

**The Making of a “Science of War and Peace”:  
Conflict theories at Michigan, 1952-1962**

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## 1. Introduction

Historians of social science very often connect the development of conflict theory with the “militarization” of American research after WWII. More precisely, they argue that the military shaped the content and development of this theory. (Mirowski 2002) Consequently, some historical accounts focus exclusively on the role of the RAND Corporation in the construction of game theory in the 1950s and 1960s. (Leonard 2004) Others underline the role of researchers who undeniably manifested hawkish leanings such as the game theorists John Nash and John von Neumann (Leonard 1992, Mirowski 2002, Pounstone 1992) or the US strategists Charles Hitch, Albert Wohlstetter, and Bernard Brodie (Kaplan 1983, Amadae 2003).

These works lead to an amalgamation between “conflict theory” and “theory for conflict”. They also confine conflict theory to game theory. Worse, in this literature, the contributions of more pacifist social scientists to conflict theory is often ignored or minimized.

In this paper, we make the hypothesis that letting aside these contributions or considering them as “anomalies” considerably obscures their importance for American social science. And yet, we do not intend to overemphasize the accomplishments of minor groups of peace researchers facing war strategists. Instead, we propose to complement earlier works obsessed with “war games” by underlining the (limited?) influence of some peace researchers in the definition of a conflict theory in Cold war America. We consider that conflict theory encompasses not only game theory but also all the “studies of conflict or war using formal reasoning or mathematical approaches” applied to “arms races, war initiation/war termination/timing of conflict, military strategy/conduct of war, threats/crises/escalation,

qualitative arms race/arms control, alliances, nuclear proliferation and defense bureaucracy/budgets.”(Intriligator 1973:553)

To test this hypothesis, we would confine our study to the case of an “anomalous antimilitary cyborg unit” known as the “peacenik's Rand” described by Philip Mirowski as “a gaggle of scholars gathered around the charismatic figures of Kenneth Boulding and Herbert Kelman at the University of Michigan.”(Mirowski 2002:317-18) We focus on the period expanding from 1952 to 1962. This decennial was crucial for the constitution of the axis of Michigan which paralleled the rise and fall of the Eisenhower Administration, from the end of Korean War (1953) to the Cuban Crisis (1962). In that period, the foreign policy of the Secretary of State, John Foster Dulles (1953-1959), built upon the concepts of “massive retaliation” and “brinkmanship,” was increasingly contested. Intellectuals became aware of the relentless militarization of the American society and US strategists contested the utility of massive retaliation and preferred the use of “limited wars.” It was also a period of major changes for the field of International Relations (IR), which saw the emergence of a pacifist branch, named the peace research movement, and experienced the renewal of quantitative and qualitative methods of analysis. The period also corresponds to the development and the extension of game theory as a new tool to study conflict. In this regard, the publication of the popular book *Games and Decisions* by Duncan Luce and Howard Raiffa in 1957 was very inspiring for the game theorists of the group.<sup>1</sup>

This “anomalous group” was composed of prominent social and natural scientists, including, economists Kenneth Boulding (1910-1993) and Thomas Schelling (1921-), the social psychologist Herbert Kelman (1927-), the mathematical biologist Anatol Rapoport (1911-), and the sociologist Robert Cooley Angell (1899-1984). Despite disciplinary divergences, their new approach, “conflict resolution theory” as it was named, sought to offer

a version of conflict theory based on pacifist ideas, “hard” science theories and quantitative methods. The most famous initiatives of the Michigan axis was the creation of the *Journal of Conflict Resolution* (JCR) in March 1957 and the establishment of the *Center for Research on Conflict Resolution* (CRCR) in September 1959. The conflict theory implicit in the editorial line of the JCR was a very peculiar mixture of General Systems Theory, industrial economics and structural-functionalist sociology. In the early 1960s, the JCR came to be heavily predisposed towards the publication of game-theory-related articles and particularly papers on bargaining situations. The outlet also assisted to the emergence of a dissident perspective for game theory based on moral grounds and psychological considerations.<sup>2</sup>

Section 2 recounts the origins of the creation of the *JCR* in 1957 and the establishment of the CRCR in 1959. We underline the different backgrounds of the members and their disciplinary diversity. Section 3 explains how the emergence of the group of Michigan in the late 1950s resulted from the convergence of two lines of interest: the promotion of peace and the applicability of the “scientific outlook” to international relations. We assume that the examination of their pacifist beliefs is essential to understand their particular approach to science. In Section 4, drawing on the work of Boulding, Rapoport and Schelling, we show that their disaffection from mainstream game theory had the same starting point, namely, their frustration with the theory as formulated by von Neumann and Morgenstern regarded as too spare of either descriptive sociological or psychological concepts to be a subtle model of conflict behavior. However, we also postulate that their theoretical divergences partly reflected their more general attitude towards the militarization of American society and were correlated with their differential commitment to peace.

## 2. The Journal and the Center for Conflict Resolution

In March 1952, during the *Eastern Psychological Associations Meetings*, Herbert Kelman, a young research training fellow at John Hopkins with a PhD in social psychology from Yale (in 1951), co-founded with another Yale psychologist, Arthur Gladstone, the *Group for Research on War and Peace* to encourage research into the problems of achieving international peace. They had published a year before a letter in *The American Psychologist*, “Pacifists vs. Psychologists” explaining that the psychological foundations of American foreign policy should be studied more systematically. Kelman advocated the construction of rigorous models taking into account the psychological factors explaining social organization and, more particularly, the obedience of a whole population in a totalitarian regime.<sup>3</sup>

*The Group for Research on War and Peace* was gradually transformed in the *Research Exchange for the Prevention of War*. Its final objective was to develop “an integrated, usable body of knowledge about the elimination of war.”<sup>4</sup> They organized symposia and workshops on conflict resolution. The *Research Exchange* published a *Bulletin*, edited by Gladstone. William Barth and Robert Hefner, two Michigan students in the sociology and the psychology departments respectively, became associate editors. Even if the *Bulletin* was initially led by social psychologists, it soon accepted contributions from researchers from other social sciences. One of the initial contributors to the *Bulletin* was the economist of the University of Michigan, Kenneth Boulding. Boulding had arrived to the University of Michigan in 1949 after six years of teaching and research work as a labor economist at the Iowa State College (Ames). In 1952, his understanding of economic science was a very unorthodox one. And, as we will see, his perspective mixed neo-classical market analysis tools with a methodological general systems theory and some intuitions of psychology and sociology. As a Quaker, he felt

very much concerned by issues of peace and conflict, and he participated actively in the peace research movement. <sup>5</sup>

In January 1954, the *Research Exchange* held a session called “Research Approaches to the Study of War and Peace” at the Meeting of the Society for the Psychological Study of Social Problems. The contributions to the session included papers by Gladstone, Kelman, the IR specialist Quincy Wright, and Robert Cooley Angell, a Michigan sociologist and member of the U.S. National Commission for UNESCO.

That year, Kelman and Boulding became two of the first fellows in residence at the *Center for Advanced Studies on the Behavioral Sciences (CASBS)* (Palo Alto, California). The *CASBS* had been created in 1954 as a part of a general plan to increase “knowledge of the principles that govern human behavior.” The *Ford Foundation* which financially helped the creation of the *CASBS* adopted the term “behavioral sciences” to describe the activities of its recently created division for the scientific study of human behavior. Anatol Rapoport, professor of mathematical biology at the *University of Chicago* and member of the *Committee for the Behavioral sciences* (since 1952), was also spending a sabbatical year at the *CASBS*. Rapoport was a Russian-born mathematical biologist influenced by his work with Nicholas Rashevsky at the University of Chicago from 1947 to 1954. As a pacifist and a socialist, he had decided to leave this University motivated by the McCarthy “witch hunts” and he welcomed the offer of the *CASBS* to spend a sabbatical year studying behavioral sciences. There, along with Boulding, he decided to promote a project for a *Society for General Systems Research* with the biologist (and also pacifist and founder of the “theory of systems”) Ludwig von Bertalanffy, and the physiologist Ralph Gerard. At the *CASBS*, Boulding and Rapoport recorded many meetings at lectures and dinners. There were other senior fellows such as Franz Alexander, Clyde Kluckhohn, Harold Lasswell and Paul Lazarsfeld. They assisted to seminars

by Jacob Marschak, Luce and Raiffa, Lazarsfeld, Gerard and von Bertalanffy. Boulding found himself together with von Bertalanffy, with whom he had started a correspondence a year earlier, debating issues concerning the application of the concepts of one discipline in the study of another. <sup>6</sup>

Their stay at the CASBS was really productive. Boulding wrote “Contributions of economics to the theory of conflict.” Published in May 1955 in the *Bulletin*, this paper prefigured his “theory of viability” described 5 years later in his major book *Conflict and Defense*. It was a fruitful stay for Kelman too. There, he rewrote some parts of his Ph.D. dissertation about aspects of “social and private conformity” and the ways of distinguishing real attitude change from mere outwardly conformity.

While at the CASBS, Kelman proposed to Rapoport and Boulding the idea to establish a new journal, which could replace and expand the *Bulletin*. Their involvement in the CASBS had given them a visibility throughout social science circles and they had acquired an enormous amount of information about current research. Rapoport was very excited about this new research on international systems and quantification of political science and he soon accepted the offer. Boulding was not hard to convince.

Their enthusiasm partly derived from their exposure to the work of Lewis Fry Richardson, a British Quaker meteorologist who made prominent contributions to international studies from 1935 until his death in 1953. Boulding and Rapoport became aware of the (published and unpublished) work of Richardson during their stay at the CASBS through his son, Stephen Richardson, who had brought with him microfilm copies of the work of his father. Richardson’s work was interesting because it applied mathematical models and statistical tests to international relations. He made three essential contributions to the study of war and peace. First, in *Arms and Insecurity*, he analyzed the processes leading to arms races

using differential equations. Second, in “Deadly Quarrels” he gathered an amazing amount of data and used statistics to test hypotheses about deadly quarrels. Third, in “War Moods”, a pair of papers published in *Psychometrika*, he suggested war moods were similar to epidemics and proposes an epidemiological model with differential equations indicating the rates of change of personal attitudes toward war. Concerning his work on “Deadly Quarrels”, Boulding said: “It is a pioneering work of first magnitude and I am convinced it will have an important place in the intellectual history of the twentieth century. To my mind, it marks the beginning of a new science which, I suppose, will come to be called politicalmetrics.”<sup>7</sup>

They decided to name this new outlet the *Journal of Conflict Resolution (JCR)* and to base it at the University of Michigan, as Boulding was there at the Department of Economics, Rapoport had just been hired by the *Mental Health Research Institute* and Hefner and Barth (former associate editors of the *Bulletin*) were already there. Kelman went to the *National Institute of Health*.

As we have said, Boulding already occupied a position at the Economics Department. At his arrival at Ann Arbor in 1949, he had initiated an annual interdisciplinary seminar in “Problems in the Integration of the Social Sciences” (called the “Spring seminar”), funded by the Ford Foundation. These seminars were about “Cooperation and Competition,” “The Theory of the Individual,” “Growth,” “Information and Communication”, and so on. The theme of this seminar in spring 1956 was “Conflict and Conflict Resolution”. At the time, Boulding was a well-known economist. He had been awarded with the John Bates Clark Medal of the *American Economic Association* in 1949. However, he was less and less interested in traditional economics while his interest in social science and moral philosophy grew. The 1956 seminar was attended by the sociologist Angell.<sup>8</sup>



At Michigan, the whole group met Angell, Boulding's old friend. Born in Detroit in 1899, Angell was a “typical product” of the University of Michigan. First as a student, he did his graduate work under the tutelage of his uncle, the famous sociologist Charles Horton Cooley. Angell would always remain loyal to Cooley's thought especially concerning the analysis of the role of morality and values in society. His thesis on “The Student Mind” was published in 1926 under the title *The Campus*. Later, he was successively appointed as an associate professor and as a full professor at the University of Michigan. His first meeting with Boulding was in March 1947, at the occasion of the Twenty-third Institute sponsored by the *Norman Wait Harris Memorial Foundation* of the University of Chicago, of which the international relations specialist Quincy Wright was director. More than forty scholars were gathered there to discuss “the world community,” among them Ruth Benedict, Margaret Mead, Harold Lasswell, Jacob Marshak and Talcott Parsons. This issue should be very much exploited by the future editorial line of the JCR. <sup>2</sup>

The initial development of the *Journal* was made possible by a grant from the Rackham Fund of \$4800 to Boulding in 1955. With this grant, he organized an editorial board and submitted an outline of the project to various foundations. Finally, the Hopkins Foundation granted funds for the first year of publication. However, in the first years, the creditors did not grant him any respite. The group had many financial and institutional difficulties. <sup>10</sup>

A major hurdle to the constitution of the *JCR* was the opposition of the director of the Political Science Department at Michigan, James K. Pollock. Pollock profoundly disliked Boulding's views and ideological positions. He also had the feeling that the *JCR* would “impinge upon” the proper area of their traditional research and publication field. Owing to the hostility of the Political Science Department, the *Journal* was first located in the Department of Journalism. Fortunately, a committee of world-wide membership including

such well-known scholars as David Riesman, Gardner Murphy, Julian Huxley, Lazarsfeld, and Kluckhohn accepted to sponsor the JCR. <sup>11</sup>

The first issue of the *JCR* appeared in March 1957. Boulding became the editor-in-chief of this new outlet. In 1957, a few months before the launch of the Sputnik, one more journal of international relations could have passed unnoticed to the specialists and political science researchers. However, the main difference between the JCR and most journals in the field of international affairs was that the JCR was “less oriented toward immediate problems and proposals for their solution, more interested in those that are less obvious and more basic and that bear on matters of war and peace ultimately but not immediately.”<sup>12</sup>

Since the Journal was concerned with problem-area rather than disciplines, it provided the interdisciplinary context favorable to new insights and approaches to the problem of war. It encouraged the publication of both empirical and theoretical articles. From 1957 to 1961, more than half of the articles dealt with international conflict and there was an equal distribution of articles in other levels: sociological, psychological and social psychological. The proportion of case studies was very small. During these first years, a proportion of authors made several contributions. Fully 41% of the authors appearing in volume 1 made another contribution within the next dozen of years (compared with 33% for contributors of volume 2, and 26% of volume 3). These “repetitions” can be attributed to the commitment of the first authors to peace research but also to the initial difficulty of the *JCR* to find contributors. Because of its length and editorial characteristics, the JCR was published by The University of Chicago Press. <sup>13</sup>

The first issue included papers by Wright, and the economist Thomas C. Schelling. Schelling, who was at the time at the *Harvard University Center for International Affairs*, was on the fringe of this “Michigan Group”. He appears in recent history of economic thought

narratives as a representative of game theory at RAND, but he is also described as a heterodox game theorist inspiring strategies to fight a limited war. Philip Mirowski overcomes these historiography contradictions explaining that “Schelling’s appeal to game-theory-without-game-theory, to Nash equilibrium without all the mathematical fuss, communication-without-communication, and rationality-without-rationality did occupy a special pride of place in the RAND consultant’s portfolio for the decade of the 1960s.” (Mirowski 2002: 369) Schelling had published his first article on the theory of conflict “An Essay on Bargaining,” *American Economic Review* in 1956.<sup>14</sup> The editor of the AER (Bernard F. Haley?) asked Boulding to referee the manuscript, and Boulding gave it such an enthusiastic review that the editor had no hesitation in printing it almost exactly as submitted. Schelling learned later that Boulding had been the influential referee. In 1957, Schelling started to write “Bargaining, Communication and Limited War” which was to be published a few months later in the first volume of the JCR. In this paper appeared one of the central concepts of his theory of conflict: “focal points”. There again, Boulding's intervention was crucial. Some time after the episode of the AER, Schelling met Boulding on a sidewalk in New Haven and they talked. Schelling was describing an argument he had to leave out of the AER manuscript because he could not formulate it, and then Boulding said something that “crystallized” the focal point idea. In 1958, Schelling joined the *Center for International Affairs* at Harvard as a full professor in economics working in a “project on strategic relations.” That same year, appeared *International Economics*, his second book, where he stressed the political orientation of international affairs in an attempt to enlarge the subject of international economics. A few months later, the JCR published “The Strategy of Conflict. Prospectus for a Reorientation of Game Theory”.<sup>15</sup> In 1958, Schelling spent one year at RAND with other economists such as Bernard Brodie, Herman Kahn and Daniel Ellsberg.<sup>16</sup>

In 1957, the initial members of the editorial board of the *Journal* began to look for financial aid to create the CRCR at the University of Michigan. Other research centers of study on war and peace were flourishing in American universities. A non-exhaustive list would include: the Hoover Institute and Library on War, the Studies on Revolution and Peace at Stanford University, the Center for Research on World Political Institutions at Princeton, and the Commission to Study the Organization of Peace. After many financial and institutional difficulties, the *CRCR* was finally established in July 1959. To define the objectives of the Center, a conference took place 4-6 October 1959. The “October conference” was of particular importance for the group. Many relevant social scientists participated in it, notably the psychologists Karl Deutsch, Theo Lentz and Daniel Katz, the political scientists Inis Claude and J. David Singer, and Schelling. <sup>17</sup>

Concerning the “October Conference” in 1959, Schelling noted: «I also, to be honest, got the impression at our meeting at Ann Arbor that there might be something about the spirit and method or motivation of your Center that I would not completely share. (...) You undoubtedly sensed that I am referring to; crudely speaking, it relates to the importance of studying military policy and military affairs, of recognizing armament as a many-dimensional and complex thing, and of thinking about the constructive and sophisticated use of military policy in the interest of peace. (...)” <sup>18</sup> And indeed, Schelling had more hawkish leanings than his acolytes. He thought that the problem of war was much more important than the problem of peace. However, he condemned military strategies recommending Mutual Assured Destruction (MAD) and the use of nuclear weapons.

The collaboration of Schelling with the *Center* as well as the *Journal* was nevertheless possible because both institutions cultivated a reputation for open-mindedness. Even if their founders had a pacifist point of view, the *Journal* was not identified with a particular attitude,

political point of view, or program for peace. During the October conference was expressed the interest in the study of conflict at any level and from any perspective.

From 1959 to 1962, the Center was under the direction of Angell, which was succeeded by Boulding (1962-1965). The objective of the organization was to bring the resources of all the behavioral and social sciences to “further peaceful resolution of international conflicts, and to gain better understanding of conditions under which world peace can be achieved and subsequently maintained.”<sup>19</sup>

The University was not very hospitable to this new Center, which organized conferences and colloquia about world peace and disarmament. Even if the Center established close relations with the departments and other research centers of the University whose interests were relevant to its own, he had difficulties to attract young scholars as he did not have any graduate or undergraduate program.

### **3. Building a New Science of War and Peace**

#### ***Ways of Being a Pacifist***

The members of the group (excepting for Schelling who did not endorse his colleagues' convictions) shared a strong commitment to the cause of world peace. However, their ideas seem more coherent in retrospect than they were at the time. In fact, their “pacifism” was an umbrella term which covered the variety of their religious, moral and political views.<sup>20</sup>

As a Quaker, Boulding was strongly opposed to war. For this religious pacifist, human beings had an intrinsic value. The slaughter of people caused by war was simply unbearable for him. Similarly, during his childhood in Vienna, Kelman had received a religious training deeply rooted in Jewish traditions and he strongly believed that human life was sacred. Both

took a more active approach to the peace movement. Boulding was an active member of the *Fellowship of Reconciliation* and, after WWII, Kelman got increasingly involved in peace and civil rights movements. Boulding also blamed war owing to political reasons. He saw international conflict as the result of the incompetence and the vested interests of the domestic military-industrial complex.

Rapoport shared Boulding's conviction of the ultimate worth of the individual and his critiques to military elites, but he was not a religious man and his political beliefs were much more radical than Boulding's. He reconciled his belief in individual worth and his socialist views by assuming that individuals had altruistic and moral impulses that were fully realized in a group. He considered that the pursuit of social goals could be rewarding for the individuals as well as for the collectivity.

As a liberal pacifist, Angell attributed war to nationalism and to the lack of international integration. He proposed international remedies such as economic interdependence, and improvements in international organizations. As he put it in his Presidential Address at the *American Sociology Society*, in September 1949, « [t]he growth of a world federation requires that problems of international trade, finance and migration be handled in terms of world moral norms, that the United Nations become the accepted instrument for resolving power conflicts among nations, and that tolerance be institutionalized as a positive norm in international relations. » (Angell 1951: 753) His faith in supranationalism led him to serve as director of the Tensions Project at the UNESCO's Social Science Department in Paris from 1949 to 1950 and, from 1950 to 1956, Angell was member of the U.S. National Commission for UNESCO. His Wilsonian approach to IR and his emphasis on transnational relations among civil societies were some of the marks of the “generation gap” which separated Angell from the rest of the group.

In spite of their differences, one thing that set them apart from war supporters was that they had similar interpretations of their experience of war. As they put in the editorial of the *JCR*, they all regarded war as “by far the most important practical problem facing the human race today (...)”<sup>21</sup> Like many of their generation, the members of the group shared traumatic experiences of the World Wars: Boulding was very much shocked by the effects of WWI in his own family and was a conscious objector during the Second World War; Angell witnessed the rise of Nazi ideology in German universities during his stay at the University of Heidelberg in 1935 and served in the army in WWII; during the war, Rapoport volunteered for the army and was transferred to Alaska and to India; and, finally, Kelman experienced two dramatic events during his childhood in Vienna: the Anschluss and the “Crystal Night” in November 1938.

Another feature they shared, in spite of their divergent political views, was their respect for established order and their commitment to liberal values such as freedom, democratic process and individual worth. They distrusted radical change and respected authority. Their objection to foreign policy was interpreted as corollary to the right to dissent in a democracy. This might, in part, explain why, even if their pacifist engagement was embarrassing in a Cold War context, they could pursue their activities without (major) hostility.

From its inception in 1959, the *CRCR* was in contact with different pacifist associations active in domestic reform that feared that the militarization of American society would sap social progress. Because of the strong connection between pacifists and social workers, its members also believed that education would eventually lead to the abolition of war and participated in many education programs. The Center had strong connections with many student movements for peace and civil rights hosted at the campus. They also were very active during Vietnam War and the first “Teach-ins”, in 1965, became important for their

originality in a larger scale campaign against Vietnam War and for their role in renewing academic interest in a pacifist agenda.

However, they soon realized that their convictions lacked clout and that they needed a theory of conflict to support their beliefs. Kelman explained the creation of the *JCR* in these terms: “I was becoming impatient with the relative failure of the *Research Exchange* to attract international relations professionals -and with my own failure to become one. Most of us were not specialists in the field of international relations whose motivation derived from our commitment to peace. I became increasingly convinced that, if we were to make continuing progress, we would have to involve professionals and become professionals ourselves. I felt there was a limit to how long one can go on writing programmatic articles and organizing meetings with the message that there are things that can and ought to be done, without actually going out and doing them. It seemed to me that the *Research Exchange* had reached that limit and I was concerned with moving on to the next phase.” (Kelman 1991:252)

### *A Science of Conflict*

The “next phase” was the creation of a “unified discipline of international relations.” The members of the editorial board of the *JCR* envisioned to create a new “specie” of discipline that they named in Linnaean terms “*Interdisciplinaris internationalis*”. This echoed the fact that, after WWI, IR had become a new discipline separate from the more general branch of political science. After WWII, the so-called “behavioral revolution” in IR (as in political science), led to greater emphasis on more mathematical and quantitative approaches. It paralleled the more general “scientific turn” in sociology, psychology and economics. The new Cold War context seemed to render obsolete the claim to knowledge possessed by traditional political scientists primarily concerned with the conduct of diplomacy, the prospects for international law, and the use of military power. <sup>22</sup>



In that perspective, it came as no surprise that Quincy Wright, old friend of Angell and Boulding, was asked to write the first article of the first issue of the *Journal*: “The Value for Conflict Resolution of a General Discipline of International Relations”. This well-known international specialist was, during the 1920s and 1930s, a member of a group of scholars advocating the development of a « science » of politics assembled at the University of Chicago under the tutelage of Charles E. Merriam, who chaired the Department of Political Science from 1923 to 1940. Wright was the author of a classic two-volume book about international conflict, *A Study of War*. The book was the result of a 16-year-project (from 1926 to 1942) which gathered contributions from faculty members of the political science, history, anthropology and economics departments of the University of Chicago. Because of his involvement with both the scientific turn of the “Chicago School of Political Science” and the peace research movement, Wright was asked to serve as a “godfather” for this new journal.<sup>23</sup>

The emergence of the group of Michigan in the late 1950s really resulted from the convergence of two lines of interest: the promotion of peace and the applicability of the “scientific outlook” to international relations (IR). More problematic, the members of the group did not share the same definition for the characteristics of a “science of war and peace”. Some hoped that a single theory could encompass all the others to analyze the problem of international wars. The incipient General Systems Theory provided them with some clues to explore the problem of conflict as a general characteristic of all kind of systems.

In the Cold War era, the idea of a science integrating insights from biology, psychology and other social sciences to study human behavior and specially conflict gained ground. This was a prime characteristic of the General Systems Theory (GST) formulated in the 1920s by von Bertalanffy. He described GST as a formal logic-mathematical field, devoted to the

formulation and derivation of principles that held for systems in general and did not depend upon the particular system being studied. As we have seen, Boulding and Rapoport were very much influenced by this theory through their collaboration with Bertalanffy in the CASBS. In 1956, Rapoport and Boulding had founded the *Society for General Systems Research* at the University of Michigan and the Mental Health Research Institute became the institutional center for this society.<sup>24</sup> This affiliation had an important influence in the creation of the *JCR*. As a contributor of the *JCR* would state much later “[t]he general systems idea was just as suspect in the Psychiatry Department and Medical School as peace research was in Political Science or the College (...) Thus, Rapoport and I (and Deutsch, on monthly visits from Harvard) were the bridge between these two off-beat Centers, both of which existed to a large extent because of Kenneth's fertile imagination, prodigious scholarship, and moral commitment.” (Singer 1998) Boulding and Rapoport thought that GST could be applied to IR if the world was considered as a system composed of interrelated nations. They also believed that conflict was a feature shared by all kinds of systems (cells, individuals, groups, countries and the like).

This new theory allowed them to combine their passion for science and their commitment to the progress of peace and ethics. Von Bertalanffy had a humanistic and philosophical approach to systems analysis very different from the technological and management-oriented approach of many Randomites. Rapoport exposed explicitly the moral implications of GST: “Since science itself has a unified outlook, it tends to unify outlooks and to harmonize goals among people of most diverse cultural backgrounds (...)” (Rapoport 1960: viii) In the same perspective, Boulding who linked the risk of national social disintegration and international conflict with the insufficient integration of the social sciences, saw the GST as a remarkable perspective.<sup>25</sup>

Based on the theoretical approach provided by the GST, Boulding elaborated what he called a “general theory of social dynamics,” and he identified three types of systems composing society: the “threat system” described in his book *Conflict and Defense* (1962), the “exchange system” represented by *Economic Analysis* (1941) and the “integrative system” described in his work about “grants economy”. The structure of *Conflict and Defense*, the book published by Kenneth Boulding in 1962, corresponded exactly to his description of general systems theory “as a skeleton of science”: Conflicts could be found at several levels in systems:

Systems	Static	Dynamic	Cybernetic	Open	Genetic-societal	Animal	Human	Symbolic	Transcendental
Chapter	1	2	3				5	6-13	14

Boulding claimed that GST permitted to envision international relations in a systems perspective instead of considering one nation or the other point of view. IR specialists should examine all the parties’ points of view, one after the other. This perspective postulated the interdependence between different countries and the continuity between domestic and foreign policy. Consequently, domestic conflicts could have “international ramifications in other parts of the world.” And conversely, international struggles could affect national politics. (Kelman 1991: 248)

The systems perspective also established that some characteristics of conflict relations could apply to conflicts at different levels. “Richardson's equations” (named after Lewis Fry Richardson) were used to describe arm races and duopolies. Epidemiological models suited animals and governments.

Rapoport was even more concerned with the mathematical side of GST than Boulding. He hoped that a single set of simple mathematical laws and concepts could rule all the systems and that all the natural and social sciences could be joined together to make a larger

overarching pattern. He was persuaded that the application of mathematical and physical models to the study of conflict could bring many insights. For him, the role of “social physicists” was to remind the political historian and the social moralist that “that there *may* be social forces operating which are as blind and as powerful as the atmospheric factors which determine the weather. It is not enough to talk about such forces. They ought to be sought out and studied by whatever tools are available.” (Rapoport 1960:358)

Here again, Schelling was an exception. He did not at all share the idea that there could be a unified “science of peace”. In his own words, “I personally don't care much for the notion of the science of peace. Maybe one could say sciences of peace. (...) Good theory usually means working with a small and manageable number of considerations rather than pouring everything relevant into a mass of analysis. (...) I think that one has to expect that in looking at a problem like peace, one expects that different parts of the problem tend to be handled by separate techniques, separate talents, separate ways of arriving at evidence. In that respect I would say that if it were a science of peace, it would essentially be a kind of administrative, diplomatic, policy-making, decision-making science that used various underlying bodies of theory, bodies of science.”<sup>26</sup>

And indeed, in spite of Boulding's and Rapoport's effort to conciliate different social and natural sciences, most of members of the group (including Boulding himself) remained constrained by disciplinary boundaries. Many of them were satisfied just to export the specific tools of their disciplines to the study of international struggles.

As a sociologist, Angell thought that (national and international) moral disintegration (main cause of conflict situations) could be scientifically studied through quantification and the construction of indexes. He applied index of “moral integration” he had used for the study of American society to the analysis of IR. In fact, after WWII, Angell, director of the

Department of Sociology at Michigan from 1940 to 1952, was interested in the issue of “moral integration” in American big cities. He developed a series of studies in collaboration with the sociologists Rensis Lickert and Eugene Jacobson at the *Survey Research Center* in 1947.<sup>29</sup> In the resulting paper (published four years later as a supplement to the *American Journal of Sociology*), he defined the concept of “moral integration” as “the degree to which the areas of possible friction or conflict within the group are covered by a set of moral norms that are accepted and implemented by all.”(Angell 1951:115) In a very durkheimian perspective, he tried to explain “anomic” situations in American large cities. He assumed that, in United States urban areas, “the moral norms forbidding murder, robbery and burglary and those favoring mutual aid among citizens were constant.” He measured the strength of these norms in controlling behavior by an index of crime and an index of welfare effort. The index of crime was a negative index, indicating the frequency of deviation from well-established norms. The index of welfare effort represented “the sacrifice that the people are willing to make for the welfare of others. One of the reasons for such sacrifice certainly is that the givers believe it will redound to the benefit of the whole system. They are thus taking collective moral initiative.”(Angell 1959:297-98) He then calculated an integration index from the indexes of crime and welfare effort. Two variables, namely, the ethnic heterogeneity of the population and the rate of in-and-out residential mobility, alone accounted for more than three-fifths of the variation in integration in American large cities. In the late 1940s, Angell’s interest for international relations grew and he tried to apply his rather structural-functionalist approach to international conflict. From 1947 to 1955, the *Department of Social Sciences of Unesco* sponsored a series of studies on conflict. This project, known as the “Tensions Project”, gathered an important number of researchers, especially of American researchers. Angell was one of the four directors of this Project from September 1949 to September 1950.<sup>28</sup> This project appealed to Angell not only for its emphasis on peace but also for its

international dimension. The common theme relating his previous work on urban integration and his actual work on conflict resolution was the emphasis on solidarity among social groups. He developed some kind of consensus-theory (subsequent of Durkheim), in which integration of social order was the result of a common will, compounded of all individual wills. The center of gravity of his work shifted from moral integration in American society toward international conflict when he extended his theory to solidarity between countries and the constitution of an international moral web of values. “Actually, an elaborate web of relationships is being woven among the peoples of the world and the two blocs are entangled in the web. We cannot be content merely to have a strong nation and a strong bloc. We must also be concerned with the nature of the enveloping web. We must identify the texture that will be satisfactory to us, and try to see that it comes into being.” (Angell 1962:119)<sup>29</sup>

Another way of “doing science” was putting an emphasis upon experimental evidence. At Yale, Kelman was in contact with mainstream social psychology (called at the time: “psychological social psychology” (PSP)). It focused on individual psychological processes like learning, perception, motivation and attitude formation. Methodologically, PSP embodied the tradition of experimental, behavioristic research which had increasingly characterized psychology since the 1920s. As Kelman recalls: “Yale at the time appeared to be a bit too psychological in its social psychology, too behavioristic in its theoretical orientation, too exclusively experimental in its methodological tastes, too “basic science” in its agenda for someone like me.” (Kelman 2004: 241) Kelman was especially interested in the measurement of the changes of attitudinal variables relevant to international affairs such as individual attitudes towards one's nation, public opinion and elites' attitudes. His use of experimental methods gave a “scientific” flavor to his work.

In spite of his commitment with the development of GST, Boulding remained convinced of the usefulness of economics as a discipline. He regarded economics as a model for the development of political science. He thought of the “new science of war and peace” as a way of bridging the gap between the traditional social sciences and the new methods of economics. As we have already said, Boulding distinguished three types of social systems: “economic systems”, “integrative systems” and “threat systems”. Each of them was based in an academic discipline and a form of relationship: economics and exchange were the basis for economic systems, sociology and “meeting of minds” for “integrative systems” and politics and threat for “threat systems”. In 1963, Boulding justified his interest for politics by giving to threat in political systems the same status as to exchange in economic systems. “Let us then look at the threat as an abstract human relationship, as an economist might look at exchange, and consider how this might be used as an organizer of society.” The economist acquired the power to look at international relations with the same tools and skills as those he used to study competition in the markets. And Boulding asserted: “there seems to me to be no reason why a science of threat systems should not be developed at least as elaborately as economics builds from exchange.” He compared threat systems and economic systems, both had a “geographical structure which is imposed on them by the fact that threats, like commodities, have a cost of transport. Because of this there are many striking parallels (...) between the competition of states by means of threats and the competition of firms by means of exchange.” (Boulding, 1963:430-31) This comparison would ultimately justify economists’ intrusion in the realm of political science.

In his paper “Contributions of economics to the theory of conflict” published in May 1955 in the *Bulletin*, Boulding considered “Edgeworth’s box” and Pareto’s exchange theory as a basis for a static model of conflict. He conflated the study of the “Edgeworth Box” and the “theory of negotiation” to represent spatially conflict behavior. In his analysis, the contract

curve became a “conflict curve”. From conflict points, “no move is possible that makes both parties better off; all moves make at least one party worse off. These points constitute the conflict set.” From trading points, “a movement can be made that makes each party better off in his own estimation.” According to Boulding, the analysis of exchange could be applicable to « any situation in which something is given up in return for something else. It applies for instance to a bargaining situation, where the exchangeables are not physical commodities but clauses in a union contract, or to an international treaty, or even to quite imponderable understandings and agreements. » (p.17) Boulding stressed the spatial incompatibility of the parties to a conflict.

Boulding also exposed « dynamic models of conflict », he called: « Richardson's processes ». They described the hostility between two countries expressed in terms of two differential equations. The justification for these equations was that, in a state of hostility, the level of a rival's armaments stimulates arms building. These processes were considered by Boulding as similar to arms race processes and also to price wars. He compared Richardson's processes with « the reaction process in the theory of oligopoly, especially the theory of the price war. » (Boulding 1962:25)

Finally, he studied the conditions under which one state can conquer or overcome another. He called this theory, « the theory of viability ». This theory applied « wherever we have a situation of two or more parties separated by some kind of space, whether this is physical, social or organizational, and where the parties are competing for occupancy of the space in the sense that, if one party occupies it, the other cannot. Thus, nations compete for territory and areas of influence: this is the basic concept of international relations » (Boulding 1962, p.78) Each party was supposed to be at his maximum power at home, but its competitive power declined the farther from home he operates. The amount by which the



competitive power of a party diminished per mile movement away from home was the *loss-of-power gradient*. This *loss-of-power gradient* corresponded to transportation costs.

Models of Conflict	Static Models	Dynamic Models	Theory of Viability
Economic Models	Exchange theory	Cournot's oligopoly model	Hotelling's model of spatial competition

From what we have said, it would be misleading to think that the members of the group were guided by a common theoretical framework. They elaborated many theories of conflict. As a matter of fact, their “new science” was based on knowledge arising from the use of psychological social psychology methods, quantitative sociology and exchange and industrial economics.

#### 4. A Dissident Perspective for Game Theory

In the early 1960, game theory appeared as a potential unifying theory for conflict resolution. The publication of three books: *The Strategy of Conflict* (1960) by Schelling, *Conflict and Defense* (1962) by Boulding, and *Fights, Games and Debates* (1962) by Rapoport started a series of articles devoted to the theory of conflict and bargaining in the JCR. A regular section on gaming began in 1962 edited by Rapoport. In the following years, the Journal witnessed the emergence of a dissident perspective for game theory based on the empirical data extracted from the work of psychologists.

##### *Critiques to 'classical' game theory*

In their foundational book, *Games and Decision*, Luce and Raiffa gave the most popular and accurate review of the state of game theory since the publication of 1944 von Neumann and Morgenstern book, *Theory of Games and Economic Behavior*. Luce and Raiffa emphasized the work on two-person zero-sum non-cooperative games, i.e. games which involved two players with diametrically opposed interests and no preplay communication at

all (zero-sum games are a type of constant-sum games). But, a whole chapter was also dedicated to two-person non-zero-sum non-cooperative games. This textbook also addressed the issue of two-person cooperative games in the study of negotiations. However, in scattered remarks all along the book, Luce and Raiffa expressed their frustration with the theory as formulated by von Neumann and Morgenstern because descriptive sociological or psychological concepts were insufficient to enunciate a subtle model of conflict behavior.”

Rapoport acknowledged the influence of this book, “[m]y particular indebtedness is to the profoundly insightful critical survey of Luce and Raiffa. It is primarily their book which convinced me that game theory is more important because of its failures than because of its mathematical successes. For it is the shortcomings of game theory (as originally formulated) which force the consideration of the role of ethics, of the dynamics of social structure, and individual psychology in situations of conflict.” (Rapoport 1960: xii). In a similar way, Luce and Raiffa’s book completely shifted Schelling’s conception of strategy and games. In Schelling’s own words: “I can now, I think, make the connection between what I’ve been trying to do and what game theory has done much more intelligently.”

Boulding knew very little formal game theory. At the time, most economists had inadequate mathematical training to appreciate the advances of game theory. Schelling had been in contact with game theory at Rand Corporation. He had assimilated many of the potential insights of the use of “game theoretical reasoning” for the study of conflict situations, but he was not very versed in formal game theory. Rapoport was thoroughly acquainted with formal theory. He was also skilled in theoretical and experimental psychology.

In spite of their different skills as game theorists, the three of them criticized “mainstream game theory”. They all agreed to say that game theory was too focused on two-

person zero-sum non-cooperative games. According to them, these pure competitive games were not a realist abstraction of most political, social or economic conflicts. These conflicts could be more precisely described by using two-person non-zero-sum non-cooperative games (also called variable sum games).

However, one of the reasons why they depicted game theory as devoid of analysis of two-person non-zero-sum non-cooperative games might partly lie in a formal characteristic of the game. One of the characteristics of the non-strictly competitive game theory was that it lacked a “solution” concept as “elegant” as the “solution” concept in the strictly competitive game theory was (i.e. maximin and minimax strategies)<sup>22</sup>. As a matter of fact, the study of two-person non-zero-sum non-cooperative games implied the use of a less general equilibrium concept (“the Nash Equilibrium”) and the resort to psychological concepts. The necessity of using extra-theoretic arguments and specially psychology might have appealed to Rapoport, Boulding and Schelling, who decided to put non-zero-sum games at the core of their theory. Since 1956, through the experiments he conducted at the *Mental Health Research Institute*, Rapoport had accumulated a lot of psychological experimental evidence concerning the behavior of individuals facing a situation in which the opponent was, at the same time, “part friend, part foe,” such as the Prisoner's Dilemma game. Schelling too was very much interested in “experimental evidence”. At Rand, he was interested in role-playing political-military games. Boulding's interest in theoretical psychology can be traced to his work on the integration of social sciences within the more general framework of GST. The specific characteristic of non-zero-sum games (the lack of a general “solution” concept) led to the consideration of psychological factors in such games. Rapoport, Schelling (and Boulding with his own particular style) seized the opportunity to develop their own definition of game theory.

### ***Reconstructing game theory***

All of them intended to re-build game theory. All of them wrote articles and books describing the “re-orientation of game theory” from two-person zero-sum games to two-person non-zero-sum ones. But the similarities between them stopped there. Rapoport's and Boulding's conception of game theory partly resulted from their pacifist and political convictions. Schelling's one resulted from his interest in military affairs.

Schelling's book, *The Strategy of Conflict*, aimed at enlarging the scope of classical game-theory too focused on two-persons zero-sum games and at formulating a “theory of interdependent decisions” which introduced commitments, threats and promises in the context of international relations in the nuclear age. He noted that, as traditional game theory did not have a specific method to treat non-zero sum games, game theorists applied to them “methods and concepts that proved successful in studying the strategy of pure conflict.” (Schelling, 1960, pp.83-84) His book aimed at showing that zero-sum games were “limiting cases” rather than “points of departure”. He pretended to extend the theory of games along two lines. “One is to identify the perceptual and suggestive element in the formation of mutually consistent expectations. The other (...) is to identify some of the basic “moves” that may occur in actual games of strategy, and the structural elements that the moves depend on; it involves such concepts as “threat,” “enforcement,” and the capacity to communicate or to destroy communication.” (Schelling 1960: 83-4)

In his book *Fights, Games and Debates*, Rapoport wanted to include in game theory not only psychological considerations but also moral ones. The guiding idea of Rapoport's work during his whole life was to prove that morality could prevent the failures of individual rationality. He proposed a reformulation of game theory introducing ethical concepts such as “empathetic understanding,” “good will” or “collective rationality.” His political convictions,

his pacifism as well as his Russian background might be partly the reasons for his interest in morality. In his book, Rapoport established a hierarchy among three modes of conflict: “fights” whose objectives are “to harm, destroy, subdue, or drive away the opponent”, “games” whose objectives are “to outwit the opponent”, and “debates” whose objective are “to convince” the opponent. (Rapoport 1960: viii-ix) Understanding these forms of conflict could help to turn a fight into a game or a game into a debate, the “most civilized and productive conflict”. After working out a general theory of debate, he criticized game theory because it took for granted the meaning of rationality and considered the value-set as given.

In *Conflict and Defense*, Boulding criticized the absence of concepts such as “love, affection, empathy and community of feelings” in traditional game theory. He thought that the world of game theorists was too simple. “Because most games in the real world are, in fact, positive-sum and variable-sum, this means that the very elaborate theory of the constant-sum game has only limited applicability to most problems of conflict.” (Boulding, 1960: 49) He also thought that the applicability of game theory was reduced because of its abstraction. “It is perhaps true at the moment that game theory operates at a level of abstraction that is a little too high to be immediately fruitful in practical conclusions.” (Boulding, 1960: 57)

### ***The vision of the Enemy***

The main reason why their conception of game theory diverged from more traditional one was that their view of the enemy was quite different. Peter Galison (1994) suggests that, during WWII, the dehumanization of the opponents through concomitant stereotypes and metaphors prevented to see enemies as real people. Enemies were then considered as vermin to eradicate, as targets to bomb or as a cold-blooded machines to outwit. After the war, the apprehension of the enemy was much more complex. Even if the myth of the machinelike opponent was still at stake (see Mirowski, 2001), some game theorist began to think of the

enemy as a rational man with “pink-tinted glasses.” (See Ghamari-Tabrizi, 2000) Game theorists were ready to assume that opponents (and more precisely the Soviets) were rational men, but they did not pay much attention to communication issues during the game. Schelling, like some others defense strategists adopted a different perspective. In the mid1950s, tired of the inefficient strategy of “massive retaliation”, some specialist advocated the use of “limited wars” which enabled the US to avoid the dilemma of having to choose between a nuclear war and retreat. (Kaufmann 1956, Brodie 1959) Henry Kissinger was one of the first strategists to argue that “[a]s the power of modern weapons grows, the threat of all-out war loses its credibility and therefore its political effectiveness. Our capacity for massive retaliation did not avert the Korean War, the loss of northern Indo-China, the Soviet-Egyptian arms deal, or the Suez crisis.” (Kissinger 1957: 134) Schelling followed suit. He developed the revolutionary idea that limited war was a “tacit bargaining situation» which required an agreement concerning the “limits.” This agreement was to be found in “focal points”.

Schelling distinguished several types of games associated with different ways of « communicating » with the enemy (and therefore of trying to understand him.) Focal points as solutions for bargaining situations were for sure one of the most important finding of *The Strategy of Conflict*. And yet, in the book, Schelling mentioned other “psychic” ways of “communicating with the opponent.”

zero-sum	“is to avoid any meetings of minds, even an inadvertent one.” (Schelling 1960:96)
pure-coordination	“through some imaginative process of introspection.”( Schelling 1960:96)
non-zero-sum noncooperative	“patterns of behavior. ” (Schelling 1960:104)  “some spark of recognition must pass between the players.” (Schelling 1960:163)
non-zero-sum cooperative	“patters of action may speak louder than words.” (Schelling 1960:107)
tacit bargaining with common	Focal Points (Schelling 1960:57)

interests	
tacit bargaining with divergent interests	Focal Points (Schelling 1960:59)
explicit bargaining situations	Speech + focal points (Schelling 1960:69-70)

What first strikes in Schelling's conception of communication is the little “real communication” it contains. Even when speech can be used (like in explicit bargaining situations), focal points are required to precipitate an ultimate agreement. (Schelling 1960: 67-9)

It is also noticeable that the definition of focal points is blurry and changing. First, he gives a rather physical definition of focal points whose main characteristic is a kind of “prominence or conspicuousness” which might depend on “analogy, precedent, accidental arrangement, symmetry, aesthetic or geometric configuration.” Even if he warns that focal points depend also on the psychological characteristics of the players, the examples of focal points he takes “bridges,” “crossroads,” and “houses” seem to indicate the predominance of spatial and physical solutions. (Schelling 1960: 57) Later in the book, focal points become “adventitious clues” and “incidental details” (Schelling 1960: 67). Schelling gradually moves from a self-evident material representation of focal points to the description of the psychic mechanisms leading to the convergence of participants’ expectations. “The final outcome must be a point from which neither expects the other to retreat; yet the main ingredient of this expectation is what one thinks the other expects the first to expect and so on. Somehow, out of this fluid and indeterminate situation that seemingly provides no logical reasons for anybody to expect anything except what he expects to be expected to expect, a decision is reached. These infinitely reflexive expectations must somehow converge on a single point, at which each expects the other not to expect to be expected to retreat.” (Schelling 1960: 70) This “dematerialization” of the focal point concept reflects partly the evolution of wars itself.

Nuclear weapons completely modified the conception of conflicts. Nuclear wars were not fought in battlefields only in participants' minds.

Knowing this, Schelling argued that communication between participants could take very different forms. This "subtle psychic communication" could lead ultimately to a "meeting of the minds" between the players. We can find at least 4 different ways of communicating with the enemy including focal points.

First, introspection processes could be found in pure cooperative games. These introspection mechanisms took place in the players' minds. These processes were essentially different from strictly material focal points which were to be found in the external context through some historical, cultural or mathematical salience of the solution.

Second, Schelling argued that "in mixed-motive game, two or more centers of consciousness are dependent on each other in an essential way. Something has to be communicated or at least some spark of recognition must pass between the players." (Schelling 1960:163) Schelling compared the intellectual process taking place in mixed motive games with the psychical transit of flows of information between centers of consciousness. Nothing prevents the reader from interpreting this as if there was a kind of "telepathic message" between the two opponents. This impression is reinforced by Schelling's description of the player's objective in the zero-sum games, i.e. "to avoid any meeting of the minds, even an inadvertent one."<sup>4</sup> The player's mind would act as some kind of radio transmitter whose messages could be intercepted by the enemy.

Last, Schelling explained that in some cases, patterns of behavior and actions could serve as ways of communicating one's intentions to the enemy.



Rapoport recognized that Schelling’s book was central to understand the introduction of communication issues in game theory. However, for Rapoport, the communication of the opponents exposed by Schelling was not a true communication. If Schelling had focused on psychological considerations, Rapoport emphasized the importance of moral arguments. He emphasized the role of the “mutuality of understanding” between enemies. According to him, in real life, players could assume “social values” and “similarity”. He took the example of the Prisoner's Dilemma game in which the Nash equilibrium (the rational equilibrium point) is different from the optimum point.

	b <sub>1</sub> (confess)	b <sub>2</sub> (cooperate)
a <sub>1</sub> (confess)	-5,-5 <i>NE</i>	10,-10
a <sub>2</sub> (cooperate)	-10,10	5,5 <i>O</i>

For Rapoport, traditional game theory privileged Nash equilibrium because it ascribed to the opponent only “partial rationality”. The opponent was rational enough to think that if he cooperated while the other player confessed, he will go to jail and therefore he should himself confess. However, the opponent was not sufficiently rational to conclude that the other player had *also* decided to confess, convinced that the opponent would do the same thing. The opponent was also insufficiently rational to see that both players could be better off if they both cooperated, and to understand that the other player could also see that cooperation was the best outcome.

To solve this problem, Rapoport submitted a new principle: “the assumption of similarity,” which said that “it is not enough to say that you must ascribe to the opponent a psyche similar to your own. You must do so *all the way*, and not just part of the way.” (Rapoport 1961: 216) This principle suggested that the choice of the optimum point was as “logic” as the Nash equilibrium. Implicit in Rapoport’s message was the idea that the cultivation of self-discovery promoted sympathetic feelings: “we need to probe deeply within

ourselves to discover the profound similarities between us and them.” (Anatol Rapoport, 1961: 217) Therefore morality could temper the negative outcomes of choices emanating from pure reason. For Rapoport, the assumption of a player behaving morally was not more arbitrary than the assumption of a player behaving in an egoist way.

“Instead of taking as the basis of calculations the question “Where am I better off?” suppose each prisoner starts with the following basic assumption: “My partner is like me. Therefore he is likely to act like me. If I conclude that I should confess, he will probably conclude the same. If I conclude that I should not confess, this is the way he probably thinks. In the first case, we both get -5; in the second case, we both get +5. This indicates that I personally benefit by not confessing.” (Rapoport 1960: 175) Rapoport recognized that game theories were not yet accustomed to that form of reasoning. “We have difficulties in making social values the fundamental starting point of our definition of rationality. But the failure to do so, as in the case when rationality is defined only in terms of self-interest, leads to the anomalous conclusion that two “irrational” individuals will do better than two “rational” ones!” (Rapoport 1960: 176)

Rapoport was in an auspicious position to develop the “assumption of similarity” through his acquaintance with the experimental results of the game. Experiments with the Iterated Prisoner's Dilemma conducted at the Mental Health Research Institute led him to the conclusion that rivals did cooperate when the game was repeated more than once. For the author, the study of these dilemma games could provide significant insights to solve the conflict between the US and the USSR, understood as a problem opposing national interests to human welfare.

Rapoport’s ideas about the identification with the opponents were based on moral convictions. “The recommendation of the assumption of similarity is based not so much on

the conventional concept of rationality as on the notion that one must do “the proper thing.” One does the “proper thing” *regardless* of consequences and derives satisfaction from *having done* the proper thing. The proper thing can also be defined in terms of the Kantian prescription: Act in such a way that if every one acted the same way, you yourself would benefit therefrom. (...) In situations exemplified by the Prisoner's Dilemma, the individuals *themselves* gain if they follow the Kantian prescript.” (Rapoport 1960: 369-70) This turned a game of conflicting interests such as the Prisoner's Dilemma into a game of potential cooperation, in which the choice that maximized the joint payoff and therefore the welfare of all individuals was sought as the most rational outcome. Rapoport emphasized the situations in which rationality including good-will could be socially superior to short-sighted individual rationality.

Boulding named the Prisoner's Dilemma “the problem of *perverse dynamics* in social life.” (Boulding 1962: 49) He insisted on the moral problem underlying the dilemma. In moral terms, “if both parties are honest, both are better off than if both are thieves, but that, if one is a thief, this forces the other to be a thief too unless the matrix can be changed by the introduction of police to penalize the rewards of one-sided theft.” (Boulding 1962: 51) In Boulding's language, acting rationally equated to being a thief or behaving shortsightedly and, therefore, policemen were welcome as “organizational defenses against shortsightedness.” (Boulding 1962: 50) Boulding's arguments were not as powerful as Rapoport's but they both shared the same taste for moral values.

### ***Reception***

At the time, the reception of the books was very different. Well-known game theorists acknowledged that Rapoport had expounded game theoretical concepts “in simple and clear manners.” (Morgenstern 1961:103) and that his book was “by far, the best existing

popularization of game theory.” (Aumann 1962: 675). In his review of the book, Morgenstern concluded: “In summa, the author’s knowledge of the meaning and role of a mathematical model and his realization of the power of an important theorem such as the minimax theorem distinguishes him from other critics, such as Schelling, who have no equivalent mathematical experience.” (Morgenstern, 1961: 104)

At the publication of *The Strategy of Conflict*, some sociologists (Charles McClelland 1962, Jessie Bernard 1962) considered the book as a truly new theory of social conflict, whereas prominent game theorists had mixed feelings about it. Oskar Morgenstern largely dismissed the book and was merciless with the “misuse” of the theory of games: “one is puzzled nevertheless and cannot avoid the conclusion that Schelling has not gone as deeply into the theory he so severely criticizes and aims at “improving,” as both efforts would demand.” (Morgenstern, 1961:105) Though Morgenstern recognized the importance of the subject, he denounced many misunderstandings and misstatements. In the same spirit, Duncan Luce acknowledged the importance of Schelling’s book in the area of psychology where “factors not now captured in the formal theories are important and sometimes controlling features of behavior” (Luce, 1961: 486), but, he denounced, some of the examples which “seem to be infused with a form of rationalistic paranoia.” (Luce, 1961:486) Martin Shubik noted that “this book would have been a much stronger contribution had most of the references to game theory been deleted. Although the formal structure of that topic could have been considerable assistance to the type of analysis presented by Schelling, there is little evidence that it has been used.” (Shubik, 1961:502) Even Rapoport, who wrote one of the keenest reviews, was convinced that Schelling’s book was not a contribution to game theory. (Rapoport 1961:434)

These critiques might suggest that Schelling's rejection of mathematical solutions for bargaining games and his use of extra-theoretical arguments were interpreted as an attack by mathematical economists and formal game theorists. Schelling used some game theoretical concepts to construct a theory of conflict but he was not a game theorist properly speaking: he gave no formal demonstrations of his ideas.

Rapoport's book, which was much more revolutionary and ideologically radical, paradoxically received encouraging critiques partly because his handling of game theory was mathematically correct and partly because he favored the introduction of the mathematical approach in behavioral models.

*Conflict and Defense* was essentially reviewed by sociologists and economists. Many sociologists became infatuated with the book. McClelland (1962) maintained it was a great contribution for sociology. Etzioni (1963) recognized that it developed a 'Keynesian theory of international relations'. On the whole, all recommended the reading of the book even if as Johan Galtung (1964) asserted "Boulding the economist at times sounds strange as a sociologist" because of the lack of sociological description of the society (status, role, structure.) Gordon Tullock (1962) was enthusiastic about the use of economic methods in the study of international situations. James Meade (1963) recognized that Boulding's contribution to game theory was too slight. The only representatives of game theory among the reviewers were John Harsanyi (1962b) and Schelling (1963). Harsanyi briefly (and mildly) criticized Boulding's discussion of shortsighted and longsighted behavior in conflict situations (i.e. his chapter on game theory) but, all in all, he praised the book as being of paramount importance to understand social conflicts. For him, the tools exposed in the book would be very useful for sociologists. In his long (23 pages) review, Schelling compared the book to *Fights, Games and Debates* and put stress on the fact that game theory was not the hunting reserve for

military strategists only, “it could infect the angels too and that some were in fairly high fever. (...)One can nowhere find as explicit use of game theory or any comparably abstract theory in the published works of Herman Kahn, Albert Wohlstetter, or even –in his work on military policy- Oskar Morgenstern, as in the books of Boulding and Rapoport” (Schelling, 1963: 468-469). In conclusion, all were ready to acknowledge the tremendously new insights provided by the book, but some quibbled about the scientific rigor of this contribution.

## **5. Summary and Concluding Remarks**

This paper, based exclusively on the history of the constitution of the “Group of Michigan”, may enhance our understanding of the evolution of conflict theory in Cold War America. It is also meaningful as it describes the relation between IR and other social sciences.

We show that, despite the diversity and sometimes even the incongruity of their perspectives, the members of the “group of Michigan” did exhibit a similarity of convictions about the evil consequences of wars and a strong faith in scientific methods. They played a central role in sustaining conflict resolution studies through the second half of the 20th century and establishing them as a discipline. They had from the very beginning difficulties in finding institutional support and financial backing. As a consequence, at the beginning, they were willing to accept unorthodox collaboration and they probably accepted more than scientific rigor permitted. Notwithstanding this faltering start, the beginning of the *JCR* produced in few years a flow of very relevant articles.

In the early 1960s, the publication of *Conflict and Defense, Fights, Games and Debates* and *The Strategy of Conflict* provided a lens through which to analyze a particular group of American researchers challenging the game-theoretical mainstream vision of conflict.

Depending on their respective position *vis-à-vis* the military, the reforms proposed by Schelling, Boulding and Rapoport were more or less revolutionary. Schelling emphasized the psychological aspects of games, Boulding and Rapoport stressed the importance of morality. Their three really different approaches would not be surprising if these game theorists were not collaborating in the same project. This fact might suggest that some Randomites were willing to communicate with researchers with very different points of view. Conversely, peace researchers were open-minded enough to accept this exchange. The reception of the three books might reinforce this impression.

## Notes

[1](#) For an account of US foreign policy in the 1950s, see, for example, Saunders 1985 and Melanson & Mayers 1987, Tudda 2005. Several histories focus on the separation of IR from political science. Some examples include Fox 1949, Pfaltzgraff 1971, Palmer 1980 and Farr 2003. For the relation between IR and the peace research movement see Burton 1964, Fink 1972 and Boulding 1978. For the influence of *Games and Decisions* in social sciences, see, for example O'Rand 1992.

[2](#) See, for example, Harsanyi, 1962a. For internal accounts on the history of the Journal of Conflict Resolution, see Kelman 1981, Kelman 1991, Kerman 1974, Converse 1968 and Harry & Modell 1991.

[3](#) See Kelman 1981, Kelman 1991.

[4](#) Pamphlet of the Research Exchange on the Prevention of War "Publication- Journal of Conflict Resolution-Establishment 1955-1957" Center for Research on Conflict Resolution Box 8, Bentley Historical Library, Michigan.

[5](#) For biographical details of Boulding's life, see, for example, Kerman 1974, Rapoport 1997, Mott 2000 and Fontaine 2006.

[6](#) For the theoretical links between peace research and general systems theory, see Hammond 2003. For biographical information about Rapoport, see his autobiography, Rapoport 2000.

[7](#) Box 5, Folder «Correspondence 1961-1965, Alphabetical R,» CRCR (University of Michigan) records, 1954-1972. See some of Richardson's books, Richardson 1960a and Richardson 1960b.

[8](#) See "The Economics Department of the University of Michigan: A Centennial Retrospective," by Marjorie C. Brazer, pp. 119-121, "Miscellanea", The University of Michigan Department of Economics Box 5, Bentley Historical Library.

[9](#) For biographical information about Angell, see Ness 1985.

[10](#) Moore, Margaret; "New Journal to Study International Relations," *Michigan Daily*, May, 9, 1959.

[11](#) About the relation between Boulding and Pollock, Singer recalled "Pollock not only considered himself far more expert on matters of war and peace than most mortals, but was outraged by this brash pacifist economist who challenged U.S. policies in regard to interventions in Central America and the Middle East, astronomical military spending, nuclear weapons testing, and of course, the re-arming of Germany. It wasn't only a clash of views, but of styles as well; my chairman was proper, dapper, sophisticated, authoritarian, bigoted, and ultra-conservative, whereas Kenneth was breezy, ruffled, often child-like in his innocence, indifferent to bourgeois tastes, irreverent egalitarian, an utterly unprejudiced citizen of the world, and remarkably non-doctrinaire." (Singer, 1998)

[12](#) Thomas C. Schelling to Robert Hefner, September 24, 1959, "Conferences Center for Research on Conflict Resolution: Conference October 1959", *Center for Conflict Resolution*, Box 2.

Traditional journals about International Relations were Foreign Affairs and World Politics.

[13](#) This information can be found in Harry & Modell 1991. The authors also note that in the first four volumes of the JCR, 12 authors were University of Michigan faculty. This compares with 8 from Harvard, 6 from Ohio State, 5 from Princeton, 5 from Yale, 4 from Chicago, and 3 each from Northwestern, Stanford and the University of Washington.

[14](#) Thomas C. Schelling, "An Essay on Bargaining," *American Economic Review*, Vol. XLVI, No.3, (June 1956).



[15](#) Thomas Schelling, "The Strategy of Conflict: Prospectus for a Reorientation of Game Theory," *Journal of Conflict Resolution*, Vol. II, No. 3, (September 1958).

[16](#) Personal email, 22/11/2006. Schelling had already published a book on macroeconomics.

[17](#) See Box 1, Folder "Administrative Center Associates," *Center for Research on Conflict Resolution (University of Michigan) records, 1954-1972*, Bentley Historical Library.

[18](#) Thomas C. Schelling to Robert C. Angell, November, 23, 1959, Box 1, Folder "Administrative Center Associates," *Center for Research on Conflict Resolution (University of Michigan) records, 1954-1972*, Bentley Historical Library.

[19](#) Barth to Osborn, January, 25, 1962, "Correspondence Barth-O: 1957-1967," CRCR, BHL.

[20](#) For an historical account of pacifism and of the peace movement in the 1950s, see Carroll 2005 and Ceadel 2003.

[21](#) "Editorial," *Journal of Conflict Resolution*, 1.1:2.

[22](#) For the « scientific turn » in social sciences, see Ross 1991: 257-300.

[23](#) About the construction of the Chicago School of Political Science, see Heaney & Hansen 2006.

[24](#) Other researchers such as Von Bertalanffy, Margaret Mead, James Grier Miller and Ralph Gerard also participated in the establishment of the society.

[25](#) See Fontaine 2006.

[26](#) Transcribed Interview to Thomas Schelling. Box 9, Folder « Publicity Radio Interviews WUOM 1961, » Center For Research on Conflict Resolution, BHL.

[27](#) Angell played an essential role in the development of the *Survey Research Center* and of the *Research Center for Group Dynamics*. Two research centers promoting statistical and quantitative techniques which were subsumed in 1948 under the umbrella of the *Institute for Social Research*.

[28](#) The precedent directors of the Tensions Projects were the social psychologists Hadley Cantril (March 1948- August 1948) and Otto Klineberg (September 1948-September 1949). Angell was succeeded by the Swedish sociologist and future Peace Nobel Prize winner Alva Myrdal.

[29](#) As a director, he constructed an international network of sociologists and he managed to have famous American sociologists such as Likert, Jacobson, Stuart Dodd and Louis Wirth interacting with some of the most important representatives of French sociology at the time like Georges Gurvitch, Georges Friedmann, Georges Davy and Jean Stoezel. He had the opportunity to interact with the international relations specialist Quincy Wright, who would, as we have seen, eventually have an important role in the definition of the editorial guideline of the *Journal of Conflict Resolution*.

[30](#) Nash (1951) proved a general theorem on existence of equilibrium in n-player non-zero-sum games played noncooperatively (Nash equilibrium). He showed that every noncooperative game with finite sets of pure strategies has at least one mixed strategy equilibrium pair. See Luce & Raiffa 1957:88

[31](#) Underscore mine.

## References

- Amadae, Sonya. 2003. *Rationalizing Capitalist Democracy: The Cold War Origins of Rational Choice Liberalism*. Chicago and London: Univ. Chicago Press.
- Angell, Robert C. 1951a. "Sociology and the World Crisis," *American Sociological Review*, 16.6:749-57.
- Angell, Robert C. 1951b. "A Theory of Moral Integration in Large Cities," *The American Journal of Sociology*, Supplement: The Moral Integration of American Cities 57.1:115-22
- Angell, Robert C. 1959. "The Moral Dimension in Sociological Theory and Research," *The Canadian Journal of Economics and Political Science / Revue canadienne d'Economie et de Science politique*, 25.3:287-99
- Angell, Robert C. 1962. "Defence of What?" *The Journal of Conflict Resolution*, 6.2:116-124.
- Aumann, Robert. 1962. "The Game of Politics," *World Politics*, 14. 4:675-686.
- Bernard, Jessie. 1963. "Review," *American Sociological Review*, 28.2:301.
- Boulding, Kenneth E. 1941. *Economic Analysis*. New York and London: Harper.
- Boulding, Kenneth E. 1962. *Conflict and Defense: A General Theory*. New York: Harper and Brothers.
- Boulding, Kenneth E. 1963. "Towards a Pure Theory of Threat Systems." *American Economic Review*, 53.2:424-34.
- Brodie, Bernard. 1959. *Strategy in the Missile Age*. Princeton, NJ: Princeton University Press.
- Burton, J.W. 1964. " "Peace Research" and "International Relations"," *Journal of Conflict Resolution*, 8.3:281-286.
- Carroll, B.A. 2005. " "The Historian in a Time of Crisis": A Memoir of Peace History," *Peace & Change*, 30.1.
- Ceadel, M. 2003. "Pacifism and pacifism" in Terence Ball and Richard Bellamy [Eds.] *The Cambridge History of Twentieth-Century Political Thought*, Cambridge.
- Etzioni, Amitai. 1963. "Review," *Political Science Quarterly*, 78.1:122-124.
- Farr, J. 2003 "Political Science" in Theodore M. Porter and Dorothy Ross [Eds.] *The Cambridge History of Science, Volume 7, The Modern Social Sciences*, Cambridge University Press.
- Fontaine, Philippe. 2006. "Stabilizing American Society: Kenneth Boulding and the Integration of the Social Sciences, 1943-1980," working paper, February.
- Fox, W.T.R. 1949. "Interwar International Relations Research: The American Experience," *World Politics*, 2.1:67-79.
- Galison, Peter. 1994. "The Ontology of the Enemy: Norbert Wiener and the Cybernetic Vision." *Critical Inquiry*, 21:228-66.
- Ghamari-Tabrizi, Sharon. 2000. "Simulating the Unthinkable: Gaming Future War in the 1950s and 1960s," *Social Studies of Science*, 30.2:163-223

- Goodman, J.S. 1965. "The Concept of "System" in International Relations Theory," *Background*, 8.4:257-268.
- Hammond, Debora. 2003. *The Science of Synthesis. Exploring the Social Implications of General Systems Theory*. The University Press of Colorado.
- Harsanyi, John. 1962a. "Bargaining in the Ignorance of the Opponent's Utility Function," *Journal of Conflict Resolution*, 6.1:29-38.
- Harsanyi, John. 1962b. "Review," *The American Economic Review*, 52.4:903-4.
- Heaney, Michael & Hansen, John Mark, "Building the Chicago School," *American Political Science Review*, 100.1: 589-96.
- Hirschleifer, Jack. "Conflict and Settlement" in *The New Palgrave. A Dictionary of Economics*. 1996. Eatwell, John, Milgate, Murray and Newman Peter (eds.) Macmillan Press Limited, London.
- Intriligator, Michael .D.1982. "Research on Conflict Theory: Analytic Approaches and Areas of Application". *Journal of Conflict Resolution*, 26.2:307-27.
- Kaplan, Fred. 1983. *The Wizards of Armageddon*. New York: Simon and Schuster.
- Kaplan, Morton.1961. "Is International Relations a Discipline?" *The Journal of Politics*, 23.3: 462-476.
- Kaufmann, William. 1956. "Limited Warfare," in *Military Policy and National Security*, eds.:102-36 William W. Kaufmann et al. Princeton, NJ: Princeton University Press.
- Kelman, Hebert C. 1981. "Reflections on the History and Status of Peace Research." *Conflict Management and Peace Science* 5:95-110.
- Kelman, Hebert C. 1991. "A Behavioral Science Perspective on the Study of War and Peace." In *Perspectives on Behavioral Science*, edited by Richard Jessor, 245-75. Boulder/San Francisco/Oxford: Westview Press.
- Kerman, Cynthia E. 1974. *Creative Tension: The Life and Thought of Kenneth Boulding*. Ann Arbor, MI: The University of Michigan Press.
- Kissinger, Henry. 1957. *Nuclear Weapons and Foreign Policy*. New York: Council on Foreign Relations.
- Leonard, Robert. 1992. "Creating a Context for Game Theory" in Roy Weintraub (Ed.) *Toward a History of Game Theory*. Annual Supplement to Volume 24, History of Political Economy. Duke University Press. pp. 227-55.
- Leonard, Robert. 2004. "Structures sous tension: theorie des jeux et psychologie sociale à la RAND," in Amy Dahan & Dominique Pestre [Eds.], *Les sciences pour la guerre. 1940-1960*, Editions de l'EHESS, Paris.
- Luce, Duncan & Raiffa, Howard. 1957. *Games and Decisions*. New York. John Wiley & Sons, Inc.
- Martha Harry, John Modell, « The first Conflict Resolution Movement, 1956-1971: An Attempt to Institutionalize Applied Interdisciplinary Social Science, » *Journal of Conflict Resolution*, Vol. 35, No. 4. (Dec., 1991), p. 732.
- McClelland, Charles. 1962. "Review: The Reorientation of the Sociology of Conflict," *The Journal of Conflict Resolution*, 6.1: 88-95.
- Meade, J. E. 1963. "Review," *The Economic Journal*, 73.290: 284-295.
- Galtung, Johan. 1964. "Review," *The American Journal of Sociology*, 69.5: 546-547

- Melanson, Richard & Mayers, David. [Eds.] 1987. *Reevaluating Eisenhower: American Foreign Policy in the 1950s*. Urbana University of Illinois Press.
- Mirowski, Philip. 2002. *Machine Dreams: Economics Becomes a Cyborg Science*. Cambridge: Cambridge Univ. Press.
- Morgenstern, Oskar. 1961. "Fights, Games and Debates," *Southern Economic Journal*, 28.1:103-105.
- Mott, Tracy. "Kenneth Boulding, 1910-1993," *The Economic Journal*, 110.464:F430-F444.
- Ness, Gayle. 1985. "Robert Cooley Angell (1899-1984)," *Footnotes, ASA*, May 1985:10.
- O'Rand, Angela. 1992. "Mathematizing Social Science in the 1950s: The Early Development and Diffusion of Game Theory," in Roy Weintraub. (Ed.) 1992. *Toward a History of Game Theory*. Annual Supplement to Volume 24, History of Political Economy. Duke University Press.
- Palmer, N.D. 1980. "The Study of International Relations in the United States: Perspectives of Half a Century," *International Studies Quarterly*, 24.3:343-363.
- Pfaltzgraff, R.L.Jr. 1971. "International Studies in the 1970s," *International Studies Quarterly*, 15.1:104-128
- Pounstone, William. 1992. *Prisoner's Dilemma*. New York: Anchor.
- Rapoport, Anatol. 1960. *Fights, Games, and Debates*. Ann Arbor, MI: The University of Michigan Press.
- Rapoport, Anatol. 1997. "Memories of Kenneth E. Boulding," *Review of Social Economy*, 55:416-31.
- Rapoport, Anatol. 2000. *Certainties and Doubts: A Philosophy of Life*. Montreal/New York/ London: Black Rose Books.
- Richardson, Lewis F. 1960a. *Arms and Insecurity: A Mathematical Study of the Causes and Origins of War*. Pittsburgh: Boxwood; Chicago: Quadrangle.
- Richardson, Lewis F. 1960b. *Statistics of Deadly Quarrels*. Pittsburgh: Boxwood; Chicago: Quadrangle.
- Ross, Dorothy. 1991. *The Origins of American Social Science*. New York: Cambridge University Press.
- Saunders, Richard. 1985. "Military Force in the Foreign Policy of the Eisenhower Presidency," *Political Science Quarterly*, 100.1:97-116.
- Schelling, Thomas C. 1960. *The Strategy of Conflict*. Cambridge, MA: Harvard Univ. Press, 1960.
- Schelling, Thomas. 1957. "Bargaining, Communication and Limited War," *Journal of Conflict Resolution*. 1.1:19-38.
- Schelling, Thomas. 1958. "The Strategy of Conflict: Prospectus for a Reorientation of Game Theory." *Journal of Conflict Resolution*. 2.3:203-64.
- Schelling, Thomas. 1963. "Review: War Without Pain, and Other Models," *World Politics*, 15.3:465-87.
- Singer, J. David. 1998. "Boulding at Michigan: General Systems and Peace Research." *Online Journal of Peace and Conflict Resolution*, 1.2.
- Tudda, Chris. 2005. "'Reenacting the Story of Tantalus': Eisenhower, Dulles, and the Failed Rhetoric of Liberation," *Journal of Cold War Studies*, 7.4 3-35.

Tullock, Gordon. 1962. "Review," *Southern Economic Journal*, 29.2:127-128.

Wright, Quincy. 1942. *A Study of War*. Chicago, Ill., The University of Chicago Press

Wright, Quincy. 1957. "The Value for Conflict Resolution of a General Discipline of International Relations."  
*Journal of Conflict Resolution*. 1.1: 4-8.