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A Science of War

Until war has been systematically described it cannot be adequately understood, and with such understanding comes the first meaningful possibility of controlling it.

J. DAVID SINGER and **MELVIN SMALL,** *The Wages of War,* 1972[1]

The speed with which this new situation had come about was remarkable. Almost as soon as the possibility of its demise was raised the Soviet system had passed away. The change was abrupt, and there was very little time to adjust. A whole literature on future wars, with contributions from fiction and non-fiction, was rendered obsolete with nothing much available to take its place. The greatest upheaval for decades had caught out the academic community along with everyone else. There were questions about whether the most fundamental preoccupation of the discipline of international relations—the risk of a great-power war— remained relevant while it appeared to have virtually nothing to say about the civil wars which soon came to dominate the agenda. The view that the behaviour of states could largely be explained by reference to the strategic imperatives resulting from the structure of the international system, so that the nature of regimes was at most of secondary importance, had been discredited by the Soviet experience and was soon shown to be inadequate when coming to terms with ethnic conflict and democracy promotion as a route to peace.

The challenge was greatest for the realists, who had dominated the

theory and practice of international affairs since 1945, stressing the factors of power and interest when explaining the twists and turns of international affairs. Their boast was that they were not distracted by idealistic and sentimental notions of how they would like the world to be but instead considered the world as it was. Realism might be described largely as an intellectual temper, which is what E. H. Carr had in mind, but it had been turned into a strong theory under the influence of such figures as Hans Morgenthau at the University of Chicago, schooled in the harsh and uncompromising interwar German debates about politics and the state. For him international politics was 'like all politics… a struggle for power'.[2] The prevailing metaphor saw states as self-contained units with thick skins, like so many billiard balls, not so much directed by any inner agency but more by the impact of the other balls, ricocheting and colliding round the table. In this way the system created its own motivations for war. It was also about great powers. It would be as 'ridiculous' to construct a theory of international relations based on 'Malaysia or Costa Rica', Kenneth Waltz had observed, as it would be 'to construct an economic theory of oligopolistic competition based on minor firms in a sector of the economy. The fates of all states and firms in the system are affected much more by the acts and interactions of the major ones than of the minor ones.'[3] The promise of theory was that it could move beyond reflections on international history or commentary on current affairs to propositions about the future. These would not necessarily be predictive but could at least make claims about cause and effect. For example, the theory might explain why deterrence might work better when dealing with threats to the homeland than when an ally was in danger, or suggest how to respond to another state's military build-up. But without a great power conflict at the heart of the system realists were at something of a loss.

By 1990 realism was already subject to a number of criticisms: disinterest in economics and ideology, in the practice of decision-making, and in supranational organisations.[4] It was accused of attaching far too much weight to military power and coercive measures, while dismissing the capacity of the international system to adapt to new circumstances.[5] The realist theorists had done no better than anyone else in anticipating the end of the Cold War,[6] and even then found it difficult to accept that any

sort of reappraisal was required. Even as the old order collapsed, one leading realist theorist dismissed the idea that ideological or civilisational factors were as important as the insecurities inherent in an anarchic international system, warning instead that with the end of the Cold War one form of great-power conflict would simply be replaced by another. The new multipolarity was likely to be as violent as the old East-West bipolarity.[7] It was not clear, however, why this prognosis should be any more accurate than the earlier ones that had been overtaken by events—or what might be said in a world in which conflicts within lesser powers attracted more attention than relations between great powers. Realism therefore struggled because it had little to say about the impact of major ideological shifts within great powers or the drivers of instability within minor states, or why any serious major power, secure within its own borders, would bother to try to sort out this instability.

One response to this might have been to go easy on the theory, concentrating on observing carefully what was going on in the world, and only offering propositions on causal relationships as and when they seemed appropriate and always with regard for context. Yet the dominant trend in the field was not to abandon theory but to make it even stronger. Only then could it become more predictive. For some time there had been an endeavour to move the science up a notch by developing theory along econometric lines, with a firm empirical base and high-quality statistical analysis. This approach was no more suited to predicting discontinuities than the realist approach being challenged. But the claims were larger, promising theories that would provide policymakers a much better idea of the levers to pull if they wanted to influence situations for the better.

THE AMBITION TO PUT THE DISCIPLINE OF INTERNATIONAL relations on a more scientific footing was not new. Quincy Wright's major work, *A Study of War*, begun in 1927 but not published until 1942, gathered information on everything that could be known about war and presented it systematically. The key factors relevant to the origins of war identified by Wright were technology, law, form of political organisation, and key values. A change in any of these factors could cause the system to lose equilibrium. Each could, in principle, be measured, for example by looking at the properties

of weaponry, demographics, opinion polling, the number of states, and their adherence to international law. From these measurements inferences could be drawn. Because he did not wish to exclude any relevant information, his analysis did not rely wholly on what was measurable and nor did it lead to any elegant mathematics, but it offered encouragement to those intrigued by the possibilities of giving the study of war a more scientific foundation.[8]

Wright was among the first to appreciate the work of Lewis Fry Richardson, a pioneer in the statistics of war. Richardson was a prizewinning meteorologist and also a Quaker. Horrified by the First World War, in which he served as an ambulance driver, he sought to explore the nature of war as one might a disease. He did not devote himself full-time to the topic until 1940, and then as a private scholar, alone in Scotland, with little contact with others. His research reflected his scientific training. He kept his prejudices in check when seeking the best possible information, found ways to express it quantitatively, and then engaged in statistical analysis. Although his modelling had provided a foundation for weather forecasting, Richardson was sceptical about whether wars could be predicted in the same way, but he hoped that clear patterns and relationships might be identified. His book *The Statistics of Deadly Quarrels*, published posthumously in 1960, contained information on more than 300 wars between 1820 and 1949. Setting the terms for later efforts in this area, Richardson highlighted casualties in distinguishing one war from another. He was also the first to try to describe disruptive international processes, such as arms races, using differential equations. The outcomes of his equations were, he explained, descriptions of what would happen if people 'did not stop to think', if 'instinct and tradition were allowed to act uncontrolled'.[9] This clarified his aim: to identify the dangerous tendencies that a controlling mind would address to prevent war.[10]

Even with Wright's help it took time before Richardson's ideas were picked up and taken seriously. A key figure in this effort was the economist Kenneth Boulding, also a pacifist by conviction, and a Professor at Michigan. He was concerned that

the intellectual chassis of the broad movement for the abolition of war has not been adequate to support the powerful moral engine which drives it and that the frequent breakdowns which interrupt the progress of the movement are due essentially to a deficiency in its social theory.[11]

In 1955 he became involved with a group based at Michigan, influenced by Richardson (whose writings had just become available although not yet published). They concluded that quantitative methods could generate a new field of peace research. In a 'race between knowledge and disaster', the 'longer disaster is staved off, the better chance we have of acquiring the knowledge to prevent it altogether.' A new *Journal of Conflict Resolution* was established to devise, as Boulding put it in an editorial, 'an intellectual engine of sufficient power to move the greatest problem of our time—the prevention of war.' The second major centre of peace research was set up in Oslo in 1959 by Johan Galtung. Its *Journal of Peace Research* was first published in 1964.[12]

This scientific approach was by no means confined to those with a peace agenda. It was already evident in the new think tanks, such as RAND, established to guide military policy through the Nuclear Age, and responsible for the analytical foundations of deterrence theory. The importance of meticulous gathering of data and careful analysis had been underlined by the experience of the Second World War, and it was becoming easier to undertake as a result of the development of computers capable of storing large amounts of information and supporting advanced statistical techniques. As lone scholars in the library began to be displaced by teams of researchers, funding had to be found for their projects, which were extremely expensive. To get access to funds, social scientists sought to demonstrate that they could provide research that was comparable to natural scientists in their objectivity and ability to develop systematic laws.[13]

If such laws could be developed then in principle they would allow the future of war to be controlled. Policymakers could recognise the symptoms, make a diagnosis, and then identify forms of treatment that could head off disaster. Writing in 1950 Harold Guetzkow claimed that:

the surest and quickest way to world peace is an indirect one—the patient construction over many years of a basic theory of international relations. From this theory may come new and unthought-of solutions to end wars and to guide international relations.[14]

In a book published in 2012 the political scientist John Vasquez cited Guetzkow as an inspiration in a collection of essays that sought to assess how far researchers had got with the application of 'the scientific method to identify those factors that promote the outbreak of interstate war and those factors that promote peace'. Even after sixty years there was still some way to go, Vasquez conceded, but there was now some core knowledge for theories of peace and war to explain.[15] In the introduction he explained how the scholarly movement to apply the scientific method was 'one of the best hopes of humanity for solving the intellectual puzzle of war.' This was because it replaced 'the solitary efforts of past great thinkers,' and here he mentioned Thucydides and Freud, with a 'large number of researchers committed to using the best method of inquiry humanity has invented.'[16] Better than mere 'speculation or intellectual argument' was to develop hypotheses that could be tested by a rigorous examination of evidence.

But when Vasquez came to report on the main conclusions of the scientific school there was not a lot that went beyond what would be obvious to any serious observer of international affairs. He noted the importance of the 'the issue at stake', how alliance formation and military build-ups could be mutually reinforcing, and that 'rivals have a much higher probability of going to war than other types of states'.[17] In seventy-six general propositions offered elsewhere he underscored the extent to which the challenge the scientific school posed to the realist school followed the lines of the earlier idealists: 'Realist norms and the practices of power politics are more associated with war than with peace'. In addition the work pointed to internationalist remedies, in the 'global institutional context'. A more orderly system in which states felt obliged to follow rules of the game would restrict unilateral action and facilitate the resolution of disputes.[18] Much of this analysis, therefore, was a continuation of old debates about the dangers of power politics. That rivalry could lead to military build-ups, alliance formation, and eventually

war, depending on the issue at stake, hardly represented a unique insight. The general proposition that peace was more likely if all states avoided the crude logic of power politics and followed international rules was compelling but it offered little to states trying to play by the rules when confronted by states that were not.

With interstate war there were too few cases and too many factors in play for the scientific approach to produce more than a general sense of what issues might lead to crises and what behaviour might aggravate them. Historians, whose observations had been dismissed as being too intuitive or speculative, could retort that the yield from the effort that went into refining the methodologies and interrogating the data turned out to be meagre. There was also a cost. The scientific ambition depended on reliable, objective evidence on war. Collecting and interpreting this evidence was by no means straightforward. Just because numbers were involved did not make a statement more correct than one expressed in a more literary form, and there was a danger that spurious statistics could gain currency and even influence policy. This approach insisted on the potential importance of every incident that could be recorded but at the cost of simplifying the record of each incident. It sought to disaggregate conflicts into time-limited two-sided violent relationships, disregarding factors that could not be quantified while relying on flawed data sets. At a critical juncture in international affairs, with a shift in focus from great power conflict to internal wars, involving a number of sub-groups, the academic community was ill equipped to rise to the challenge.

AN EXAMPLE OF THE DANGEROUS ALLURE OF NUMBERS, EVEN when baseless, could be found in a piece of mischief perpetrated by Norman Cousins, the editor of the *Saturday Review* and a leading campaigner for nuclear disarmament. In 1953 he wrote a hoax newspaper article which included a purported observation from 'a former president of the Norwegian Academy of Sciences' that since 3600 BC the world had known 'only 292 years of peace'. This figure was said to reflect work done on the history of war by an international team of researchers using an 'electronic computer'. This was not the only finding. Other equally dramatic and suspiciously precise numbers were on offer. Apparently 3.64 billion people

had been killed in a total of 14,531 wars during that period. Since 650 BC there had been 1,656 arms races. Of these only 16 had not ended in war.[19] Cousins repeated these numbers in an editorial in the *Saturday Review* and lastly in a 1960 book entitled *In Place of Folly*.[20] The research to which Cousins referred was 'imaginary', a 'fantasy'. He had not expected the numbers to be taken seriously. Yet they were not wholly plucked out of thin air. 'Some', Cousins explained, 'were general, some were the result of extrapolation, some were estimates, some were fanciful. No fully documented figures exist anywhere on the total casualties or total cost of all wars since the beginning of recorded history'.[21]

Curiously there was another version of the 'only 292 years of peace' claim. In 1968, in *The Lessons of History*, Will and Ariel Durant asserted that in 3,421 years of recorded history there had only been 268 without war.[22] The Durants were cited when Donald Kagan used the same statistic in his book *On the Origins of War* published in 1995.[23] It was then picked up by such diverse people as left-wing polemicist Noam Chomsky and the hawkish former Secretary of Defense and soon-to-be Vice President Richard Cheney.[24]

The Durants gave no reference. Two Dutch scholars identified the most likely source for this as well as Cousins' number of 292 years.[25] Tucked away in Bloch's massive study on *The Future of War* was the observation that 'from 1496 B.C. up to 1861 A.D., a period of 3,357 years, there were only 227 years of peace on a total of 3,130 years of war, or thirteen years of war to every year of peace'. The figures used by both Cousins and the Durants could easily be extrapolations from this source. This calculation, however, was not Bloch's. He had got the number, via a Russian military encyclopaedia, from a French philosopher Odysse Barot. In his 1864 *Lettres sur la Philosophie de l'Histoire*, Barot had undertaken some 'brutal arithmetic' that led him to conclude that in the 3,357 years up to 1861 there had been 227 years of peace and 3,130 of war.

Barot had not actually counted wars but treaties of peace and also of alliance and friendship. His assumption was that alliance formation was tantamount to the start of war and that all wars ended with peace treaties. Leaving aside whether Barot's own sources on treaties were reliable let alone comprehensive, his use of treaties as proxies for the start and

conclusions of war was patently unreliable.[26] Even if the numbers were right the meaning was hard to unpack. Did it mean that an otherwise unblemished year was lost to the peace column as a result of one short, localised and relatively minor conflict? Here was a serious but misguided effort to make sense of the history of war that produced the only figures available on the incidence of conflict through the ages. For want of anything better, they were picked up 100 years later, slightly updated, and used to make a profound statement about war—either a realist point that it never goes away or an idealist point that it should.

To prevent this sort of misapprehension a major programme was begun in 1963 at the University of Michigan known as the Correlates of War (COW) Project with a grant from the Carnegie Foundation under the leadership of a political scientist, J. David Singer. When some of the first results were published in 1972, Singer and his associate, Melvin Small, observed that this represented the first 'intellectual assault of promise' launched against 'tribal slaughter'.[27] He was determined to be as careful as possible when gathering and ordering material. By stressing correlation in the title, no claims were being made about causation. The research would point to statistically significant relationships from which theories might then be constructed.

THE CONSTRUCTION OF THE RESEARCH, HOWEVER, WAS SHAPED by Singer's determination to address the claims of the then-dominant realists that everything was about an international struggle for power. His priority was war between states rather than within them. His interest lay in whether statistically interesting relationships might be established between inputs, such as capabilities and alliances, and outputs, such as the length of the conflict and casualties, rather than the actual choices made by states and the context in which they were made.

The focus on major war was reflected in the high threshold for inclusion. War was defined, somewhat arbitrarily, as 'sustained combat, involving organized armed forces, resulting in a minimum of 1,000 battle-related fatalities'. This was later modified to be 1,000 battle-related fatalities within a twelve-month period, so that as a conflict built up or petered out it would not necessarily be included. To be identified as a

participant in one of these wars a state must have a population of 500,000 and suffer at least 100 fatalities or contribute at least 1,000 armed personnel to active combat. The intention was to preclude skirmishes or border clashes that did not trigger a wider conflict.[28] But once the threshold was reached there were no further distinctions. Thus the 1982 Falklands war between Argentina and the UK, which just passed the threshold in a conflict that lasted less than three months, was there at the same time as the Iran-Iraq War, which involved hundreds of thousands of casualties over eight years. Another important feature of this schema was its focus on battle. Unless civilians died directly as a result of battle their deaths were considered irrelevant.

The data set began in 1816, after the conclusion of the Napoleonic Wars. This meant excluding the most intense period of fighting in the nineteenth century, and one that set terms for conflict thereafter. In addition, COW discouraged interest in colonial or civil wars. A category of 'extra-systemic' (later 'extra-state') wars included conflicts between major states and non-state groups outside their own territory, and so included colonial wars. But only casualties of the colonising states were collected because it was hard to collect those of the colonised.

The material for the nineteenth century was heavily geared to the Western Hemisphere because much of the rest of the world was then colonised. There were only three independent states in Africa, the Middle East, and Oceania in the first half of that century, rising to ten in the second half. The efforts by the European powers to acquire and hold overseas territories explained the frequency of extra-systemic or extra-state wars. As these empires were dismantled during the twentieth century, wars in this category went into decline. They were picked up in the COW database in the first decade of the twenty-first century because of Afghanistan and Iraq, although whether these interventions were comparable to past colonial wars raised important political and moral issues as well as those of appropriate coding.

COW distinguished between civil wars fought within the 'metropole' of a state, areas integrated under governmental control, and those between the metropole and the peripheral areas which were not so integrated.[29] At issue was the working of the state system rather than totting up the costs

of conflict. The focus on interstate wars meant that it took a long time before those working on COW, and like-minded researchers, took civil wars seriously.

The inadequate treatment of civil wars was one of the main criticisms of the COW, especially as they began to become a major preoccupation during the 1990s. New databases were developed to meet this need. The Uppsala Conflict Data Program (UCDP) was one of the first to collect material on civil wars, although they still focused on battle-deaths, with twenty-five a year being the threshold for inclusion. This was despite civilian casualties being one of the most salient and troubling features of most contemporary civil wars.[30] Initially this only recorded conflicts since 1989, but in 2001 in collaboration with the International Peace Research Institute in Oslo (PRIO) a data set was developed for the whole of the period since 1946. In 1993, also at Maryland, a *Minorities at Risk* data set was published with information of a range of factors contributing to sub-state violence.[31] The growing enthusiasm for interrogating data collection aggravated rather than resolved key issues. There were debates between the leading databases on the best indicators of armed conflict and on the quality of the evidence. For want of anything better were guesses admissible? Should government statistics known to be falsified be used? Whose account of inherently confusing events could be trusted? The only safe assumption was that 'knowledge' of civil wars was 'incomplete and contested'.[32]

Statistical analysis required that complex conflicts be disaggregated into what might be considered elemental units of war that could be compared and contrasted with each other. These units were distinguished by having a clear beginning, middle, and end, and were dyadic, that is they had only two belligerents, and could be classified as being interstate, extra-systemic, or civil. Factors which were ambiguous or could not be measured were excluded. This was problematic enough with interstate wars but risked a wholly skewed analysis with civil wars. In these conflicts 'battle deaths' was often a meaningless measure, as there were few battles and many causes of violent deaths. Individuals would often participate on an occasional and informal basis, military and criminal activity were intertwined, and neighbouring states were often closely

involved.[33]

THIS METHODOLOGY DIVERGED SHARPLY FROM THAT OF HISTORIANS, who tended to look for particular explanations rather than the general, and be less interested in how events were coded than their conflicts across time and space. An approach based on disaggregation could not, for example, view the period 1914–1945 as a European civil war dominated by the interaction between liberal democracy, communism, and fascism/Nazism that cut across state boundaries.[34] Nor could it consider great conflicts as a whole. Until December 1941 the wars in Asia, which had begun on 7 July 1937 when Japan invaded China, and in Europe, which began on 1 September 1939 when Germany invaded Poland, were separate. They merged after Pearl Harbor. When Adolf Hitler declared war on the United States on 11 December it was easier for President Roosevelt to persuade his people that for the time being Europe had to take precedence over the Pacific. Up to this point the US was not a formal participant in the war, but it was hardly a true neutral as Roosevelt had described it as the 'arsenal of democracy' and was closely engaged with Britain on its war strategy. It might then be assumed that all these wars ended together: German forces surrendered on 8 May 1945 and Japan on 14 August that year, although it took until September before Japanese forces in China surrendered. President Truman did not, however, declare a formal cessation of hostilities in Japan until the end of 1946, noting that 'a state of war still exists'. It remained an occupying power. A peace treaty was not signed until April 1952. The state of war with Germany had been ended the previous summer. This was partly because a state of war gave the US government legal powers that it must otherwise relinquish but also because post-war situations tend to be chaotic and an early claim that it was all over could have been premature. For COW it all ended together in 1945, because that was when the battle deaths moved below 1,000.

The problem with the focus on dyads can also be illustrated by the case of Iraq. Over four decades Iraq invaded neighbours and was invaded, suffered from civil wars and insurgencies, and then became part of a conflict with the Islamist militants of ISIS who also controlled chunks of Syria. This could be disaggregated into a series of dyads. The most

prominent but by no means only were: Iraq v. Iran, Iraq v. Kuwait, Iraq v. the United States (and allies), Iraq v. ISIS. Three American presidents announced the end of combat in Iraq—George H. W. Bush at the start of March 1991, his son George W. Bush on 1 May 2003 and then Barack Obama on 31 August 2010. Each time it turned out that the announcement was premature. Disaggregation might enable all these different strands to be coded and analysed as a series of separate conflicts, and avoid double counting, but in practice they were intertwined as part of a stream of conflict. Similarly, from the mid-1970s Afghanistan experienced constant war, under various configurations but with external forces heavily involved. In the 1980s there was an external intervention (Soviet Union), which then turned into a civil war (Taliban v. Northern Alliance), but began to turn into something else as the Taliban-backed al-Qaeda looked for ways to attack the United States. After they succeeded in September 2001, the established civil war and this extra-state war (United States v. al-Qaeda) became an interstate war (United States v. Taliban regime). Attempting to disaggregate to code the individual parts, count casualties, and allocate them did not in the end help understanding, for it made it difficult to appreciate how conflicts with common sources transformed and developed over time, becoming messier and more complex.

A FURTHER PROBLEM WITH WARS ONLY COMING INTO VIEW as they passed a certain casualty threshold was that this missed out on the simmering conflicts from which they emerged. To facilitate analysis of when wars were or were not avoided, during the 1990s the COW team developed a Militarized Interstates Disputes (MID) database. It contained information about all disputes since 1816 'in which the threat, display or use of military force short of war by one member state is explicitly directed towards the government, official representatives, official forces, property or territory of another state.'[35] Potentially numerous incidents fitted into MID; the data set expanded from under 1,000 for the 1816–1976 period in the first version to over 2,000 in the second.[36] So while the threshold for inclusion in COW was quite high, the one for the MID was quite low. As it was geared only to interstate conflict it could not help with analyses into the origins of colonial and civil wars.

Much of the MID was put together before the availability of modern search engines, and so used whatever material was then available in libraries. In the 2010s, a team of researchers going through the individual cases meticulously found the MID database to be unreliable, although that was not a word they used. They praised the effort and the utility of the database, insisted that they found no evidence of systematic bias, and offered detailed proposals to rectify the problems they encountered.[37] Nonetheless, their investigations identified problems with almost 70 per cent of the MID cases, leading to proposals to drop 240, merge another 72 with similar cases, revise substantially a further 234, and make minor changes to another 1009.

Many incidents discussed took place on the edges of ongoing and substantial wars, for example attacks on shipping of countries perceived by one belligerent to be supporting another. During the Iran-Iraq war in the 1980s one or other of the belligerents attacked numerous tankers. These were coded in MID as separate incidents though these make no sense when considered as individual events. At the other extreme essentially trivial matters were included. Over 300 disputes (over 13 per cent of the total) were coded as a 'seizure' of boats at sea. There were some famous incidents, such as the North Korean seizure of the USS *Pueblo* and its 83 crew members in 1968, an action that could well have escalated into something quite serious. Mostly, however, boats were seized by authorities for reasons that had little to do with interstate relations, but because their owners failed to register them properly or engaged in criminal activities. In principle such cases should not be included, and in the study cited above it was proposed that 53 should be dropped.

A separate study considered how disputes over fishing in contested areas of the ocean were considered in the MID.[38] Disputes of this type tended to involve mature democracies but not militarised responses, and rarely escalated. By and large actions were taken by a state against the private citizens (owners of fishing vessels) of another. But these were hardly major incidents. In one incident a Canadian destroyer chased an American scallop-fishing boat out of Canadian waters after firing warning shots. This was coded as an act of war, but there was no evidence that the US viewed it as such. Such incidents did not carry the 'implication of

war'. The authors of this critique noted that 69 out of the 567 disputes between democracies in the MID database involved fishing. Their probable irrelevance somewhat distorted any conclusions to be made from this database about the relationship between democracy and war. When it came to the Cold War, however, a whole stage of international relations that could be described as one large militarised interstate dispute, MID only included the most visible manifestations of East-West tension, such as the standoff in Berlin in 1961, when for a while actual military units faced each other and when the risk of escalation to major war was high.

Two cases from 1969 illustrate the difficulty of categorising conflicts. One passed the casualty threshold and so reached the COW database and one stayed in the MID. El Salvador and Honduras fought what came to be known as the 'Football War', though that description trivialised the dispute. The origins lay in the treatment of Salvadoran immigrants in Honduras who were seeking to escape from repression at home. The tension exploded into violence as the two countries played each other in qualifying matches for the 1970 World Cup, in which El Salvador came out on top. The violence led El Salvador to sever diplomatic relations with Honduras, followed in mid-July with air raids and a ground offensive, and then Honduran counterstrikes. A ceasefire was soon arranged, though relations between the two remained tense. The impact was not minor but was largely confined to Central America.

Also in 1969 there was a period of deep conflict between China and the Soviet Union. Tensions between the two had been building up since the start of the decade, and burst out into the open in 1963 with some bitter polemics. The dispute was about the soul and leadership of the world communist movement but also involved old-fashioned geopolitical considerations, including a Chinese conviction that at times of previous weakness the Russians had stolen its territory and it was time to get it back. At the start of 1968 Soviet armoured vehicles attacked Chinese working on Qiliqin Island in the Ussuri River, causing four deaths. After that the border was quiet until the end of the year. Then came the first of a series of incidents on Zhenbao Island, largely instigated by the Soviet side. In early March Chinese leader Mao Zedong decided to take the initiative with what was in effect an ambush of Russian soldiers. He moved the rhetoric to a higher gear, though refrained from further action. Mao saw

the tension as a helpful contribution to the radicalising process of the Cultural Revolution. By this point, however, the Soviet leadership was seriously alarmed and preparing for a major war against China. Hardliners even argued for a pre-emptive nuclear strike before China's nuclear programme had become operational. This in turn alarmed the leadership in Beijing. They considered evacuating the capital as the Soviet foreign ministry wondered whether Russian nationals should be advised to return home. In the event an opportunity arose for talks at a senior level, and the immediate crisis was defused.

Although many died during these clashes, the COW threshold was not reached. This episode therefore appears only as 'incident 349' in the Militarised Interstate Disputes database, which has it lasting from March to December, with very few fatalities. The source materials were books published up to 1983. By this time it was known that thirty-one Russians had died in the first main clash on 2 March, and that the Chinese had probably instigated this encounter.[39] Prior to this there had been no consensus on attribution.[40]

This incident did not result in a war, although it might have done, but it did have an enormous impact on military planning and the development of international affairs. The mutual suspicions remained and led to a major build-up of forces on both sides during the 1970s. The split between the two communist giants created opportunities for the United States, which began to explore the possibilities of a rapprochement with Beijing. The Chinese, left feeling isolated and vulnerable by the Soviet Union, responded positively to the American overtures. A rich study of the events of 1969 therefore offered much of interest to those concerned with the origins of war, from domestic issues encouraging a rise in tensions to concerns about nuclear war encouraging a decline in those tensions, and how balances of power could shift quite abruptly.[41] COW was not designed to support this sort of approach but was instead a methodology that relied on extracting incidents from their historical and geographical context.

IT WAS NOT UNREASONABLE TO ASK FOR A BETTER WAY OF understanding the past in order to be better able to anticipate the future. But instead of

understanding war as part of the stream of history, so that particular instances could be understood in context, past conflicts were itemised and categorised in an artificial manner in order to facilitate comparisons that only had any validity at a high and often banal level of generality. For those who were trying to make sense of what was to come there were limits to what could be learnt from any number of methodologically sound observations based on comparing bits and pieces of disparate evidence of notionally similar occurrences. As Hannah Arendt observed when writing about violence:

> Predictions of the future are never anything but projections of present automatic processes and procedures, that is, of occurrences that are likely to come to pass if men do not act and if nothing unexpected happens; every action, for better or worse, and every accident necessarily destroys the whole pattern in whose frame the prediction moves and where it finds its evidence.[42]

For students of international relations who accepted that they were always exploring a world of contingency and uncertainty, attempting to anticipate choices yet to be made, this was not a great concern. But for those convinced that it was possible to establish a true science, for whom some capacity for prediction was essential, it pointed to the problems in identifying compelling causal relationships that would hold in a significant number of cases or not be upended altogether should there be some great discontinuity in the wider international system. However sophisticated the methodology and meticulous the data gathering, the future would still be full of surprises.