

Considering the Capacity of Nuclear War

GEOG 397.04
Research Term Paper
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Abstract

As the need to expand industrially thrives over the globe, competition arises amongst nations. Part of developing industrially means to protect that growth from the competition and soon the concept of militarism is introduced. Militarism is

‘the belief or desire of a government or people that a country should maintain a strong military capability and be prepared to use it aggressively to defend or promote national interests.’¹

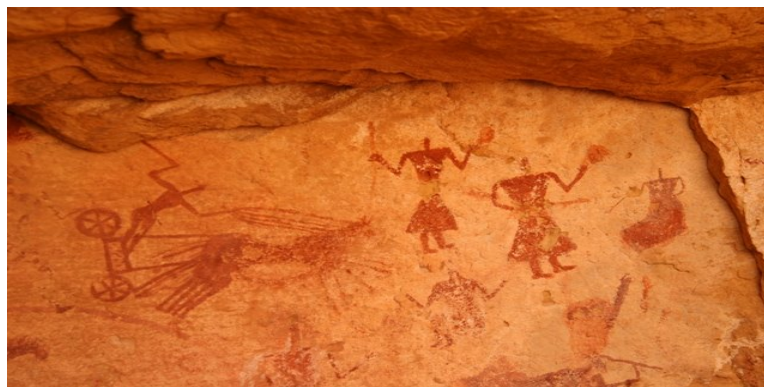
We have seen the destruction that can occur when two militaries are in direct conflict by studying history. This paper will briefly engage in dialogue in regards to human aggression so as to provide meaningful background. It will also delve into comprehending globalization at a basic level, linking the concept with militarism. However, the prime objective is to examine meticulously the consequences attributed with the advancement of militaries in Europe through history and the possible future. With the addition of nuclear weapons in the arsenals of many nations currently, a potential war involving these arms will not only be a threat to the two countries in conflict but the entire world, economically and environmentally.

¹ Allen, R. E., H. W. Fowler, and F. G. Fowler. The Concise Oxford dictionary of current English. 8th ed. Oxford: Clarendon Press ; 1990 pg 358

I. INTRODUCTION

i. Background

Throughout the history of civilization, acts of aggression are seen and observed repetitively. Even before the age of writing, primitive weapons have been studied by archeologists. Simultaneously with the creation of the bow, depictions emerge of first known warfare which clearly consist of two or more groups of men at combat. And while it is difficult to come to a precise conclusion as to why these skirmishes occurred 10,000 years ago from mere depictions and weapons, one can infer that it may very well be a cause of power struggle and/or territorial reasons.



<http://cdn.zmescience.com/wp-content/uploads/2012/11/Jebel-Acacus-Cave-paintings-3-756757.jpg>

Cave paintings as seen above from nearly 12,000 years ago² have led to psychologists debating a profound idea that perhaps human violence is innate behavior.

² Isherwood, Damon . "The Nature of War ." ZME Science - science news, research, health, environment, space . <http://www.zmescience.com/research/studies/the-nature-of-war-we-are-not-programmed-to-violence/> (accessed February 11, 2013).

ii. Innate Human Characteristic?

A common question which comes up that blossoms philosophical discussion is whether or not aggression is embedded in our genetic code. Is it something imprinted in our minds, as well as our ancestors, without acquiring it on our own? Are we perhaps forever doomed to be violent, eventually resulting in nuclear holocaust? Or can we, by carefully examining history, learn from it and resist these debatable instincts and become a peaceful global community? Richard Wrangham, a British biological anthropology professor at Harvard, and Dale Peterson, an American author, in their book *Demonic Males: Apes and the Origins of Human Violence*, converse the idea of leaving our primal instincts.

Assuming a worst case scenario position and accepting the debatable 'innate human aggression behavior' theory, it is quite easy to deduce that mankind can, in fact, abandon its questionable warmongering-like manner. Dr. Al Smith, anthrozoologist, states 'we have a large cerebral cortex that allows for reasoning, consideration, creativity and culture'³. The instinct-controlling part of our brain is relatively insignificant in comparison to the cortex, and can be superseded by will and thought. It is with our ability to reflect and make conscious decisions by reasoning and logic which can suppress our instinctual behavior. Therefore to simply shrug off the violence we were and are involved in by asserting it is in our nature, when nature has given us intelligence as well, is a clear fallacy. Dr. Wrangham conveys the matter quite bluntly and effectively;

³ Smith, Al. *Why We War: The Human Investment in Slaughter and the Possibilities of Peace*. United States of America: al smith, 2011..

“If we are cursed with a demonic male temperament and a Machiavellian capacity to express it, we are also blessed with an intelligence than can, through acquisition of wisdom, draw us away from the 5-million-year stain of our ape past....Wisdom represents the capacity to leave the island of our own selves and to move out across the sea.”⁴

Without digressing too much and turning this into a psychology paper, we will bring it up to speed with the events that have unfolded in the last 100 years in Europe.

iii. Globalization

Globalization, not to be confused with globalism, is defined to be the following,

‘the process of international integration arising from the interchange of world views, products, ideas, and other aspects of culture.’⁵⁶

It is up for debate amongst historians as to when exactly this process took place on Earth due to the illusiveness of the definition, though all would agree that the world had become a globalized community prior to World War 1, our time of interest. It is due to this concept that countries throughout Europe made mutual defense agreements in regards to their militaries. These agreements and coalitions between nations via treaties and relevant documentation were a byproduct of globalization. Before World War 1, the following alliances existed⁷:

- Russia and Serbia
- Germany and Austria-Hungary

⁴ Wrangham, Richard W., and Peterson, Dale. *Demonic males: apes and the origins of human violence*. Boston: Houghton Mifflin, 1996 pg 258

⁵ Al-Rodhan, Nayef R.F. and Gérard Stoudmann. (2006, 19 June). "Definitions of Globalization: A Comprehensive Overview and a Proposed Definition.

⁶ Albrow, Martin and Elizabeth King (eds.) (1990). *Globalization, Knowledge and Society* London: Sage. ISBN 978-0803983243 p. 8. "...all those processes by which the peoples of the world are incorporated into a single world society."

⁷ Kelly, Martin. "Causes of World War 1 | Top Causes That Led to World War I." American History From About.com. <http://americanhistory.about.com/od/worldwari/tp/causes-of-world-war-1.htm> (accessed February 27, 2013).

- France and Russia
- Britain and France and Belgium
- Japan and Britain

After understanding the alliances above, events leading to World War 1 can be summarized in very basic form below;

“Austria-Hungary declared war on Serbia, Russia got involved to defend Serbia. Germany seeing Russia mobilizing, declared war on Russia. France was then drawn in against Germany and Austria-Hungary. Germany attacked France through Belgium pulling Britain into war. Then Japan entered the war. Later, Italy and the United States would enter on the side of the allies.”⁸

One can see quite clearly the events are comparable to a Rube Goldberg machine; a chain reaction resulting in an all-out global war.

Similarly, the same can very well be said about World War 2. Europe as a continent was bounded by ties; countries within it were allied with one another while against others at the same time. Tensions began to intensify in Europe as the USSR, Italy, Germany and Spain adopted towards totalitarian forms of government. Alongside that, Italy under Mussolini began a conquest for Ethiopia while Germany under Hitler begins to expand, taking Rhineland. Spain itself has a revolution being led under Francisco Franco and each of these events puts stress on Europe as a continent. Again, we see that due to the concept of interconnectedness, neighboring nations simply cannot stand by and let this go on. It is indeed because of globalization that we see much of the world get pulled into battle just from a few nations under strain.

⁸ Kelly, Martin. "Causes of World War 1 | Top Causes That Led to World War I." American History From About.com. <http://americanhistory.about.com/od/worldwari/tp/causes-of-world-war-1.htm> (accessed February 27, 2013).

The actual war in Europe began with a series of events summarized below;

- Germany took Austria (1938) and the Sudetenland (1938)
- The Munich Pact was created (1938) with England and France agreeing to allow Hitler to keep the Sudetenland as long as no further expansion occurred.
- Hitler and Mussolini created the Rome-Berlin Axis military alliance to last 10 years (1939)
- Japan entered an alliance with Germany and Italy (1939)
- The Moscow-Berlin Pact occurred promising nonaggression between the two powers (1939)
- Hitler invaded Poland (1939)
- England and France declared war on Germany (September 30, 1939)⁹.

Much like World War 1, the effect of globalization was clear and prevalent throughout Europe as a whole. Due to alliances and treaties, England and France could not let Hitler simply take over Poland without consequences. Once those two nations declared war, a chain of reactions took place which ultimately pulled the globe into battle.

The idea to be learned from studying both these Great Wars is that nations in Europe, as well as around the planet, are not simply isolated geographic regions. They are interconnected machines depending on one another; they are globalized. It is due to this that tensions in the East are of great concern today. The risk of a chain of events unfolding, like studied in history before, can very well involve the world at the brink of disaster, especially with the addition of nuclear arms in the hands of many nations today.

⁹ Kelly, Martin . "Overview of World War II." American History From About.com. <http://americanhistory.about.com/od/worldwarII/a/wwiioverview.htm> (accessed February 28, 2013).

II. DISCUSSION

i. Small Scale Nuclear War in the East

The majority of the world remains quite ignorant as to what exactly describes a nuclear war. The public seems to believe that if tensions were to escalate and a nuclear war was to take place between Pakistan and India, for example, the effects we would see in the Western World, specifically Europe, would not be very significant. Although directly we would not see any blast related casualties, the indirect effects of a nuclear war in the East are often overlooked. As discussed by Dr. Ira Helfand, MD and vice president of Physicians for Social Responsibility, in his presentation *The Medical Consequences of Nuclear War*, one can see clearly that a war in the East would have substantial effects. In our example of Indo-Pakistan relations, aside from the immediate 20-30 million casualties experienced locally in the first few weeks, more than 5 million tons of debris would be lofted into the air¹⁰. The points below are just a few what the world as a whole may experience;

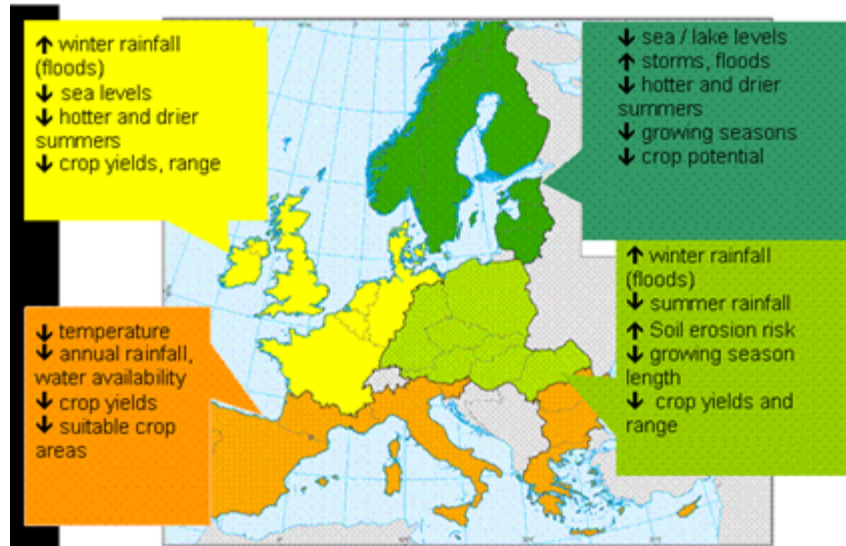
- mass fragments in air block out sunlight leading to;
 - temperature across planet drops an average of 1.3c for nearly a decade
 - cuts down precipitation
 - shortens growing season¹¹
 - disrupts food production by;
 - soybean and corn production in United States would drop 20% for the first few years and would remain 10% lower for 10 years¹²

¹⁰ Helfand, Ira. "The Medical Consequences of Nuclear War." Presentation, The International Physicians for the Prevention of Nuclear War from Physicians for Social Responsibility, United States of America, January 26, 2013.

¹¹ Robock, Alan, Luke Oman, Georgiy L. Stenchikov, Owen B. Toon, Charles Bardeen, and Richard P. Turco, "Climatic consequences of regional nuclear conflicts", *Atm. Chem. Phys.*, 2007, Vol. 7, 2003-2012.

¹² Özdoğan, Mutlu, Alan Robock, and Christopher Kucharik, "Impacts of a nuclear war in South Asia on soybean and maize production in the Midwest United States", *Climatic Change*, 2013, 116, pp. 373-387, doi:10.1007/s10584-012-0518-1.

- Wheat production in China may drop more than 12%¹³
- Rice production in China would decrease by an average of 21% and would remain 10% lower for the following 6 years.¹⁴
- Europe as a continent would experience similar types of decline in food production due to its geographical positioning on Earth;



http://ec.europa.eu/agriculture/climate-change/images/zones_en.gif

Note that the agricultural studies cited in footnotes 10 and 11 do not consider the impact of increased ultraviolet (UV) light by the blasts which would further decrease food production in Europe as well as other parts of the planet.

One must keep in mind that all these effects would occur from a nuclear war between nations with a very limited arsenal. And while these percentage numbers may seem low to the average reader, the fact of the matter is that the world is very ill-prepared to experience that kind of decrease in food production. The estimated 10 to 20 percent drop in corn and maize production could easily translate into a much larger decline in access to food because hoarding

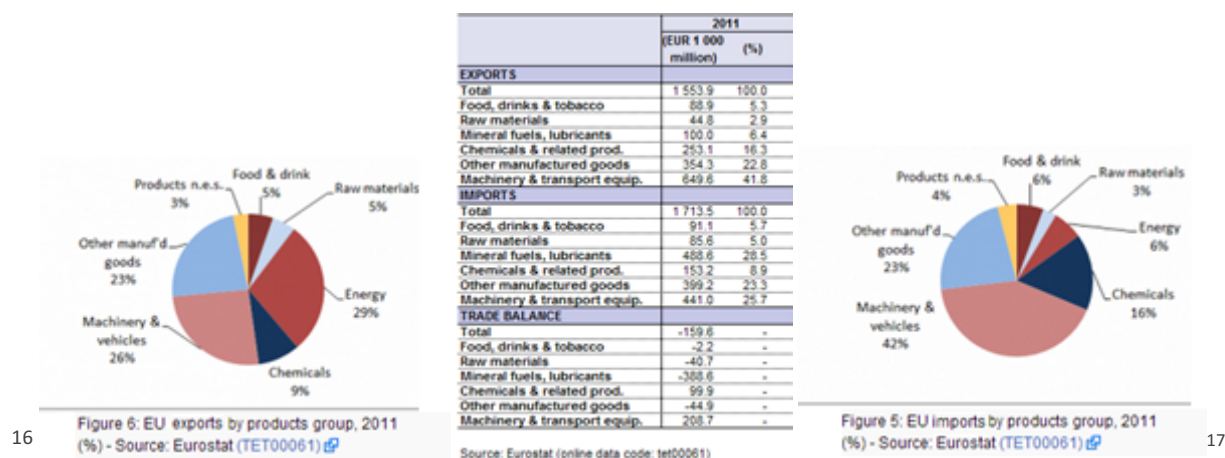
¹³ Helfand, Ira. "The Medical Consequences of Nuclear War." Presentation, The International Physicians for the Prevention of Nuclear War from Physicians for Social Responsibility, United States of America, January 26, 2013.

¹⁴ Xia, Lili, and Alan Robock, "Impacts of a nuclear war in South Asia on rice production in mainland China", *Climatic Change*, 2013, 116, 357-372, doi:10.1007/s10584-012-0475-8.

and public panic in Europe are likely to drive up market prices, thereby making food unaffordable for many people. Dr. Franz Fischler comments on the subject;

“ "Europe's role as provider of food to the world is diminishing," and as 2015 approaches, the EU is expected to move from being a net exporter to a net importer of wheat, oilseeds and other commodities, said Franz Fischler, chairman of the Forum on the Future for Agriculture” ” [Published 24 March 2009]¹⁵

As said by Dr. Franz Fischler in 2009, we can review his statement with more recent data. The table and graphs provided below shows the 2011 import vs. export position of the European Union;



We can see that Europe, in terms of food drinks and tobacco, has a larger import than export trade. This may increase in the coming years. Tying back with our nuclear war scenario, Europe can face severe adversity as it falls under a ‘nation’ depending on food imports.

¹⁵ Yara. "Europe warned about looming food import surge | EurActiv." EurActiv | European Union Information Website (EU and Europe). <http://www.euractiv.com/cap/europe-warned-looming-food-import-news-221507> (accessed March 12, 2013).

¹⁶ "International trade in goods - Statistics Explained." Eurostat Home. http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/International_trade_in_goods#Further_Eurostat_information (accessed March 13, 2013).

¹⁷ "Extra-EU trade in goods." Eurostat Home. http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/International_trade_in_goods#Further_Eurostat_information (accessed March 13, 2013).

Currently there are over 870 million people in the world who do not receive the minimum 1,800 calories per day that are required to maintain body mass. Furthermore, more than 300 million people are decently nourished though rely on food imports currently¹⁸. That number will increase dramatically as the European population begins to depend on food imports in the coming years. In the event of a small scale nuclear war, roughly 1.5 billion people would face the risk of starvation, which is nearly 21% of the human population on Earth. The consequences of a 'mere small scale' nuclear war in the Middle East are simply devastating. And one must keep in mind that this whole scenario is presented and based on an extremely weak assumption that the world as a whole does not intervene in the Indo-Pakistan situation. Taking what we learned from history about chain reactions and globalization, let us consider a new scenario consisting of a large scale war between the United States and Russia that becomes ignited from the heat of the tensions in the East.

ii. Large Scale Nuclear War in the West

It is difficult to even fathom the possibility of large scale warfare between the United States and Russia. Something of that magnitude is left for movies and games based on fiction. The chances of that event seem too low to consider. However, like discussed above, we live in a globalized community depending on alliances and coalitions between neighboring nations. Small tensions in the East may very well escalate into dire situations as observed from history. The intent of this paper is to simply assess the risk on an academic level.

¹⁸ International Committee of the Red Cross. "CLIMATE EFFECTS OF NUCLEAR WAR AND IMPLICATIONS FOR GLOBAL FOOD PRODUCTIONS." Information Note No.2. www.icrc.org/eng/assets/files/2013/4132-2-nuclear-weapons-global-food-production-2013.pdf (accessed March 15, 2013).

The destruction capability of the bombs in the arsenals of these two nations is 10 to 30 times more powerful than the above scenario. If 300 bombs were to detonate over urban targets in the United States as studied by Physicians for Social Responsibility (PSR), besides the huge amount of immediate casualties (75-100 million within first week), the entire economic infrastructure would be destroyed¹⁹. This includes the transportation system, communications network servers and public health foundations. All these are pillars of what a modern industrial country requires to maintain its population and function as a whole²⁰.

Although Dr. Helfand gives his presentation on a Russian-US conflict, all his points can be applied to a situation in Europe. Europe possesses weapons of similar caliber and would experience similar type of destruction. The consequences are indeed extreme but again, like above, we must consider the global effects a large scale war would cause. According to *Climate Effects of Nuclear War and Implications for Global Food Productions*, research shows up to 150 million tons of soot could be sent into the upper atmosphere. To quote,

“Temperatures would fall by an average of 8C worldwide for several years. In the interior of North America and Eurasia, temperatures would drop by 20C to 30C, to levels lower than those that prevailed 18,000 years ago at the peak of the last ice age. Agriculture would stop, ecosystems would collapse and most of the human race would starve.”²¹

¹⁹ Dhanapala, Jayantha , and Ira Helfand. "A nuclear clash could starve the world - CNN.com." CNN.com - Breaking News, U.S., World News. <http://www.cnn.com/2012/05/11/opinion/dhanapala-helfand-nuclear-famine> (accessed March 16, 2013).

²⁰ IPPNW1 (2013, January 24). *The Medical, Environmental, and Humanitarian Consequences of Nuclear War*. Retrieved March 16, 2013, from <http://www.youtube.com/watch?v=Ug-DJtvHFEO>

²¹ International Committee of the Red Cross. "CLIMATE EFFECTS OF NUCLEAR WAR AND IMPLICATIONS FOR GLOBAL FOOD PRODUCTIONS." Information Note No.2. www.icrc.org/eng/assets/files/2013/4132-2-nuclear-weapons-global-food-production-2013.pdf (accessed March 21, 2013).

As unimaginable as that sounds, this is again based on a weak assumption that only Russia and the United States are involved at war. If a conflict like that were to take place in reality, it would involve the entire globe. Simply put, it would result in nuclear holocaust.

It is almost amusing to note that if one nation so chooses to use nuclear weapons in military combat, the chain reactions that will follow, along with the environmental effects, will result in the destruction of that very nation who chose to strike first by nuclear means.

III. CONCLUSION

Aggressive acts in human kind have been documented throughout history. They have been dated so far back in time that it sprouts psychological and philosophical debates regarding whether or not this aggression is innate. Looking back at recent history, it is clear that the planet has become a globalized place; countries simply cannot be looked at as individual geographic regions. With the creation of alliances between one another, a conflict, like in Europe, pulls many nations into it. This paper shows the horrific consequences a small scale nuclear war could cause by altering the global climate leading to massive food decline. Europe faces a risk as it begins to depend on food import. The concerns of a larger scale war are even greater, disrupting the climate at a magnitude that would send Earth back to a premature Ice Age.

In the words of Former Secretary of State Lawrence Eagleburger,

“The consequence of a world full of nuclear powers to me is so incomprehensible in terms of the dangers that that implies. One nuclear war is going to be the last nuclear -- the last war, frankly, if it really gets out of hand. And I just don't think we ought to be prepared to accept that sort of thing.”

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