
**QUANTITATIVE METHODS, THE «TRADITIONALIST»
APPROACH AND BALANCE OF POWER**

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«A PENNY FOR THE OLD GUY»⁽¹⁾

INTRODUCTION

The purpose of this paper, despite any suggestions in the title, is necessarily to evaluate the merit of balance of power itself as a concept, to outline any new perspective on it, or to review any of the treatment or mistreatment, of it in the literature, though the paper may succeed in any three of these undertakings in some small way.

The purpose of this paper is to show the differences between «traditional» and quantitative methods in the study of International Relations (hereafter IR) and the relative advantages the latter have vis-à-vis the former in the development and verification of theory. In order to do this the development, conceptualization, argumentation, use, and testing of balance of power in both traditions will be compared and evaluated to determine the abilities of each approach to lead to theories which will most capably aid students in attaining the goals of accurate description, understanding, explanation, and, ultimately, prediction of international relations phenomena. Of necessity, the paper will deal with such related concepts as polarity, polarization, stability, order, alliances, war, and peace. Any contribution to the general discourse regarding balance of power and the various attendant concepts is purely coincidental.

Therefore, the focus of the paper is not theories of the balance of power, but the quantification in the development of them and related concepts, their application, and the evaluation of their usefulness importance.

⁽¹⁾ «The Hollow Men», T. S. Eliot. Because I cannot see my way clear to «pare a dime».

The terms «classical» or «traditional» approaches mentioned in this paper refer to nonquantitative work within Realism, unless otherwise specified. Realism, its basic framework, is the substantive (as opposed to methodological) paradigm serving the basis of this paper.

It is not the contention of this paper that quantitative methods are inherently superior to traditional approaches, that the former should replace the latter, nor that they are separate spheres in their substantive subjects. Rather the argument is that they are two approaches to what is essentially the same material and that they work best when they complement and build on each other. It will be shown that quantitative researchers have taken the traditional Realist notion of balance of power and through operationalization and testing have created a better understanding, and more useful and meaningful conceptualization, of it.

Before this is undertaken, a clearer view of what the quantitative approach is would seem necessary.

1—THE QUANTITATIVE APPROACH, NOT THE BEHAVIOURAL «SCHOOL»

Many scholars, particularly among the traditionalists, see the scientific or quantitative approaches as a separate «behavioural» school of international study. They look upon it as an alien endeavour in which methods, theory, and even the subject are radically different from those of what they see as their traditional school.

This is an incorrect view. Several scholars have argued that quantitative methods constitute exactly that: methods, and nothing more⁽²⁾. While the subject matter and theoretical concepts may, at times, be different from intuitive theory, they need not be. Many quantitative studies, such as R. J. Rummel's «Dimensions of Nations» (DON) project, do represent both a methodological break in the subject and theory with classical realists⁽³⁾.

(2) Knorr and Rosenau, «Tradition and Science», in Klaus Knorr and James Rosenau, eds., *Contending Approaches to International Politics*, Princeton: Princeton University Press, 1969: 12; Richard Smith Beal, «A Contra-Kuhnian View of the Discipline's Growth», in Rosenau, ed., *In Search of Global Patterns*, London: The Free Press, 1976: 158-161; Harvey Starr, «The Quantitative International Relations Scholar as Surfer», *Journal of Conflict Resolution*, Vol. 18, No. 2 (June 1974): 337.

(3) Rummel has developed a theory which relates inter-state behaviour to the states internal characteristics through the use of the statistical method of factor analysis and a particular form of field theory he developed for the project. For background on his use of factor analysis see R. J. Rummel, *The Dimensions of Nations* (London: Sage Publications, 1972): 35-54. For an overview of DON see pp. 11-26. For background on this use of field theory see R. J. Rummel, *Field Theory Evolving* (London: Sage Publications, 1977): 21-49.

Much quantitative investigation uses traditional work as a basis, merely operationalizing those concepts and further refining them in light of research findings. They build on the same honoured theories of classical Realism, for instance, giving them greater and more useful meaning. One need only look at an anthology of quantitative studies to see the discontinuities of method and both continuities and discontinuities of theory and subject between the classical and quantitative traditions (⁴).

Without question, there is a long list of methodological differences between the two approaches. There are four main areas in which they differ: in the pursuit of regularity versus uniqueness, verification and testing, the management of values, and the relationship between and the nature of theory and evidence. As the reader may already suspect, these issues are interrelated and ultimately inseparable.

The first difference of regularity versus uniqueness is simple enough. Traditionalists tend to focus on the uniqueness of events or phenomena based on a few cases whereas quantifiers tend to make generalizations about events or phenomena based on observations of many cases (⁵). Having carefully drawn many or all the cases from a particular universe (time and space or population) in a systematic way, aiming for objectivity, and being explicit about the relevance of the sample (or census) and the analysis used to that universe, social scientists feel justified in drawing conclusions about that universe based on that empirical evidence.

Traditionalists argue that political and social phenomena are too complex to be generalized in this manner. They point to the uniqueness of individual social events. One is severely limited as to the amount of generalization which is available in the complexity of social reality on which to build theory. This is especially true, they say, of international relations, perhaps the most complex social discipline (⁶). They charge that social

(⁴) See Susan D. Jones and J. David Singer, *Beyond Conjecture in International Relations* (Itasca, IL: F. E. Peacock, 1972), or Alan Sabrosky, ed., *Polarity and War* (Boulder, CO: Westview Press, 1985).

(⁵) This and all other differences between quantitative-behaviouralist and traditional methods applies to other social sciences as well as International Relations.

(⁶) John C. Garnet, *Commonsense and the Theory of International Politics* (Albany, NY: State University of New York Press, 1984): 4-5.

scientists often «compare apples with oranges.» To this Joel David Singer has rightly responded that

«...there is absolutely nothing wrong with adding apples and oranges if fruit is subject at hand! And if we want to generalize at a more restricted level, we had better distinguish not only between apples and oranges, but between Macintosh and Golden Delicious as well. If we cannot combine and aggregate, with due attention to the matter of relevant differences, we cannot make empirical generalizations; and in the absence of such generalizations, we may generate a great deal of speculation, but blessed little theory» (').

Here Singer shows that the grouping together of phenomena or cases depends on the subject of your theory, your level of analysis. More significantly, he shows the importance of being able to make justified generalizations about events, such as wars or alliance formations, in order to create theory. The traditional school rarely has such systematic and clearly demonstrated justifications for their generalizations. They look to a few «test cases» for a few odds and ends of evidence from which to generalize. This is sufficient to show that the dynamic of the theory in question has indeed occurred within a particular time and space. This in itself is useful, indicating that more rigorous investigation is called for. But, this is not a basis for the positing of a broadly applicable theory about some phenomenon. This deficiency has not prevented traditionalists from positing such theory, however (8).

The second area of methodological contention is the question of verification and testing. This is the most crucial question with regard to the essence of the quantitative approach and its distinctness from traditional approaches. Theory must be verified against empirical evidence through systematic, intersubjective testing. The repeated testing of theory ensures that one's insights never stray too far from reality, which can often occur with traditional methods even though they may seem seductively correct and intuitively elegant. This means that special attention must be given to

(') J. David Singer, «The Incomplete Theorist», Knorr and Rosenau, eds. (1969) *op. cit.*: 77.

(8) Kenneth N. Waltz, *Theory of International Politics* (New York: Random House, 1979).

techniques of acquiring and interpreting evidence. The issue of technique is seen as problematic and not to be taken for granted. Techniques must be examined explicitly and self consciously, refined, and validated so that rigorous means can be found for observation, recording, and analysing phenomena or behaviour. This requires quantification, where possible, and clear rules for the classification and evaluation of fact⁽⁹⁾. These explicit rules are followed to create data which can be used by a particular method to gather support for or evidence against a theory through acceptance or rejection of the null hypothesis. Raw facts cannot be used reliably in analysis⁽¹⁰⁾. They must be translated into useful data. It is the careful and explicit translation of fact into data for analysis which maintains *comparability*, even between studies which use different methods⁽¹¹⁾, and *replicability*. These lead to intersubjectivity by allowing academics to inspect each other's methods and means of arriving at conclusions and to see if they are empirically well grounded or too influenced by subjectivity. All of these are essential to the cumulative progress of any discipline.

This leads to the third area of contention: the management of value. There are essentially two aspects to this. The first is related to the issues of subjectivity and intersubjectivity, touched on immediately above, and the second is related to prescription.

Ultimately, both natural and social scientists would like to be completely objective in their research. Unfortunately, this has proven to be very difficult for the former and impossible for the latter. However, social scientists have attempted, through the methods just mentioned above, to control rampant subjectivity and the impact of the observer's values, and have tried to preserve the potential for intersubjectivity in their work. These methods do not eliminate the problem of values in empirical research and analysis, but manage it. The quantified approach is not value-free, but value-explicit, by clearly delineating every aspect of evidence gathering and analysis⁽¹²⁾.

(9) David Easton, «Introduction: The Current Meaning of 'Behavioralism' in Political Science», in James C. Charlesworth, ed., *The Limits of Behavioralism in Political Science* (Philadelphia, PA: The American Academy of Political and Social Science, 1962): 7-8.

(10) J. David Singer, «The Behavioral Science Approach to International Relations», in James N. Rosenau, ed., *International Politics and Foreign Policy* (New York: The Free Press, 1969): 63.

(11) By comparing differences in methods and results, we can evaluate the extent to which methods play a role in skewing results.

(12) James Rosenau, «The Restless Quest», in Rosenau (ed. 1976), *op. cit.*: 3.

The second aspect regarding values is that which pertains to explicit evaluation and prescription. The quantitative approach recognizes both as legitimate so long as one does not confuse one with the other⁽¹³⁾. The author would suggest that it is impossible to completely separate the two, but that one should try to separate them as best one can, be aware at all times as to whether one is aiming for empirical analysis or normative evaluation at any particular point, and at least try to ensure that one is working singularly towards whichever goal is at hand.

The fourth area is that of theory, its role, and its relationship to evidence or data. Theory must be fully and tightly conceptualized, a falsifiable hypothesis must be developed, and dynamic concepts given variables which are operationalized with validity and reability, The researcher can then proceed with verification.

However, many have charged that the quantitative approach, particularly in IR, has been too interested in gathering evidence, at the expense of developing theory to verify or nullify the evidence⁽¹⁴⁾. They argue that it is too inductive. It is true that such quantitative research projects as the «Correlates Of War» (hereafter COW) have had a stronger emphasis on evidence gathering than theory building. The head of the Correlates of War project, Joel David Singer, and others associated with COW have justified this by arguing that since it was one of the first quantitative IR projects, their initial concern was the assembling of useable data and preliminary «brush clearing» in the form of demonstrating some of the major correlations within the data upon which more theoretically sophisticated work could be based.

However, COW had to make some thoretical distinctions before it proceeded. It could not simply start quatifying some corner of international reality and just keep on going until it ran out of material. It would never run out of material.

In fact, Singer and Melvin Small had some definite ideas as to which factors and dimensions had the potential of being important to the dependent variable they were most interested in: war. While this constitutes the

⁽¹³⁾ Easton in Charlesworth (ed.), *op. cit.*: 8.

⁽¹⁴⁾ Waltz (1979), *op. cit.*: 7-9.

basis or framework for theoretical development and inquiry, Singer, from the beginning, had a clear idea of what theory should be:

«Returning then to the need for theory in order to make really solid contingent predictions, I would define a reproducible and compelling explanation of a given class of events as a theory. Conversely, the term «theory» should no be applied to a hunch, a vague suspicion, a widely accepted scenario, an untested mathematical model, or even a clearly demonstrated bivariate or multivariate correlational pattern» (15).

This definition shows not only the need for rigorous theories which explain things and add to understanding, but the continued need for empirical verification as well. Useful theory building is a matter of both climbing down the deductive ladder towards specific conclusions, hypotheses, and evidence and up the inductive ladder from the evidence toward new or revised theories. Even Kenneth Waltz, an intense critic of the supposed lack of theory in COW and other quantitative undertakings, admits that «the [sic] point is not to reject induction, but to ask what induction can and cannot accomplish» (16). This clearly suggests the need for induction to work in cooperation with deduction and the need for theory with reliable and valid evidence. Waltz himself has some excellent insights in his *Theory of International Politics*, but it is without reliable evidence.

The quantitative approach has a view of theory itself. In particular, quantifiers in IR have called for more rigorous (some extremely so), even mathematically based theory, akin to what one might see in economics, for instance. The main advantage, aside from the exact description of theoretical relationships possible with mathematics, is the ease with which such statements may be operationalized for testing. Dinna Zinnes has been one of the most prominent scholars advocating this approach (17). Given some

(15) Singer, «The Peace Researcher and Foreign Policy Prediction», in J. David Singer, ed., *The Correlates of War: I* (New York: The Free Press, 1979): 162.

I am sure we can all applaud this admirable definition. However, it is now 1990. COW has been around for over a quarter of a century and still most of the work emanating from it does not live up to these impressive standards of theory. We might well ask what the delay is. Still clearing brush?

(16) Waltz (1979) *op. cit.*: 7.

(17) Dinna Zinnes, «The Problem of Cumulation», in Rosenau (ed., 1976), *op. cit.*: 161-166. See also other work by Zinnes using such mathematical methods.

of the more complex curvilinear relationships being uncovered in recent COW research she may have a point. Also, more rigorous non-mathematical theory is being proposed as a basis for research on war and other major international issues ⁽¹⁸⁾.

However, despite these extremes within the approach, and contrary to suggestions by some anti-quantifiers that there is a deep divide between the two approaches and their caricaturing of quantification in the worst «behaviouralist» terms ⁽¹⁹⁾, most in the field seek to develop and verify theories which are not substantially different from more traditional social science or IR theory. They operate from these previous insights, amending or abandoning only when the overwhelming weight of evidence clearly demands it. Even a quick read through Singer's earliest conceptual work, for example, reveals a basis in Realist concepts: polarity, unity of state decision-making, in the importance of power in explaining state behaviour ⁽²⁰⁾.

⁽¹⁸⁾ Robert Holt et al. «Catastrophe Theory and the Study of War», *Journal of Conflict Resolution* (Vol. 22 No. 2, June 1978): 171-208.

⁽¹⁹⁾ Kenneth N. Waltz, *Man, the State and War* (New York: Columbia University Press, 1959): 46-47.

Waltz uses the examples of James Miller's plan to further the goals of peace by placing, if possible, one thousand social scientists in the Soviet Union, disguised as Russians, trained in survey techniques, to find out what they are really thinking and Gordon Allport's idea of setting up playgrounds with small children near the entrances to the UN, etc. in order to affect the delegates behaviour toward greater peace and cooperation. This sort of thing has painted the quantitative-behaviouralist approach with the same, broad, caricaturing behaviourist brush.

To be fair, Waltz wrote that long before scientific methods in IR really even got started. At that point he had not had a chance to witness its broad application, including in the area of Realist theoretical concepts. However, this negative attitude still casts its shadow in the form of off-hand dismissal by scholars, even today.

⁽²⁰⁾ J. David Singer, «Threat-Perception and the Armament-Tension Dilemma», in Singer, ed., *The Correlates of War: I*, 1979, *op. cit.*: 31-34. Printed originally in the *Journal of Conflict Resolution*, Vol. 2, No. 1 (March 1958).

This article shows Singer for the enigma he is, even in this early work. The first part of the paper shows his belief in the operation of realist (broadly defined) dynamics in the conduct of international relations. Yet, the latter sections suggest means by which these patterns could be radically altered, particularly the institution of behaviour modification at the individual level. Later, in his work, we see studies which are clearly based on realist concepts [e.g. Singer and Small, «Alliance Aggregation and the Onset of War, 1815-1945», in Singer, ed., *Quantitative International Politics*, (1969): 247-286], however, he never loses his belief that better theory and understanding, along Realist lines or any other, can open the door to the means of substantial reductions in the amount of war, etc. (See further down in the text.)

One of the most important differences between the classical and «scientific» approaches in IR is the potential for cumulative knowledge within the latter. With judicious use and development, quantification should lead research to a cumulative body of knowledge in which there are Kuhnian paradigms, on which there is general intersubjective agreement within the discipline, and which can be used as a basis for continued research. An example in another discipline might be macro theory in economics, where it is generally accepted, for instance, that a reduction in the supply of money in an economy will cause a rise in interest rates and, eventually, declines in inflation and national income.

Some have suggested that the indication as to whether an area of research is experiencing cumulation is whether any particular study could have been undertaken without the findings of previous research in the field⁽²¹⁾. This is in contrast with additive knowledge in which new information may be gained, but is unrelated, an alternative, or contradictory to previous research. It is the contention of this paper that the quantitative approach has moved the study of IR into the realm of cumulative knowledge in the same sense that any of the social sciences (including economics) are cumulative. It is important to note that these developments are occurring within «islands» of theory⁽²²⁾, and not as «grand» theory⁽²³⁾.

Some have suggested that rather than being cumulative, quantitative findings have been just the opposite: contradictory. Many of the harshest critics, however, whom one would expect to employ the most damning examples of quantitative contradiction, offer rather weak and superficial ones, suggesting that instances of blatant contradiction are not as easy to find as some would like to believe. One example of this is Richard Rosecrance's delineation of one quantitative study, which showed a negative

(21) G. R. Boynton, «Cumulativeness in International Relations», in Rosenau 1976), *op. cit.*: 145-50.

(22) Russett, «Apologia pro Vita Sua», *Ibid.*: 31-37.

(23) Some consideration should be given as to what a «grand» theory really is or ought to be in relation to its discipline: a broad, non-rigorous perspective, such as the Realist «paradigm» or a rigorous theory about some overarching dynamic in the field, such as the macro IS-LM-PEP model in economics. This model tells one nothing about firms, labour markets, etc., only about certain aspects of national economies, yet it is a key to economic understanding. I feel that there is room both for general paradigms and rigorous models of systemic dynamics and that balance of power theory, if properly developed, could play the latter role in IR.

relationship between development and conflict within countries, and another, which had shown a positive relationship between internal conflict and rapid development, as an example of such contradiction in quantified studies generally ⁽²⁴⁾.

Rather than contradiction, this seems to indicate the possibility of a curvilinear relationship between the rate of development and internal conflict in addition to a moderately negative relationship between the level of development and conflict. This would suggest that countries become more stable as they attain higher levels of development at a moderate pace. Also, much of Rosecrance's criticism, particularly, regarding the contradictions of various COW findings, could not include more recent work in which there is greater progress and consistency and which goes a long way in explaining the contradictions to which he refers ⁽²⁵⁾.

The ultimate goal of all these quantitative studies is to create theories of international relations which are policy relevant. While they may have their theoretical roots in Realist ideas, the goals are extremely idealistic: to describe, understand, explain, and predict international phenomena in order to make prescriptions to improve and preserve the lives of human beings ⁽²⁶⁾. It is to the extent which many quantifiers, particularly the first ones such as Singer, believe in this goal and its attainability that this approach really differs from the traditional Realist one.

However, the overall common elements must and cannot be ignored. Many quantifiers use Realist theory as their basis: states as unitary, rational actors, national interest defined as power, and balance of power. Most within the quantitative approach do not hold the extreme scientific philosophy of Karl Popper, which rejects any particular theoretical formulation on the basis of a single instance of falsification, seeing the more flexible, paradigmatic view of Kuhn as more befitting the study of international politics. They prefer to use verification only as a guide to theory. The methods are merely a tool to aid investigation, not an end in themselves. The goal of reliability through the use of good methodology is constantly being weighted

⁽²⁴⁾ Rosecrance, «The Failure of Quantitative Analysis», in Rosenau, *op. cit.*: 174.

⁽²⁵⁾ *Ibid.* and Alan Ned Sabrosky in Sabrosky, (ed.) *op. cit.*: 212-214.

⁽²⁶⁾ Singer, «The Behavioral Science Approach to International Relations», in Rosenau (1969), *op. cit.*: 65.

against a concern for theoretical validity. It is hoped that if both of these conditions cannot be satisfied in the context of a certain area of study, the quantitative approach will not continue to be attempted. To do so would be an intellectual and, given the expense of quantified research, financial waste. There are areas into which quantification cannot enter usefully. Ultimately, as can be easily deduced from the above, what is not only possible but needed is cooperation between the two approaches.

II — TRADITIONALIST DEVELOPMENT OF BALANCE OF POWER

The central systemic concept developed by the Realist school is the idea of «balance of power» in the international system. From Morgenthau and Wigh, through Aron, to Waltz and Gilpin, the notion of balance of power has been the focus of Realist theory. We have had a tremendous insight into relations among states through the possibilities of balance of power theory explored by the traditionalists.

Despite this, it is the traditional (that is to say non-quantitative) ⁽²⁷⁾ Realist school which has done the concept the greatest disservice through imprecise use, multiple meaning and lack of clear differentiation between meanings, reification of vague theoretical ideas, and its refusal or inability to go beyond exploring theoretical possibilities in order to seek some evidence as to what truly is the case.

Ernst Haas, in a 1953 article, identified eight different meanings of power, from an equilibrium of power to hegemony, from a «universal law of history» to a policy guide, and four major uses, from propaganda to analysis ⁽²⁸⁾. While not all of these views are products of the Realist camp proper, nor completely incompatible with each other, the lack of clear handling of the subject within Realism, especially analytically, has essentially gutted its theoretical potential due to a lack of conceptual clarity and falsifiability.

⁽²⁷⁾ This includes classical Realists, such as Morgenthau, and structural Realists, like Waltz.

⁽²⁸⁾ Ernst B. Haas, «The Balance of Power: Prescription, Concept, or Propaganda?», *World Politics* (Vol. 5, No. 4 July 1953): 442-477.

Inis Claude has also found the idea of balance of power, as developed by Realism, to be confusing and short on meaning due to the fact that it often has too many unclear meanings⁽²⁹⁾. He notes four main meanings within the literature. The first he takes from the likes of Castereagh, Lassa, and Oppenheim, in which balance of power is seen as a description of a situation in which the powers of the leading nations or alliances are roughly equal. The second is sighted from Martin Wight and Nicholas Spykman in which «balance» is seen as any given distribution of power. The third is the idea of balance of power as a policy in which the goal may either be to maintain an actual equilibrium of power or a distribution of power in which a particular state or group of states has preponderance. Finally, there is the systemic notion of balance of power from the likes of Charles O. Lerche, Jr. in which the states of the system are expected to range against any state or group of states which threatens to become too powerful or a security threat.

Claude goes on to present an in-depth review of Hans J. Morgenthau's use of balance of power. Morgenthau identifies his use of four separate meanings: (1) a policy to maintain a certain «state of affairs», (2) the actual, prevailing «state of affairs», (3) a situation of approximately equal power distribution and (4) my power distribution⁽³⁰⁾. He promises to keep the various meanings organized by having balance of power denote «an actual state of affairs in which power is distributed among several nations with approximate equality» unless otherwise specified. Claude argues that he fails completely in this effort and that his most prominent meaning is that of a self-correcting system⁽³¹⁾.

In fact Morgenthau has trouble making his mind up about a great many things regarding balance of power. First, he cannot seem to make up his mind as to whether the operation of the balance of power is «automatic» or «manual,» the product of natural equilibrium resulting from all-out competition between roughly equal powers or alliances, or the result of careful management by statesmen. In *Politics Among Nations*, Morgenthau states,

⁽²⁹⁾ Inis L. Claude, *Power and International Relations* (New York: Random House, 1962): 13-14.

⁽³⁰⁾ Hans J. Morgenthau, *Politics Among Nations*, 5th revised edition, (New York: Alfred A. Knopf, 1978): 161.

⁽³¹⁾ Claude, *op. cit.*: 27-28.

The aspiration for power on the part of several nations each, trying either to maintain or overthrow the status quo, leads of necessity to a constellations which is called the balance of power and to policies which aim at the preserving of it... the balance of power and policies aiming at its preservation are not only inevitable, but an essential stabilizing factor in a society of sovereign nations ⁽³²⁾.

To which he later adds:

...all nations actively engaged in the struggle for power must actively aim not at a balance, that is, equality of power, but at superiority of power, on their own behalf. And since no nation can foresee how large its miscalculations will turn out to be, all nations must ultimately seek the maximum of power available to them ⁽³³⁾.

Here he is obviously suggesting that balance of power operates automatically as a result of the state's pursuit of maximum national power. However, he later suggests a different image of the requirements of its operation when he mourns the demise in the post-war world of:

Those manifold and variegated maneuvers through which these masters of the balance of power tried to either stave off armed conflicts all together or at least make them brief and decisive, yet limited in scope — the alliances and counteralliances, the shifting of alliances according to whence the greater threat or the better opportunity might come, the sidestepping and postponement of issues, the deflection of rivalries from the exposed frontyard into the colonial backyard — these are things of the past. Into oblivion with them has gone the peculiar finesse and subtlety of mind, the calculating and versatile intelligence and bold yet circumspect decisions which were required of the players in that game. And with those modes of action and intellectual attitudes there has

⁽³²⁾ Morgenthau, *op cit.*: 161.

⁽³³⁾ *Ibid.*: 201.

disappeared that self-regulating flexibility, that automatic tendency of disturbed power relations either to revert to their old equilibrium or to establish a new one ⁽³⁴⁾.

If everything is so automatic, why does he need half a page to describe, and celebrate with such romance and majesty, the characteristics of the 18th and 19th centuries' statesmen, concluding that these qualities are necessary for the «successful» operation of the balance of power. It would seem from the above that Morgenthau is unsure about the extent to which men and states will to power. He is unclear on what he sees as their goals: an acceptable minimum of security through careful management of the system or maximum power through whatever means necessary and available. He is ambiguous with regard to the operation and meaning of the balance of power.

As it may be inferred, Morgenthau sees multipolar balance of centuries past as being more stable, more peaceful, than the bipolarity of today. He cites various reasons. He sees bipolarity as being less flexible, with fewer states, having more of a zero-sum nature, and, therefore, being less capable of mediating the pressures of contention within the system. Power imbalances can be redressed internally by threatened states building up their forces, but not externally through alliances, because all the powers which could counterbalance the power of one state's enemy are either already taken, too weak to make a real difference, or both. He points to the absence of a balancer as being a potentially problematic deficiency ⁽³⁵⁾.

He also thinks the expansion of the state system to include the Third World as independent states to be a negative development in that it means the disappearance of a colonial frontier to which conflicts between the powers could be relegated. This seems a strange concern to be expressed in the 1978 edition of a book on IR, especially in view of the number of wars in the periphery going on in that decade, manifesting the conflict between the two superpowers ⁽³⁶⁾.

⁽³⁴⁾ *Ibid.*: 346-347.

⁽³⁵⁾ *Ibid.*: 332-337.

⁽³⁶⁾ Morgenthau seems to be too wrapped up in the 18th century to notice even casual modern evidence. Great power conflicts were pushed and manifested in the Third World in the 1970s as much as they ever were during colonial periods. Examples abounded in the 1970s: Vietnam, the Middle East crises of 1973-74, and the Angola crises of 1975-76.

He sees as troublesome the change in the morality or culture and the technology of the superpower system in comparison with the previous great power system, particularly in the role of ideology and changes in the nature of war to total war. The last two points have little to do with balance of power itself and show some of the thrust of Morgenthau's thinking⁽³⁷⁾. While this thinking seems logical, it does not explain the peacefulness of the post-war period.

Ultimately, Morgenthau judges the balance of power as a weak guiding principle to international relations, citing its uncertainty, unreality, and inadequacy⁽³⁸⁾. He writes that it has not, by itself, maintained peace or independence of individual states and has preserved the state system from empire only in the broadest sense. For Morgenthau, such factors as the international moral consensus, the skill of individual statesmen, and the nature of war itself at any given time are more important to the preservation of peace and stability⁽³⁹⁾. It is the changes within the system along these dimensions that are suggested as being most detrimental in the post-war era. He is at a loss to estimate the extent to which war may have been avoided through the operation of balance of power itself⁽⁴⁰⁾ or what changes or factors within a balance arrangement might be more likely to lead to war.

But what of the impact and meaning of the balance of power on war, stability and other attributes of the international system? After reading Morgenthau one has the vague feeling that it may not be such an important factor in international relations and is far too convoluted to be of any real analytical use. Certainly quantitative theorists beg to differ, as would Hedley Bull.

Unlike Morgenthau, Hedley Bull sees the balance of power not as one of the weaker factors affecting the amount of war within or stability of the system or as a pervasive characteristic of international relations which nevertheless seems to have only limited implications for the operation of the system, but as prerequisite basis for all the major institutions and dynamics within the system through its preservation of that system, of its order. These institutions and dynamics include war, diplomacy, great power management, and international law⁽⁴¹⁾. The interests of an international

⁽³⁷⁾ *Ibid.*: 332-345 and 382-385.

⁽³⁸⁾ *Ibid.*: 195.

⁽³⁹⁾ *Ibid.*: 207-214 and 345-357.

⁽⁴⁰⁾ *Ibid.*: 201.

⁽⁴¹⁾ Hedley Bull, *The Anarchical Society* (London: Macmillan, 1977): 106-107.

society and human community may have a significant effect on international relations and justice, including the institutions above, but the order imposed by the systemic power relations of a balance of power must precede these ⁽⁴²⁾. However, balance of power acting as a prerequisite for these elements of international society does not yield a good basis for testing the concept. Such effects would be impossible to operationalize and, in fact, it is merely a matter of philosophical speculation as to whether the maintenance of the balance of power is really a necessary precondition for Bull's notion of the international anarchical society.

To the extent that one is interested in the attainment or study of such a status in world politics, Bull's formulations are important and should be dealt with in the traditional literary manner. However, Bull's conception of balance of power has potential importance for more empirically straight-forward effects like the frequency or scale of war which could yield theoretically meaningful insight into the concept itself ⁽⁴³⁾. It also must be recognized that these simpler dependent variables are closely related to the first two functions of the balance of power listed by Bull: (1) the maintenance of a general balance to prevent the formation of an empire and the conversion of the system to a hierarchical one, and (2) the maintenance of local balances to prevent the over running of individual countries. For his entire theory to have a sound basis, his basic assumptions regarding the operation of balance of power must be empirically realistic and relevant.

Bull's identification of periods of different systemic polarity do not agree with those of Morgenthau, who classifies everything before the Second World War as multipolar (complex). Bull contends that the post-war era has been bipolar (simple) until recently. The system was bipolar in the 16th and the 17th centuries, with France and Habsburg Spain/Austria being the two major actors. The rest of modern history is seen as multipolar. Multipolarity is seen as being more stable ⁽⁴⁴⁾.

⁽⁴²⁾ *Ibid.*: 319.

⁽⁴³⁾ *Ibid.*: 107. This is one of those examples where the dependent variable in which the quantitative approach is interested is different from what traditionalists want to investigate. They are not unrelated, however, in that the extent to which balance of power is a prerequisite for the development of international society is dependent on how potentially stable and peaceful the various configurations can be.

⁽⁴⁴⁾ *Ibid.*: 101.

He goes on to differentiate between a local balance, such as that between Pakistan and India; a dominant balance, like the one between the Soviet Union and the United States; and a general balance, which pertains to the general state of the world system⁽⁴⁵⁾. It is unclear as to whether this refers to situations of general balance, any prevailing distribution of power, etc. He also distinguishes between subjective balances, were it is perceived and believed that there is a balance, and an objective one, were balance may exist but not be perceived.

Finally, Bull allows for both «fortuitous» (automatic) balance and «contrived» (manual) balances⁽⁴⁶⁾.

One is no farther ahead using this formulation of balance of power than using Morgenthau's with regard to understanding the concept itself. It is completely without rigour and falsifiability. Intuitively, the peace and stability of the post-war period seems to defy Bull's preference for multipolarity. There are several apparent contradictions between Morgenthau and Bull with no explanation for the differences. There is still no clear picture as to what balance of power means or what its relationship to war and system stability is. To discover this may not have been Bull's ultimate goal, but his goal depends on such an understanding. In this sense he experiences a failure of theory. Moreover, for Realism using the traditional methodology, the handling of the concept only becomes more confused with the introduction of the structuralist approach to Realist theory used by Kenneth Waltz.

The definitive work employing the structuralist approach within Realism is Kenneth Waltz's *Theory of International Politics*. Balance of power is seen as an automatic result of the structure of the international system. The structure is determined by the ordering principle of the system functions the units in the system, and the distribution of capabilities across those units⁽⁴⁷⁾. In the case of the international system the order is anarchic, the functions of the units are the same, and the distribution of capabilities since the Second World War has been bipolar, in which the capabilities (i. e. power)

⁽⁴⁵⁾ *Ibid.*: 102.

⁽⁴⁶⁾ *Ibid.*: 104.

⁽⁴⁷⁾ Waltz, (1979), *op. cit.*: 100-101.

of each superpower outweigh those of any other single state overwhelmingly. A balance of power system naturally emerges due to the anarchy and similarity of mits within the system. That balance is bipolar because such a large portion of the capabilities are focused within the two superpowers, the United States and the Soviet Union⁽⁴⁸⁾. Balances of power recur automatically in conformity with what is seen as a natural law.

The state system, according to Waltz, had been multipolar since the Treaty of Westphalia and continued to be so until 1945. Since then it has been bipolar⁽⁴⁹⁾. This is in general agreement with Morgenthau, but in direct contrast with Bull, who refers to the 16th and 17th centuries as bipolar and argues that the world is now moving toward multipolarity.

Waltz also argues bipolarity is more estable than a multipolar system. This is due mainly to the fact that bipolar systems have much less risk associated with them. They are seen as less risk laden because there is less fluidity and fewer, simpler power estimations and calculations to be made within them⁽⁵⁰⁾. This conforms well to the evidence of the 20th century. The problem with this formulation is that it cannot explain why the multipolar 19th century was so peaceful. Waltz offers no explanation with regard to the existence of several incompatible views of reality within realism, of which his is one, each enjoying roughly the same levels of empirical support and refutation. For that matter, neither do the others.

Waltz also argues that bipolarity is more estable than a multipolar system. of the three traditional approaches reviewed here. However, it still suffers from a major flaw. While the insights of the theory are extremely elegant, intuitively convincing, and well constructed, it lacks reliable, intersubjective evidence just as the theories of Bull and Morgenthau do. Waltz does not use a systematic, reliable method for the collection of evidence to support his theory or suggest ways in which it may be improved. His propositions remain untested and, therefore, trapped at their initial state of development, precluded from being improved through the marshaling of cumulative knowledge revealed by research.

As one reviews the traditional approach to the concept of balance of power one realizes how little about the subject has been established. What

⁽⁴⁸⁾ *Ibid.*: 102-128.

⁽⁴⁹⁾ *Ibid.*: 163.

⁽⁵⁰⁾ *Ibid.*: 161-168.

is the balance of power: a policy prescription, any distribution of power between states, or the natural and automatic equilibrium of power between alliances? What are the effects of balance: less war, more war, larger wars, or the preservation of the state system? What should its goals be: the preservation of states' sovereignty, peace, stability, or the checking of aggressive states? What are the effects of different characteristics of power balances such as polarity, polarization, alliances, tightness? What are the effects of dynamics within the system which are not directly related to power balance such as arms races, status inconsistency, etc.? It is the quantitative approach which has sought the answers to such questions. One finds, now, that some real answers are finally beginning to take shape, based on the ideas of traditionalists, but in forms they could never have imagined.

III — QUANTITATIVE RESEARCH AND THE BALANCE OF POWER

The remainder of this paper will look mostly at the results of work on war coming out of the *Correlates of War* project and associated studies. Significant findings regarding the most important factors leading to war have emanated from this project. Most importantly, the paper will show that understanding of the relationship between war and the balance of power has developed remarkably through this body of quantitative research. However, two issues must first be dealt with.

The first is the problem of the validity of war research based on the COW data set. The data set now contains information on alliances, frequency and extent of war, and the capabilities of states based on military, economic, and demographic factors, among other information, from 1815 to 1980⁽⁵¹⁾. It is not a random sample of data for war and related causal

⁽⁵¹⁾ This is the extent of the data set now. It is an historical data set, based on a multitude of sources carefully scoured over years research. COW is continually trying to expand in terms of period covered and types of data contained (alliances, capabilities, etc.). This is often difficult. Valid operationalizations of pertinent theoretical variables change over time (energy consumption is a meaningless measure of economic power for the 18th century) and the data one does need is often unavailable (military spending for Saxony for 1690?). Missing data is a problem for the set for the period covered now. Jack Levy has developed a data set on alliances dating from 1495, but only for alliances. Also, the earlier COW studies did not have data for as long a period or as many different of phenomena as more recent ones have.

variables throughout history. It is a census of data for a specific period. Therefore, theoretical relationships upheld by evidence from this set do not have full inferential validity for other periods. This does not mean that the results are meaningless for mankind entering the 1990s, for instance; it simply means that one must be more interpretive with the results, bearing in mind the differences between the era in question and the eras covered by COW. This still represents an important improvement in methodological explicitness and intersubjectivity.

The second issue is the use of war occurrence within these studies as a dependent variable in the study of balance of power. Many criticise this, arguing that the traditional realist school never used a peace/war distinction as the main theoretical effect of power balances; that, instead, it refers to such abstract (and much less testable) phenomena as stability or «preservation of the system». They suggest that for these studies to proceed in this direction is a serious theoretical and substantive break from Realism and if the original concept-variables of the traditional approach cannot be validly operationalized, it only goes to prove that quantification is not a viable approach to IR.

This paper would argue that, first, war is a good proxy for system stability since most notions of stability are associated negatively with high levels of conflict, crises and violence. Low levels of manageable war may preserve a stable system, but nowhere do Realists advocate massive war as a useful part of a system in any context⁽⁵²⁾. Also, preservation of the state system is related to war in the context of balance of power since it is through war, if anything, that the state system will be overturned⁽⁵³⁾.

Second, and more profoundly, while this paper acknowledges the power of Realist theory, it questions its aims and the values for which it feels justified in settling: preservation of the system, some war, and stability. Assume that peace is a universal good (even for Realists). Realism must ultimately argue that the preservation of a balance of power (state system among a few other things) has a good potential to minimize war, since

⁽⁵²⁾ This is part of the Realist notion that there will always be some war and that it is better to allow for some and seek to control it, that in fact, manageable war is necessary for the system.

⁽⁵³⁾ Unless it is a political settlement to institute some form of world government, in which case international relations, as we know it, would cease.

order, the system itself, etc., have no inherent value. Peace, or at least less war, is the end goal, not stability or preservation of the system, which are means. And if the balanced, anarchical state system is very warlike...? The first two hundred years of the Roman Empire were extremely peaceful⁽⁵⁴⁾. Perhaps the overturning of the state system would be of benefit, once the pains of the initial transformation had past. The point is that there is nothing sacred about balance of power, or even the state system itself. They ought to be measured in terms of their abilities to yield to mankind's human interest and peace, in the utilitarian sense. Stability, order, or system preservation, though they may be excellent means of achieving peace, have no essential value themselves. Therefore, accepting the Realist premise that world politics cannot be converted from anarchy, this author feels justified in propounding the use of war/peace as a dependent variable in the study of balance of power on normative, as well as analytical grounds.

Over the broad range of study, quantitative inquiry has uncovered many different factors related to war. Organski and Kugler put forward many ground breaking ones in their study *The War Ledger*. One of their more substantiated conclusions is that war tends to occur in the system as the capabilities, broadly defined, of the most powerful, «status quo» state are overtaken by those of the next most powerful rival state⁽⁵⁵⁾. Unfortunately, some of their more theoretically impressive contentions are not as well supported empirically.

Many impressive findings associated with COW to 1979 are outlined by Michael Wallace in *To Augur Well*. The studies are with regard to the systemic or structural causes of war, including work dealing with alliances, inter-governmental organizations, national capabilities and capability distribution (polarity), and arms racing⁽⁵⁶⁾. Wallace also mentions some work undertaken by himself, which had good initial success regarding status inconsistency. Studies of this concept suggest that the system becomes more war prone if the actual power of a rising state or states within the system

⁽⁵⁴⁾ I particularly enjoy using the Roman Empire because Realists of the traditional approach appreciate history so much.

⁽⁵⁵⁾ A. F. K. Organski and Jacek Kugler, *The War Ledger* (Chicago: University of Chicago Press, 1980): 206.

⁽⁵⁶⁾ Michael Wallace, «Early Warning Indicators from the Correlates of War Project», in Singer and Wallace, eds. *To Augur Well* (New York: Sage Publication, 1979): 17-35.

surpasses the status they are accorded in the great power system⁽⁵⁷⁾. Status inconsistency can be related to Morgenthau's and Bull's notions of the importance of having the interests of the most powerful actors in the system in accordance with the «status quo», the importance of them being «status quo actors»⁽⁵⁸⁾. Clearly the acceptance of the general «status quo» by the major European powers after Waterloo played a significant part in the peacefulness of the 19th century. Wallace's study confirms this, showing the 19th century to be extremely peaceful due to the low status inconsistency.

Through the integration of findings from COW associated studies, a relatively comprehensive view of the immediate steps leading to war is also emerging. Five factors are associated with crises leading into actual war: (1) there must be an ongoing arms race, (2) there must be a physical threat to vital issues, (3) it must be the second or third crises with the same two rivals, with each successive encounter leading to more and more coercive and hostile *Realpolitik* tactics, (4) a hostile interaction spiral must start, and (5) hard-liners must dominate at least one side⁽⁵⁹⁾.

A sub-direction of the more systemic or structural studies are those which have dealt with balance of power or associated concepts more exclusively. The paper now turns to these, starting with the early, ground-breaking research in the area, then moving on to later studies which focus on alliances, polarity, polarization, and finally, a combination of polarity and polarization.

Before the individual studies are considered, a few more definitions are in order. State's power or capabilities are measured as a variable along three dimensions in the COW data: military (by troop strength and defence spending), economic power (iron and steel production, energy consumption, and GNP), and demographics (urban population and total population). Power polarity is measured by the distribution of capabilities among states as measured by the capability variables (just above). This data is placed in a variable (CON) which ranges from 0, if capabilities are per-

⁽⁵⁷⁾ Wallace, «Status, Formal Organization, and Arms Levels as Factors Leading to the Onset of War», in Bruce M. Russett, ed., *Peace, War, and Numbers* (London: Sage Publications, 1972): 49-69.

⁽⁵⁸⁾ Thinking of Bull's anarchical international society or Morgenthau's moral consensus in the 19th century.

⁽⁵⁹⁾ John A. Vasquez, «The Steps to War», *World Politics* (Vol. 40, No. 1, 1987): 117.

fectly distributed, to 1, if one power has all the capabilities. The various studies which include a measure of polarization, clusters, tightness, etc., for the most part, use their own measurements (⁶⁰).

The whole concept of polarization, or cluster polarity, is only now crystallizing. However, there is a widely used scheme within the project studies to measure alliance relationships generally. Alliance levels in the system are measured dyadically, even if the relationship is on the basis of a multi-lateral treaty. (For instance, if there were a three power alliance between Russia, France, and Britain, this index would count three dyads: Russia-France, France-Britain, and Russia-Britain). There are, also, three levels of commitment two powers can have toward each other. In order they are the following: defence pacts, non-aggression pacts, and ententes. They are placed on an ordinal scale from 3 to 1 for the purpose of statistical analyses.

One final note is that some studies deal only with the «great powers», others look at the entire system, while still other studies look, at both comparing the results.

The first study under consideration, by Deutsch and Singer, is not quantitative in the strict sense. There is no systematic empirical verification here. However, they argue in very vigorous terms that multipolarity, defined as the number of great powers in the system being greater than two, is the most peaceful power distribution. This is due to the presence of cross-cutting ties, in which members of various alliances are also members of other alliances, and the fact that with many other powerful states for each power to watch, the amount of attention paid to any one of them is reduced. This reduces the likelihood that arms races or crises will develop in the pattern described by the Richardson reaction function (⁶¹). They add the caveat that this only holds in the short run, but it still flies in the face of post-war evidence, not to mention Kenneth Waltz.

Another early study by Singer and Small, in 1968, looks at the effect that alliance aggregation and «polarity», defined as the number of alliance

(⁶⁰) Jeffrey A. Hart in Sabrosky (ed.) *op. cit.*: 25-35. Not every study uses every variable, of course, but only those which have valid pertinence to their studies.

(⁶¹) Deutch and Singer, «Multipolar Power Systems and International Stability», in Rosenau (ed., 1969): 315-324.

blocs or clusters, have on the occurrence of war. Here, as in later COW studies, war is measured in terms of magnitude (nation-months of war), severity (battle deaths), and simple frequency for each five year period. Alliance aggregation is measured in terms of the percentage of major powers and all states in alliances. Bipolarity is measured as the portion of potential alliance dyads which are actuated in the system for every half decade ⁽⁶²⁾.

The first problem is methodological. All the indicators really only measure gross, system wide alliance aggregation, including the so-called bipolarity or «bipolarization» indicator. It measures the number of operating alliances, controlling for the total number possible for any given five year period. It is not a measure of alliance bipolarity or polarization at all because it cannot measure the extent to which nations in the system tend to maintain alignments only with the states in one bloc and how many maintain crosscutting ties. Neither is it a measure of the number of alliance clusters, which would require counting how many groupings of inter-aligned collections of states there are in the system ⁽⁶³⁾.

The second problem is that the analyses of the entire study period, 1815 to 1945, yields only weak relationships between alliance aggregation and war. When analyses were done for the 19th and 20th centuries separately, a negative relationship between alliances and war was observed for the 19th century and a positive relationship for the 20th. Therefore, the study suggests that an increase in alliance linkages across the system tends to make the whole system more war prone in the 20th century and less war prone in the 19th. The relationships for both periods are stronger than those for the full 135 years. The study is at a loss to explain the discrepancy between the centuries.

Much of the early COW research touching on balance of power was really looking at alliances and their relationships with war. One of the first, by Singer and Small, this time in 1966, tried to investigate the relationship between states' levels of alliance commitment and their involvement with war. Confirmation of this relationship would seriously undercut

⁽⁶²⁾ Singer and Small, «Alliance Aggregation and the Onset of War, 1816 to 1945», in Singer, ed., *Quantitative International Politics* (New York: The Free Press, 1969): 247-286.

⁽⁶³⁾ Wallace, «Polarization: Towards a Scientific Conception», in Sabrosky (ed.), *op. cit.*: 100

Realist prescriptions for alliance formation as a means of controlling international hostility and violence.

The first «cut» through the evidence revealed that there was a positive relationship between the number of alliances (defined dyadically) and states' involvement in war. However, they suspected that much of the robustness of the effect was due to autocorrelation of the causal, alliance level variables. Specifically, the levels of alliance commitment for any one state seemed to be related to its power status. This seemed to be correlated with the amount of time each state had spent in the international system as a sovereign state. The intuitively logical dynamic of both alliance commitments and war propensity increasing as time spent in the system increases for each state seemed to be present. When the analysis was rerun, controlling for time in the system and, therefore, the effects associated with it, the relationships yielded results which were much less powerful, significant, or of consistent direction. Therefore, the independent influence of alliance commitments on the amount of war observed could not be confirmed ⁽⁶⁴⁾.

Later studies have confirmed that there is no significant relationship between alliances and war. A 1981 study showed that while 80 per cent of great power alliances from 1945 to 1975 have resulted in war being experienced by one of the allies within from three months to five years, most great power wars were not shown to have been preceded by alliances ⁽⁶⁵⁾. This suggests that most wars have causes unrelated to alliance aggregation.

Another area of investigation has shown that, while alliances may not be the cause of wars, they probably have a role in spreading wars.

⁽⁶⁴⁾ Singer and Small, «National Alliance Commitments and War Involvement, 1818-1945», in Rosenau (ed., 1969), *op. cit.*: 513-542.

⁽⁶⁵⁾ Jack Levy, «Alliance Formation and War Behavior», *Journal of Conflict Resolution* (Vol. 25, No. 4, December 1981): 518-613. Many more wars were preceded by alliance formation less than three months before their commencement. However, in these situations it is obvious that the alliances are formed in preparation for imminent war which has its roots in causes unrelated to alliance aggregation.

Once again we see results from the 19th century which are significantly different from all other periods. In this case, of the fourteen great power alliances formed in the 1800s, none led to war. The 19th century therefore, yields strongest refutation of the hypothesis that alliance formation increases the likelihood of war.

While they maintain that other factors play a role, Siverson and King demonstrate a correlation between pre-war alliances and war coalitions ⁽⁶⁶⁾. This is not surprising since the aim of alliances is to ensure mutual support among signatories in the event of a threat or war itself. However, Siverson's and King's results suggest that the actual honouring of commitments during war in larger alliances is strongly related to other factors and that the «draw-in» power of alliances during war generally is very much related to the age (positively) and size (negatively) of the alliance and the attributes of the member states (including whether they are members of other alliances as well). Other studies have come to similarly intricate conclusions ⁽⁶⁷⁾.

Other research on alliances and the spread of war suggest another picture. It is suggested that in fact all alliances, but particular non-aggression pacts are, as often as not, violated. Agreements between major and minor powers are the least reliable, with minor-minor and major-major agreements being slightly more successful ⁽⁶⁸⁾. This implies that one of the main Realist policy prescriptions for the maintenance of balance and, therefore, stability and peace is ill founded. It also has the embarrassing result of calling into question all the research which suggests that alliances spread war. How can they spread war if war commitments are not being lived up to? The literature, to the best of the author's knowledge, has not resolved this dilemma. In general, it would seem that most of what can be strictly referred to as «alliance research» has not gone anywhere, mostly because it is almost completely devoid of theoretical bases and was, rather, «brush clearing» of the lowest order (otherwise known as «Fishing for Correlates», a popular game show carried by the NBC affiliate in Ann Arbor).

The next major area of investigation really starts into the theoretical meat of it and is a significant step up the theoretical ladder. It focuses on polarity defined as the distribution on capabilities across individual actors, as opposed to groups of states or alliances or the number of blocs. The

⁽⁶⁶⁾ Siverson and King, «Alliances and the Expansion of War», in Singer and Wallace, eds., *To Auger Well* (1979), *op. cit.*: 37-49.

⁽⁶⁷⁾ Sabrosky, «Alliance Aggregation, Capability Distribution, and the Expansion of Interstate War», in Sabrosky, ed., *op. cit.*: 172-185.

⁽⁶⁸⁾ Alan Ned Sabrosky, «Interstate Alliances: Their Reliability and the Expansion of War», in Singer, ed., *The Correlates of War: II* (New York: The Free Press, 1980): 161-198.

central question is what power distribution, in terms of the number of poles, is the most stable (defined as peaceful). Many, such as Deutsch and Singer, Morgenthau, and Bull suggest that multipolarity is more stable. Others, such as Waltz and Rosecrance, argue in favour of a bipolar system. The objective of the quantitative research in this area is to discern what number of the power poles yields the most peaceful system ⁽⁶⁹⁾.

The first major study in this area was conducted by Singer, Bremer, and Stuckey in 1972 ⁽⁷⁰⁾. The dependent variable was war measured in terms of nation/months, COW's magnitude indicator, with war defined as any inter-power conflict resulting in more than one thousand battle deaths. The study looked at the major powers from 1820 to 1965. The independent variables were the distribution of capabilities (CON; from 0 to 1) and the change and direction of change in the distribution of capabilities (+/- Δ CON). Capabilities were measured with the standard COW measures along as many of the dimensions as the data set allowed for each period at that time.

They had two basic hypotheses: the preponderance and stability hypothesis and the parity and fluidity hypothesis. The first states that the system will be more peaceful when capabilities are concentrated in very few powers and the distribution is not changing. The main theoretical argument is that such a situation involves less uncertainty and risk due to complexity and changing conditions. The second claims the opposite; that the system is most peaceful when capabilities are about equal among the powers and changing, relative to each other, quite freely. The main argument here is that with power equally distributed, there is less chance of any state feeling that it can engage in aggressive means successfully since the power of state which it may face is not as well known (could be superior). In effect, uncertainty acting to deter aggression is the mitigator of violence in this formulation, in contrast to what was postulated in the first one where a reduction of uncertainty reduces the likelihood of war.

The results are quite good, but puzzling in a slightly familiar way. The preponderance and stability hypothesis holds quite well for the 20th

⁽⁶⁹⁾ Garnham, «The Causes of War», in Sabrosky, ed., *op. cit.*: 8-10 and 17-21.

⁽⁷⁰⁾ Singer, Bremer, and Stuckey, «Capability Distribution, Uncertainty, and Major Power War, 1820-1965», in Russett, ed., *op. cit.*: 19-48.

century, with 46 per cent of the variance explained. The parity and fluidity hypothesis holds even better for the 19th century ($R^2=.73$). Once again the results for the two centuries are opposite to each other⁽⁷¹⁾.

Basically, these results suggest that something resembling power multipolarity was more peaceful in the last century and something like bipolarity has been more peaceful for the period covered in this century.

To add to the confusion, another study by Ostrom and Aldrich suggests that the relationship between power polarity and war is not linear, positive or negative, but curvilinear, with the amount of war in the system peaking at approximately five poles⁽⁷²⁾.

Things become even more interesting with the development of the concepts of polarization and cluster polarity as completely distinct from considerations of power distribution or polarity in the system. Polarization in this sense is essentially a negative function of the number of alliance blocs and a positive function of the «tightness» and «discreteness» of those blocs⁽⁷³⁾.

A 1978 study by Bruce Bueno de Mesquita is one of the most prominent in the investigation of polarization. He uses six different measurements as his causal variables: number of poles, tightness, discreteness, change in the number of poles over a given period, change in tightness, and change in discreteness⁽⁷⁴⁾. The number of poles is ascertained by organizing all states into dyads and calculating the similarity of the systemwide alliance links in terms of the presence or absence of common links which the two states of each dyad have with other nations in the system, using the TB (tau beta) coefficient of rank similarity. These values are then used in a hierarchical clustering procedure to organize the dyads into clusters of nations with similar alliance commitments. These are blocs. The TB scores

(71) The last time we saw this type of contrast was Singer and Small, «Alliance Aggregation and the Onset of War, 1815-1945», in Singer (ed., 1969), *op. cit.*, and Levy, «Alliance Formation and War Behavior», (1981), *op. cit.*

The 19th century results in each of these studies stands out from those of the 16th, 17th, 18th, and 20th centuries. There is not theoretical connection here necessarily since each of the studies uses different variables. However, it does show that there is something strange about the 19th century that is not simply an artifact of COW data.

(72) Garnham, «The Causes of War», in Sobrosky (ed.), *op. cit.*: 10.

(73) *Ibid.*: 14.

(74) Bruce Bueno de Mesquita, «Systemic Polarization and the Occurrence and Duration of War», *Journal of Conflict Resolution* (Vol. 22, No. 2, June 1978): 254-255.

are also used to measure tightness of the clusters (using the mean within cluster T^B score) as well as the discreteness of the clusters (using the inverse of the mean between cluster scores) (⁷⁵).

All six of the predictor variables were run against the dependent, war occurrence and duration variable. The most powerful independent variable was the one measuring for change in cluster tightness in the 20th century data. It showed that occurrence and duration of war increased significantly when the clusters in the system were tightening and that war almost never occurred when system were loosening. There is also some evidence suggesting a significant positive relationship between changes in the number of blocs or clusters in the system and war in the 20th century (⁷⁶).

Bueno de Mesquita's results, however, are disappointing. Some have suggested that his main problem is with the use of «similarity» rather than «proximity» of alliance commitments as the basis for his causal variables. The difference is that in the first, not only are the alliances any two countries have in common taken into consideration, the alliances they do not have in common are factored in as well. Also, a country can only be placed in one bloc. Therefore, one is left with a situation where, for instance, Canada and the Netherlands are considered to be in the same bloc because of their common NATO commitments, but the United States is excluded because it has all sorts of alliance links outside NATO which the other two do not. With the proximity measurement only alliance commitment similarities are measured. That way the United States, Canada, and the Netherlands are placed in the same bloc (⁷⁷).

This approach was first used by Michael Wallace in his 1973 study on polarization (⁷⁸). The study includes a polarization and a cross-cut independent variable. Applying Guttman-Lingoes Smallest Space Analysis (SSA) to this proximity approach to cluster identification, the study yields cluster configurations based on the similarity of links on the dimensions of military alliances, diplomatic representation, and inter-governmental organizations

(⁷⁵) Michael Wallace, «Polarization: Towards a Scientific Conception», in Sabrosky, (ed.), *op. cit.*: 102-103.

(⁷⁶) Bueno de Mesquita (1978), *op. cit.*: 255-266.

(⁷⁷) Wallace, «Polarization», in Sabrosky (ed.), *op. cit.*: 103.

(⁷⁸) Michael Wallace, «Alliance Polarization, Cross-Cutting, and International War, 1815-1964», *Journal of Conflict Resolution* (Vol. 17, No. 4, December 1973): 575-604.

memberships. The amount of inconsistency on the three dimensions of the clustering data serves as a measure of cross-cutting in the system⁽⁷⁹⁾. A complex mathematical indexing procedure is then used to calculate the amount of polarization. The states in the analysis were weighted so that their different capabilities would be factored in to the polarization measurement such that systemic polarization would be greater if the superpower dyad obtained a large alliance configuration distance than if two small powers had yielded that same difference, *ceteris paribus*. (See figures 1 to 3 for graphic examples of differences and similarities expressed as distance. Note how the diagrams of alliance configuration in 1953 and 1963 are much more polarized than the diplomatic configuration for 1920. See appendix).

No strong linear relationships were found between the amount of war (measured with the various COW indicators) and any of the independent variables. However, a very strong (as high as $R^2 = .78$), significant curvilinear relationship was uncovered between war and military alliance polarization which suggests that the system is most war prone when highly polarized or barely polarized, with moderate polarization being most peaceful⁽⁸⁰⁾.

Several studies have fully combined the concepts of power polarity and polarization or cluster polarity. A 1975 Bueno de Mesquita study did this. It looked at the whole state system from 1816 to 1960. The main independent variables were: (1) the number of clusters in the system, (2) tightness and (3) discreteness, defined similarly to the 1978 study, except that, in addition to identifying similarities and differences between states' alliance commitments in order to place them into clusters, etc., the types of alliances they were in according to the alliance typology of defence pacts, non-aggression pacts, and ententes (described above, with the addition here of a fourth category for dyads which have no alliance links) was also factored

⁽⁷⁹⁾ Diplomatic and inter-governmental organizations links are regressed to show similarity with alliance links. The R^2 and other statistics show the extent to which there is cross-cutting in the system. This is not a satisfactory measure of cross-cutting. The concept is supposed to be one regarding the amount to which states have links with more than one bloc along the same (military alliance), as well as different (alliance versus inter-governmental organizations membership), dimensions.

⁽⁸⁰⁾ *Ibid.*: 601-602.

in, and (4) the distribution of capabilities (CON, 0 to 1 scale used in Singer, Bremer, Stuckey study, 1972 ⁽⁸¹⁾). It also looked at the effects the amount of change in these variables had on the amount of war, which was operationalized as the number of wars involving at least one major power in a given year.

The results of the study focus on the 20th century because of problems with autocorrelation for 19th century data. The best correlation with war is that for changes in cluster tightness in the system ($r=.73$), suggesting that as the similarity of alliance commitment increases within clusters and the commitments drift toward the more powerful obligations of defence pacts, war becomes more likely (as in the 1978 study). Also, change toward increases in the number of clusters or blocs tends to increase the amount of war in the system ($r=.52$). One problematic result is that which shows amounts of war increasing as discreteness, the amount of difference in the configuration of nations links in different clusters, decreases ($r=-.40$). Theory would anticipate the reverse. Bueno de Mesquita offers no explanation. Finally, the study shows a small, but significant negative relationship between capabilities concentration and war ($r=.20$). This suggests the potential for power bipolarity to be more peaceful.

These results suggest an interesting pattern in which power concentration to the point, perhaps, of bipolarity, seems to lead the system away from war to increased stability. Increases in bloc polarization in the form of tightness seem to lead to increased war. Combining this with the results of a study which suggests that the relationship between polarity (basically the same as power concentration) and war is curvilinear and peaks at five poles ⁽⁸²⁾, one may speculate that Bueno de Mesquita's weak results for the CON variable could be due to the fact that its relationship to war is also curvilinear. One could then conclude, speculatively, that the international system may be most war prone when it is power multipolar (with almost all power centred in only a few, but more than two, states) and its alliances are highly polarized. The biggest problem here is that the other major measure of polarization, the number of clusters in the

(⁸¹) Bruce Bueno de Mesquita, «Measuring Systemic Polarity», *Journal of Conflict Resolution* (Vol. 19, No. 2, June 1975): 187-209.

(⁸²) Ostrom and Aldrich, 1978 cited in Garnham, «The Causes of War», *op. cit.*: 9-11.

system, shows levels of war decreasing as there are more blocs in the system (or as the system becomes less polarized by this indicator) ⁽⁸³⁾. There does not seem to be an adequate explanation for this and, in fact, Bueno de Mesquita seems quite comfortable with the conclusion that cluster multipolarity is more warlike.

The author, however, is not comfortable with this at all. Neither, it may be taken, is Frank Wayman. His 1985 study finally integrates the effects of power polarity and cluster polarization. The study looks at the great power system from 1815 to 1965. His dependent variable is war, defined as frequency of occurrence and nation-months of war. His independent variables are the basic CON power distribution variable and a variable which measures the portion of capability held by the two largest powers in the system (TWOCON), to measure power polarity, and a variable which measures polarization or «cluster polarity», defined as the number of alliance blocs in the system. The number of poles equals the number of blocs, defined as groups of great powers tied by inter-linking mutual defence pacts (such as France, Britain, and the United States in 1955), plus the number of powers unaligned by defence pact arrangements, normalized for the total number of powers in the system ⁽⁸⁴⁾.

Wayman tests two important propositions from the point of view of balance of power theory. The first is that as power polarity in a system approaches a bipolar distribution of power, warfare will be less likely and of a smaller magnitude when it does occur. The reverse would be true of a multipolar power system. The other important proposition is that a system which is cluster bipolar (polarized) will experience more war than a cluster multipolar one with cross-cutting links between alliances (relatively less polarized) ⁽⁸⁵⁾.

The results are quite encouraging. They are not conclusive; the best models explain a little less than 50 per cent of the variance in the data. But they are highly suggestive. The power polarity and cluster polarity propositions are both mildly confirmed in the separate 20th century analysis.

⁽⁸³⁾ This relationship is confirmed in both Mesquita's 1975 and 1978 studies, *op. cit.*

⁽⁸⁴⁾ Frank Wayman, «Bipolarity, Multipolarity, and the Threat of War», in Sabrosky (ed.), *op. cit.*: 115-143. These operationalizations are deceptively simple. They seem to work, as we shall see.

⁽⁸⁵⁾ *Ibid.*: 121-122.

The power polarity proposition is also strongly confirmed for the entire 1815 to 1965 period. Cluster polarity is confirmed for the whole period as well, but not for the 19th century separately. The door leading to the potential solving of one of the central debates in Realist theoretical discourse has now been opened through quantitative research. To quote Wayman:

«This paper has contended that the Waltz thesis and the Deutsch and Singer thesis (*author's note: these among many other Realists who take up one of the two sides*), classically juxtaposed in the literature, may both be valid. Waltz argues that bipolarity is more stable than multipolarity. It has been theorized in the paper that he is correct insofar as he refers to *power* bipolarity, which minimizes the magnitude of war, should war break out. Deutsch and Singer argue that multipolarity is more stable. It has been theorized in this paper that they are correct insofar as they refer to *cluster* multipolarity, which is less likely to lead to war than is cluster bipolarity» ⁽⁴⁶⁾.

The most important conclusion is that an international balance of power system tends toward war when highly polarized with fewer, larger cluster poles and when power is more evenly distributed among various poles (great powers) and tends toward peace when it is power bipolar and has a multipolar cluster configuration. Note that both world wars were preceded by periods of high cluster polarization (to be point of being tightly bipolar) and power multipolarity. This situation was highly unstable due to various factors including the problem of desertion of allies to the enemy cluster. The desertion or loss of the support of one great power by another one would be a serious blow to the first power's security. This threat causes allies to support each other's actions with a commitment that belies sound judgement. Such was the case when Germany support the Habsburg intervention in Serbia. This threat is lessened in a bipolar system since the loss of an ally by one of the superpowers does not imply a serious realignment of forces in the power balance system. An example is the United States reaction to the French withdrawal from NATO (subdued).

⁽⁴⁶⁾ *Ibid.*: 138.

IV — CONCLUSION

A very interesting view of the balance of power and its related concepts is now available through the use of quantitative methods. Vasquez summarizes quite nicely:

«...an increase in polarization as measured by tightness is associated with an increase in the duration of wars (Bueno de Mesquita); and a multipolar distribution of power is associated with wars of greater magnitude (Wayman). If that distribution is polarized into blocs, as was the case in World Wars I and II (Wayman), and belligerents (Singer, Bremer, and Stuckey), the war will also be severe. All other factors being equal, we can conclude that increasing polarization of blocs makes for longer wars, multipolar distribution of power makes for wars of a greater magnitude, and equal capability between blocs increases the severity of wars»⁽⁹⁾.

While the author feels this appraisal to be a little optimistic and simplified, especially the strict aligning of some power balance phenomena with specific COW war measurements (magnitude, severity); it does reflect the general emergence of a coherent, cumulative collection of knowledge within quantitative research and theory on the balance of power concept.

There is emerging consistency even in the questions remaining for further research. Why have curvilinear relationships been found between war and polarizations and war and the number of power poles by so many studies? What might the comprehensive theoretical explanation be? Why does the 19th century consistently present difficulties and anomalies in so many studies in comparison with the centuries preceding it and the 20th century?

The greatest achievement remains the development of bloc polarization and power polarity as two completely separate concepts and their success in yielding deeper understanding about the balance of power. These findings will never lead to a casepredictive model of polarity and polarization effects on peace in the system. These concepts constitute structural aspects of the system, of the balance of power. They represent conditions which may

⁽⁹⁾ Vasquez (1987), *op. cit.*: 132.

be necessary for certain occurrences in the system to take place. It is important to understand the image of balance of power suggested by the theory and research and to couch policy in its terms and parametres. Immediate causes of war will inevitably be related to more localized, sufficient causes. These concepts help in the understanding of the power balance system and its stucture, a continuously fascinating and important theoretical and policy couching subject matter.

A dim, but unmistakable, dawn is approaching. Call it cumulative knowledge, policy relevance, or thematic convergence. The latest findings on polarization and polarity required the research which yielded it to build not only on basic Realist ideas, but on earlier generations of quantitative work. These studies could not have been done otherwise: cumulation.

Certain commentators have said that the quantitative approach in international relations is a significant step forward, and about a thousand steps to the side. This paper has emphasised one forward step, suggesting that the thousand sideways steps were unavoidable and necessary for the discipline, and that the study of international relations regardless of method, is just learning to walk.

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