitary conquests allowed China to greatly increase its sphere of influence.

At roughly the same time, China initiated a campaign to control the South China Sea when it claimed islands belonging to several other nations.[17] After launching an aircraft carrier and surface warfare ships, China created islands out of shoals and reefs to use as airstrips. This military buildup strengthens China's offensive capabilities against the U.S. military.[18] It also creates a situation where both militaries will be consistently within striking distance of one another.

The United States has a strong military presence in the South China Sea. With a budget of $610 billion, the U.S. military spent more in 2018 than the next seven countries, surpassing even China's budget.[19] The U.S. Navy has 10

Nimitz-class aircraft carriers, which dwarf the next largest class of aircraft carriers.[20] With bases in Japan and South Korea, the U.S. military poses a strong threat to any Chinese aggression.[21] Moreover, the United States is formally allied to its NATO counterparts, which includes two other countries with atomic weapons. Though they lack a presence in the region, NATO is obligated to respond in full if a member nation is attacked. This is a formidable defense against any Chinese aggression in the South China Sea. If the Chinese attack anywhere there are American forces or allies, victory for the People's Republic of China (PRC) is uncertain at best.

The conditions seem ripe for a military conflict. China, the rising power flush with newfound economic might and an increasingly powerful military, against the ruling world power, the United States. Such a conflict would undoubtedly be disastrous and may even be apocalyptic, much like the threat of a nuclear war between the United States and the Soviet Union. In a message to President Harry S. Truman, Albert Einstein wrote, "I know not with what weapons World War III will be fought, but World War IV will be fought with sticks and stones."[22]

The Case for Cooperation: MAD-ness Does Not Reign

Mutually assured destruction (MAD) is a powerful incentive to put aside differences in the interests of peace. As during the Cold War and the Soviet-Japanese tensions, both the United States and China already possessed nuclear weapons. The Americans' arsenal outnumbers the Chinese, with 6,550 warheads to China's 280.[23] Both countries militaries' have atomic weapons that can be launched from land bases, naval ships, or aircraft in what is known as a nuclear triad.[24] In short, there is no way either country would escape considerable damage should they make use of their nuclear arsenals.

Counting on mutually assured destruction to prevent armed conflict is risky at best. During the Cold War, the Soviet Union and United States both nearly came close to launching their weapons based on perceived threats or fraudulent computer readings. To ensure that the United States and China remain at peace, they should find a mutual adversary, such as Climate Change, and work together to destroy that adversary, thereby saving themselves and each other.

Rising Seas as a Rising Power

Both China and the United States currently suffer from, and will continue to suffer from, the effects of Climate Change. This threat goes underrecognized in political circles because it is not a hostile military force or traditional adversary. The United States and China must recognize that Climate Change poses an existential threat to them both and that an alliance is the only way to overcome

both challenges simultaneously. They can do so by considering Climate Change a rising hostile power.

Consider the following: a new global power emerges and threatens key interests of the United States and China. It attacks America's military installations around the world, crippling the Florida Air National Guard, and forces the Marines Corps Mountain Warfare Training Center to stop training, reducing the military readiness of those units. In China, this new power threatens both food and water security and could overrun dozens of seaborne cities that are home to millions of people with flooding. Attacks by this power kill people every year in increasing numbers and will continue this pattern until the status quo changes.[25] This power has no visible leader or communications system. It does not require funding, recruiting, or retention. This new power, Climate Change, is combated by nearly every nation on Earth but is not challenged adequately by the world's strongest powers—the United States and China. A coalition of interrelated issues—pollution, overpopulation, mismanagement of resources, global trade, food security, and water scarcity—continue to strengthen this new power, making it deadlier over time. The two nations most responsible for the rise of this new threat, and in the best position to combat it, waste their time in a zero-sum game over dominance of the South China Sea. While they bicker, this new power continues to attack both with prejudice.

Clipped Wings: The Effects of Climate Change on the U.S. Military

Climate Change has the potential to reduce the effectiveness of the U.S. military through the destruction of military installations, the degradation of unit effectiveness, and damage to essential warfighting equipment. According to Chairman of the Joint Chiefs of Staff General Dunford, "When I look at climate change, it's in the category of sources of conflict around the world and things we'd have to respond to. So it can be great devastation requiring humanitarian assistance—disaster relief—which the U.S. military certainly conducts routinely."[26] Despite this assessment, the American government fails to recognize the threat posed by Climate Change. The United States recently promised to withdraw from the Paris Agreement on 4 November 2020, and President Donald J. Trump has repeatedly expressed skepticism regarding the effects of Climate Change.[27]

The lack of military spending to combat Climate Change is at odds with how much money the United States spends to counter other threats. When terrorists attacked the United States on 11 September 2001, America spent more than a trillion dollars in military actions abroad to prevent another such attack from 2011 to the present.[28] In the hopes of stopping the proliferation of weapons of mass destruction, which now has a low probability, the United

States spent billions of dollars to fund arms control treaties. However, to counter threats based on Climate Change, which are far more certain, the United States spends less money.[29] This is due to the refusal of policy makers to act on the threat posed by Climate Change, despite the effects it could have on American security and defense.

As with a traditional enemy state, Climate Change uses both direct and indirect attacks against American forces and interests around the world. By degrading American military installations and damaging equipment, Climate Change reduces the effectiveness and speed with which the United States can respond to an international crisis. By destroying the environment of fragile nations and disrupting their economies, Climate Change acts as a force multiplier for nefarious groups, helping them swell their ranks and cause more destruction than ordinarily possible.[30] These attacks, if they came from a rival nation, would generate an immediate and intense response. But they currently provoke a small, inadequate response.

A 2019 Department of Defense study of 79 military bases shows the damage already being done to American infrastructure by Climate Change. The report found that the majority of bases are already suffering from one of several climate attacks, such as recurrent flooding, drought, desertification, wildfires, or thawing permafrost.[31] According to the report, "About two-thirds of the 79 installations addressed in this report are vulnerable to current or future recurrent flooding and more than one-half are vulnerable to current or future drought. About one-half are susceptible to wildfires."[32] Moreover, the threats are only going to escalate in strength and frequency unless solutions to Climate Change are reached. Bases that are not presently vulnerable to attack from Climate Change are likely to be within 20 years. Within that time, five more bases could by attacked by drought, seven more by flooding, and seven more by wildfire.[33] Without intervention, the costs of Climate Change attacks will only continue to rise.

Climate Change has already cost the U.S. Department of Defense billions of dollars. In 2018, Hurricane Michael damaged Tyndall Air Force Base in Panama City, Florida, so badly it will cost $5 billion to repair.[34] Similarly, Marine Corps Base Camp Lejeune in Jacksonville, North Carolina, suffered $3.6 billion worth of damage when Hurricane Florence struck.[35] In total, 14 climate events cost the United States more than $1 billion to repair in 2018 alone.[36] The financial toll is just one aspect of damage caused by Climate Change.

Operations have been widely affected at bases attacked by Climate Change. The Department of Defense cited four examples where tests, training, launches, or essential activities have been disrupted in the United States:

Wildfires in the western United States affecting Vandenberg Air Force

> Base, California, and operations at the Western Range and Point Mugu Sea Range. Hurricanes resulting in damage to infrastructure and delays in training, testing programs, and space launches at Tyndall Air Force Base, at the Atlantic Undersea Test and Evaluation Center in the Bahamas, and at the Eastern Range in Cape Canaveral, Florida. Permafrost thawing at the U.S. Army's Cold Regions Test Center, Fort Greely, Alaska, impacting cold weather testing activities. Rising seawater washover and contamination of freshwater on atoll installations.[37]

Climate Change threatens American military bases around the world. Bases located near water are particularly vulnerable to rising sea levels. Diego Garcia, an Indian Ocean atoll, is 6.5 feet above sea level, meaning that it is vulnerable to storm surges and a rise in sea level.[38] Rising sea levels threaten Naval Base Guam, the Ronald Reagan Ballistic Missile Defense Test Site located on Kwajalein Atoll, and the American Naval Support Activity Bahrain.[39] These bases are used as logistics hubs, missile-testing sites, and to secure American interests in the Pacific and the Strait of Hormuz. Without these bases, American security around the world is threatened.

The threats continue to multiply as time passes and will affect an increasing amount of American security interests. Political instability creates incubator conditions for terrorist organizations around the world. In the United States Africa Command (USAFRICOM) area of responsibility, mission execution is affected by the rainy season flooding and drought/desertification.[40] Instability in the U.S. Indo-Pacific Command (INDOPACOM) can be attributed to flooding and tsunamis in Indonesia.[41] In Africa and the India/Pacific region, instability has historically led to increased recruitment for groups such as Boko Haram, as well as other terrorist groups hostile to the United States.[42] The Al Udeid Air Base in Qatar may become so warm by the year 2100 that humans will not be able to live outside.[43] Climate Change exacerbates already volatile situations, threatening American security around the world.

Intelligence, surveillance, and reconnaissance and personnel recovery/casualty evacuation and logistics flights from Europe to the African continent are affected by weather conditions over the Mediterranean Sea. When the conditions are poor, there is an increase in no-go flight days.[44] This impacts the military's ability to gather crucial intelligence or resupply bases and could even affect attempts to rescue wounded or lost servicemembers.[45]

Renewed Hope through Renewable Energy

Recognizing the problem, the American military is taking steps to mitigate Climate Change through direct action. The energy performance master plan lays

out three elements designed to reduce emissions: expand supply, reduce demand, and adapt future forces and technology.[46] Each Service is responsible for reducing emissions based on a 2003 baseline of energy consumption.

By 2015, the U.S. Army reduced 18 percent of its emissions and created or bought 9.5 percent of its electricity from renewable resources. Additionally, the Army Net Zero Initiative, created in 2010, aims to provide "greater water and energy security and increasing operational flexibility."[47] Fort Hunter Liggett in California installed three one-megawatt photovoltaic systems and is expected to install more in the future. Compared to 2011 energy usage, net zero installations reduced energy use intensity by 13 percent.[48]

From 2003 to 2015, the U.S. Air Force reduced its energy facility consumption by nearly 25 percent. This stemmed from the 311 energy projects installed or under construction. Nevada's Nellis Air Force Base alone is capable of powering itself on sunny days through two large photovoltaic panels.[49]

The Navy and Marines reduced energy intensity by 22 percent from 2003 to 2015 and have a goal to reduce energy intensity by a further 50 percent by 2020.[50] Additionally, the Navy created a geothermal plant at China Lake, California, and created a waste-to-energy plant in Norfolk, Virginia. The Navy is committed to using biofuels and the John C. Stennis Carrier Strike Group deployed with renewable fuels.[51]

But military changes are not enough to solve the overall problem. After Syria and Nicaragua joined the Paris Agreement, the United States became the only country on Earth opposed to the agreement.[52] As current trends continue and intensify, America's military capabilities will become crippled as its threats multiply.

Dehydrated Dragon: Water Crisis in China

China's rise as an economic and military powerhouse can be described as meteoric. Currently, it is the only country in the world that is seen as a potential peer of the United States, and it plans to expand its diplomatic might for decades to come. But while China risks military conflict abroad, its greater challenge lies with limited resources needed to sustain a booming population. Due to a loss of freshwater coupled with rising seas along its densely populated coasts, China could lose millions of people and see its economy greatly impacted by an inability to combat Climate Change.

Despite being home to 1.3 billion people, China only possesses 6 percent of the world's overall water supply. This causes conservation problems that will become more severe in the future. The rivers China depends on for its water supply will peak between 2030 and 2050, as glaciers in the north melt. In northern China, 70 percent of the villages already suffer from a lack of water,

where there are few financial incentives to conserve along with infrastructural deficiencies and pollution depleting the supply continuously.[53] A lack of water is a singular problem but threatens to create a host of powerful issues that would threaten China's growth and development in the decades to come, including food shortages and the spread of disease.

Food security is defined by the Chinese government as being able to produce 95 percent of their grain domestically. This becomes more difficult in light of China's rising population, expected to reach 1.6 billion by 2030, which will increase demand for food as more of the population reaches economic prosperity and consumes more meat.[54] Grain that could be fed to people instead gets diverted to feed animals. These growth factors will inhibit the goal of 95 percent grain production.

As rivers dry up, China could see the failure of their irrigation farms, responsible for 75 percent of their grain production. Droughts and floods, which cost China 50 million tons of food between 2001 and 2002, will become more common.[55] China's inability to feed itself will lead to it buying more from other countries, thereby decreasing capital needed to advance its diplomatic agenda.

Fighting Fire with Regulations: The 2016 Five-Year Plan

China adopted radical plans to counter the effects of Climate Change, with plans designed to reduce energy emissions throughout the country and lessen pollution in major cities. In keeping with its plans to reach peak energy by 2030, China was already the world's largest investor in renewable energy in 2012 and pledged billions of dollars to the developing world to help combat Climate Change starting in 2015.[56] Its next step, *The 13th Five-Year Plan* (FYP), is "the most environmentally-focused FYP to date."[57] Ten of the 2016 plan's 25 goals focus on environmental development in an effort to undue damage sustained by previous economic growth. To improve air quality, land quality, and water quality, China is taking what the U.S.-China Economic and Security Review Commission has divided into four efforts: expand nationwide monitoring and evaluation metrics; set energy and carbon dioxide emissions intensity reductions; improve air, soil, and water quality; and support domestic green industries.[58]

The Chinese government is expanding the environmental monitors across the country. The last FYP focused on monitoring air quality, looking for carbon monoxide, ozone, and nitrogen dioxide, among other substances. The new FYP monitors soil and water levels, including in streams and lakes.[59] Recognizing the dwindling supply of water, the FYP's stated goals include:

> Priority protection of good-quality water bodies;
>
> Establishing holistic strategies to tackle groundwater pollution;

Strongly improving polluted urban water bodies; and
Improving water quality of river mouth and nearshore areas.[60]

By 2020, the Chinese government wants 70 percent of nationwide groundwater to reach grade III.[61] To hold local leaders more responsible, goals are implemented directly from the central government.[62] These national checks will help the government achieve its other objectives.

The FYP sets a nationwide energy cap in an attempt to reduce emissions. An essential part of this action will include increasing renewable energy from 12 to 15 percent by investing in solar, wind, and geothermal energy.[63] To reduce emissions, China suspended more than 100 coal projects and closed heavy industries producing excess capacity.[64] Reducing emissions will allow the government an opportunity to rejuvenate its air, soil, and water.

The goals regarding air, soil, and water pollution illustrate the damage done in earlier generations. One of the requirements for air is for cities to have good air quality 80 percent of the time by 2020, a tacit admission that Chinese citizens breathe poor air currently. By raising the price of gasoline, China hopes to pay for facility upgrades and increase the quality standard of gasoline.[65] The decontamination of soil is harder to address, as the government does not fully understand the extent of the problem. With an overarching goal to decontaminate 90 percent of polluted farmland by 2020 and another 5 percent by 2025, China hopes to be able to use 666,000 hectares for farmland and 5,000 square miles as forest and grassland by 2020.[66] Water quality and overuse present the greatest challenge for China. The previous FYP water consumption cap was exceeded by 18 billion cubic meters. It also called for a reduction in pollutants that missed its goal.[67] Without fast improvements to natural resources, especially water quality, China will soon find its foreign policy compromised by an inability to meet domestic requirements.

To meet increased energy needs, China will continue to support green energy vehicles and energy-saving technologies. From the last FYP, China became a leader in renewable energy in less than a decade and became the leading producer of solar panels in 2015.[68] This trend will be difficult to continue as the market struggles with overcapacity.[69] China is also trying to make its economy more environmentally friendly by concentrating investments on green companies and investing in pollution-mitigation efforts.[70]

China's past growth degraded its soil, air, and water. Today, China burns half the world's coal, creating an enormous carbon footprint.[71] Without substantial reform, China will soon be unable to provide its people with clean water, food, and air. These failures in governance will doubtlessly hinder their foreign policy and could stagnate its economy and military at a time China seeks improvement over its peers.

Soaring Together: China and the United States Cooperate to Defeat Climate Change

The greatest threat to the United States and China is Climate Change. Instead of trying to defeat each other, they must work together to defeat a mutual enemy. The blueprint for a military counteroffensive against Climate Change was created in 1948. That year, the Marshall Plan (officially the European Recovery Program) helped European nations recover from the Second World War. The $13 billion spent created economic growth and helped create the European Union.[72] The Marshall Plan is credited with saving Europe from financial ruin and deterring Soviet domination of the continent. A similar plan could help save the world from the threat of Climate Change.

When the Marshall Plan was initiated in 1948, it built on previous efforts made directly after the war, such as the military assistance to Greece and Turkey and humanitarian assistance conducted by the United Nations.[73] To create a new Marshall Plan, the United States and China would need to draw on previously existing treaties, such as the Trans-Pacific Strategic Economic Partnership Agreement (2005) and the Asia-Pacific Economic Cooperation (1989). The aim of this Climate Change plan would be to stop or reduce Climate Change by providing funds to countries who applied for aid to develop renewable energy, protect forests, and reduce greenhouse gases.[74]

An essential aspect of a new Marshall Plan will be a reduction of military tensions between the United States and China. Both countries currently spend a large part of their annual budgets on military expenditures in the South China Sea. This money could be better spent combating Climate Change by retrofitting bases with renewable energy, investing in alternatives to fossil fuels, or repairing damage done to coral reefs or forests. Joint projects such as cleaning the Great Pacific Garbage Patch, working to prevent further plastic pollution, and reducing the importation of recyclables from the First World, can lay the groundwork for more cooperation, which will hopefully lessen tensions.

The United States and China will fund the new Climate Change Marshall Plan. Through the Copenhagen Accord (2009) and the Paris Agreement, nations around the world agreed to reduce Climate Change together. Member states have already made significant steps. The United Kingdom reduced its emissions by nearly 4 percent in 2017 by reducing coal use 20 percent. Mexico's emissions dropped 4 percent in the same time frame.[75] In 2014–15, 21 countries, including the United States, grew their economies while decreasing their emissions, shattering the myth that economic growth entailed greater carbon emissions.[76] With the help of China and the United States, countries around the world can lower emissions faster and more efficiently than if they were doing it on their own.

This plan would have immediate and long-term benefits for both countries.

A world with reduced emissions would mean fewer natural disasters hurting American military facilities and personnel. It would also prevent the glaciers that supply China's rivers from peaking and cutting the flow of clean water for crop development. Working together would enable China and the United States to view each other as allies in a sustained fight. If this sounds far-fetched, recall that prior to the First World War, Britain and United States fought two wars even though the British considered intervening in the Civil War on the side of the Confederacy. Now the two nations are close allies, celebrating more than a century of a so-called special relationship.

Similarly, the United States and China fought two proxy wars against one another in Korea and Vietnam. Much as allying to win the First and Second World Wars brought the United States and United Kingdom together, an alliance against Climate Change can bring the United States and China together. In trying to stop Climate Change, the United States and China can also try to prevent a military conflict certain to cause immense damage to each side.

There are numerous pitfalls that must be overcome for the United States and China to work together effectively. A significant portion of the American electorate now understands the threat posed by Climate Change, but only 28 percent would agree to pay an extra $10 a month to combat that threat.[77] China's growth is tied to its use of fossil fuels and stunting this growth for the sake of Climate Change will be difficult to accept. The United States is accustomed to being the lone superpower in the world and will resent losing its status. In the pursuit of peace, concessions on both sides must be made.

If China and the United States do not act quickly to prevent the worst effects of Climate Change, the future for both nations seems very bleak. Should the two countries decide against peace, the ensuing war has the potential to become the first mutual exchange of nuclear weapons. Should they fail to create an alliance to prevent the worst effects of Climate Change, the ensuing results will resemble a world war with respect to economic damage and the number of people killed. Overcoming shared myopia and greed to establish a lasting peace that sustains the future is the only safe path forward.

Notes

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