



The Positivist, the Keynesian, the Poet, and the Bombs

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Abstract

In the aftermath of World War II, the U.S. government commissioned a survey in order to assess the effects of the massive aerial bombing of German cities. The United States Strategic Bombing Survey (USSBS) included two teams of social scientists which reached opposite conclusions regarding the effects of the bombing on civilian "morale". The team led by Keynesian economist John K. Galbraith concluded that the bombings had the opposite effect of what was intended : they remobilized the civilian population against the aggressors. The team of positivist psychosociologist Rensis Likert, on the other hand, wrote that the bombing did demoralized civilians and, therefore, contributed to the victory. This second conclusion was used to justify the creation of the US Air Force in 1947 and, three years later, the strategic bombings in Korea. This article examines this controversy by applying the symmetry principle theorized, among others, by David Bloor. The argument is that the conclusions of both teams stem, partly, from their respective proximity and distance vis-à-vis the military-industrial complex, but also from their relation to positivism. I unfold this argument by opening the black box of this controversy and by commenting on the testimony of a member of the USSBS: British-American poet Wystan H. Auden.

Keywords: positivism; quantification; strategic bombing

Introduction

“Quantification, by rendering war a static artifact and abstracting the human costs involved, encourages the illusion that victory can be assured in a scientific manner, tabulated in ammunition expenditure, territorial gain, or casualty figures”¹. Like Lindemann and Anderson in their introduction to this running theme, several scholars assume that quantification operations generate a militaristic bias. By so doing, they hypothesize a mechanism where quantification causes militarism. The purpose of this article is to contextualize and specify this guiding hypothesis. Using the historical case study of a survey-based evaluation of the Allied “strategic” bombing campaign against German cities during World War II, I argue that the relationship between quantification and militarism is that of an “elective affinity” in Max Weber's sense²: both phenomena develop together without it being possible to determine which one ultimately causes the other.

During World War II, the Allies dropped more than one million tons of bombs on German and Japanese cities, i.e. about twenty times more than their enemies, causing destruction that is difficult to imagine today³. Whatever the actual motives⁴, two military rationales gave meaning to these bombings. The first was that “precision” raids on railway stations, ports, airports and factories would lead to a collapse of war production and, in turn, to surrender⁵. The second concept stated that “area” bombing of city centers and residential neighborhoods would break the “morale” of the population in general and that of the workers in particular and, in turn, contribute to victory. The notion of “morale” did not have precise contours⁶, but it did designate - and this is important for the rest of the discussion - a psychological state that

¹ LINDEMANN & ANDERSON, p. 9

² Weber, Max. *The Protestant Ethic and the Spirit of Capitalism*. London & Boston: Unwin Hyman, 1930 (1905).

³ Some sections of this article were published in French in: Mathias Delori, “Quantifier le moral des Allemands et des Japonais? Des experts évaluent l'efficacité des bombardements « stratégiques » de la Seconde guerre mondiale”, *Genèses. Sciences sociales et histoire*, 126, 2022, 80-101.

⁴ Tami Davis Biddle, *Rhetoric and reality in air warfare. The evolution of British and American ideas about strategic bombing, 1914-1945*, Princeton, Princeton University Press, 2004, Michael Sherry, *The Rise of American Air Power: The Creation of Armageddon*, New Haven et Londres, Yale University Press, 1987, Richard Overy, *The Bombing War: Europe, 1939-1945*, London, Penguin, 2013.

⁵ This theory has no clear authorship, but it can be found in the writings of the American officer and strategist William (Billy) Mitchell (1879-1936): William (Billy) Mitchell, *Our air force*, New York, E. P. Dutton and Company, 1921.

⁶ André Loez, “Pour en finir avec le ‘moral’ des combattants”, in: Jean-François Muracciole and Frédéric Rousseau (dir), *Extraits de Combats, Hommage à Jules Maurin*, Paris, Michel Houdiard, 2010, 106-119.

allowed "the implementation of an action or an enterprise"⁷. More precisely, those people who were "demoralized" by the bombings were supposed to stop going to the factory, to work less vigorously, or even to revolt against their government⁸.

These Allied "strategic bombings"⁹ were the subject of an evaluation in the United States in the immediate post-war period: the *United States Strategic Bombing Survey* (USSBS). Between 1944 and 1947, approximately 300 civilians, 350 officers and 500 soldiers investigated the contribution of these bombings to the victory. They studied war production statistics, intelligence reports on morale, and letters from bombed people. They also administrated a questionnaire to about 3000 survivors. A team of about 15 directors then analyzed the data and compiled the results in more than 100 technical reports like "what was the effects of the bombings on public transportation?", a dozen of reports dealing with a medium range question like "what was the effects of bombings on economic production", and three synthesis reports (two on Germany and one on Japan).

The USSBS synthesis reports (called "summary" and/or "overall" reports) concluded that the "strategic bombings" had been effective. The reports on Germany stated, for instance, that "Allied air power was decisive in the war in Western Europe"¹⁰. With regard to the key and controversial question of the effects of bombings on "morale", the "summary report" on Germany also stated: "the morale of the German people deteriorated under aerial attack (...). The people lost faith in the prospect of victory, in their leaders and in the promises and propaganda to which they were subjected. Most of all, they wanted the war to end"¹¹. This positive assessment of the Allied air war was presented to the press in September 1945 and

⁷ Raymond L. Hightower, "A sociological Conception of Morale", *Social Forces*, 22-4 (mai), 1944, 410-415, p. 413.

⁸ Italian officer Giulio Douhet (1869-1930) is generally considered the main theorist of this second approach : Giulio Douhet, *Command of the Air*, New York, Coward-McCann, 1942 (1932, 1921), Thomas Hippler, "Democracy and war in the Strategic Thought of Giulio Douhet", in: Hew Strachan (dir), *The changing character of war*, Oxford, Oxford University Press, 2011, 167-183.

⁹ I use inverted commas because the expression "strategic bombing" is not neutral. It suggests that those bombings have a strategic effect, whereas they may not have any. The expression "strategic studies" poses the exact same problems. It suggests that this field of expertise produces genuine strategic reflection, which is certainly not always the case. See: Ken Booth, *Strategy and Ethnocentrism*, Holmes & Meier Publishers, 1979.; Christophe Wasinski, "Les sciences humaines et la critique de la raison stratégique", *Etudes Internationales*, 46-2/3, 2016, 189-209.

¹⁰ USSBS, *United States Strategic Bombing Survey. Summary Report (European war)*, Publication of the USSBS, 1945, p. 15.; USSBS, *United States Strategic Bombing Survey. Overall Report (European war)*, Publication of the USSBS, 1945, 109, p. 107.

¹¹ USSBS, *United States Strategic Bombing Survey. Summary Report (European war)*, *op. cit.*, p. 4.

distributed to all congressmen and senators. The context was not neutral: the US Congress was about to decide on the creation of an air force¹² able to conduct further "strategic bombings". Without being the sole cause of this development, the conclusions of the synthesis reports played a role in the creation of the US Air Force in July 1947, the conservation of the thousands of bombers built during the war, and the massive use of "strategic bombings" in Korea three years later.

The literature on the USSBS has documented the weight of industrial and organizational interests on the production of reports. For Gian Gentile, the official USSBS management team did not have much room for maneuver because senior air officers of the Air Corps – the department of the US Army which had conducted most "strategic bombings" and were interested in the creation of an air force – "had spent the preceding seven months establishing the surveys' scope, framing its questions, and building an organizational framework that reflected the AAF's conceptual approach to strategic bombing"¹³. Sophia Dafinger has shown that these "airmen" were supported by industries producing bombers, notably Boeing and the *Douglas Aircraft Company*. For these companies, the creation of an air force with substantial strategic forces was a condition for the perpetuation of their contracts. The stakes were all the higher as the Truman administration had decided to reduce the extraordinary military budget that had been built up during the war¹⁴. All these supporters of the creation of the *US Air Force* coordinated their lobbying activities within a *think tank* created in 1946 within the *Douglas Air Craft Company*: the Rand Project, which became the Rand Corporation in 1948¹⁵.

While the weight of these extra-scientific interests is well documented, less is known about the scientific and epistemological side of this story¹⁶. It seems all the more interesting to shed some light on this blind spot as the USSBS took place at a pivotal moment in the history outlined in the introduction to this running theme, namely that of a shift from a "romantic" to a "quantitative" approach to war. This article contributes to specialized scholarship by opening

¹² The U.S. strategic bombing during World War II was carried out by the U.S. Army Air Corps.

¹³ Gian P Gentile, *How effective is strategic bombing? Lessons learned from Worl War II to Kosovo*, New York, New York University Press, 2001, p. 50.

¹⁴ Walter J Boyne, *Beyond the Wild Blue. A History of the U.S. Air Force*, New York, St Martin's Press, 1998, p. 25.

¹⁵ Sophia Dafinger, "Keine Stunde Null. Sozialwissenschaftliche Expertise und die amerikanischen Lehren des Luftkrieges", *Zeithistorische Forschungen/Studies in Contemporary History*, 17 (édition en ligne, URL: <https://zeithistorische-forschungen.de/1-2020/5809>), 2020.

¹⁶ One finds some interesting elements in Dafinger's book which, furthermore, covers the Cold War period.

the black box of this expertise. It investigates how the authors of the synthesis reports came to the aforementioned positive assessment of the effectiveness of "strategic bombings", whether all members of the USSBS agreed on this conclusion, and which method they used. I answer these questions by focusing on the German case¹⁷ and presenting into details the contributions of the two scientific divisions of the USSBS: the "Overall economic effect division" led by the Keynesian economist John K. Galbraith and the "Morale division", whose director was positivist psychosociologist Rensis Likert. This focus is all the more interesting because they came to opposite conclusions regarding the effectiveness of "strategic bombings", in particular on the question of their effect on "morale". Likert claimed, in line with the main authors of the synthesis reports, that the bombings demoralized civilians. Galbraith found out, on the contrary, that they stiffened morale and mobilized the populations against the aggressors.

I analyze this controversy by applying the symmetry principle proposed by Bloor and, later, by Latour¹⁸. It states that one should not call upon extra-scientific explanations (psychological or sociological) to shed light on what appears, with historical hindsight, to be the "errors" or "bias" of those who lost the controversy and scientific explanations to account for the "foresight" of the winners. In other words, although history seems to have proven Galbraith right over Likert, I assume that both teams were equally driven by scientific and non-scientific logics.

My argument is that the aforementioned different assessments of the effects of "strategic bombings" were not only determined by Likert and Galbraith's respective proximity and distance vis-à-vis the military-industrial complex but, also, by their diverging views on an epistemological question: "is mathematics the best instrument in order to analyze war?". Galbraith conceived of mathematics as an instrument among others. Likert thought they are the only scientific method. By mathematizing the study of morale, Likert produced a

¹⁷ For an analysis of the Japanese case, see: Mathias Delori, "Quantifier le moral des Allemands et des Japonais? Des experts évaluent l'efficacité des bombardements « stratégiques » de la Seconde guerre mondiale", op. cit.

¹⁸ David Bloor, *Knowledge and Social Imagery*, University of Chicago Press, 1976.

"quantification" operation in Desrozières' sense¹⁹. He fashioned a new way of conceiving "morale" and introduced, implicitly, a militaristic and pro-bombing bias²⁰.

I unfold this argument as follows. The first section presents the sociological underpinning of the controversy, i.e. Galbraith and Likert's positions within the social and political networks interested in the USSBS. Sections two and three document Galbraith's and Likert's epistemological choices as they emerge from the archives of the USSBS²¹. Section four elaborates on Likert's positivist choices by presenting the comments of a critical member of the "morale division": British-American poet Wystan Auden.

Galbraith and Likert's networks in 1945

Although the declared supporters of "strategic bombings" were well represented within the USSBS, it was not a monolith²². His chairman, businessman Franklin d'Olier, had been president of the main US war veterans' association during the 1920s and had already established relationships with the partisans of "strategic bombings", starting with Air Corps General Orvil Anderson, the USSBS military adviser. D'Olier was assisted by a vice-chairman, banker Henry C. Alexander, and a "Secretariat" whose two principal members were Judge Charles C. Cabot and Colonel Guido Parera, also from the Air Corps. The leadership team also included 11 division directors. Besides Likert and Galbraith, the most influential were the diplomat George Ball and the banker Paul Nitze. The latter was not yet the defense intellectual²³ who in 1950 produced the famous document, entitled NSC 68, prescribing to President Truman an increase in the US military effort in all areas, especially strategic forces.

¹⁹ Alain Desrozières, *Pour une sociologie historique de la quantification*, Paris, Presses de mines, 2008, p. 7.

²⁰ On the elective affinity, to speak like Max Weber, between militarism and the quantification of war, see: Carol Cohn, "Sex and Death in the Rational World of Defense Intellectuals", *Signs*, 12-4, 1987, 687-718.

²¹ Most of the archives of the USSBS are kept at the National Archives and Records Administration (NARA) in College Park, Maryland, USA

²² A description of the USSBS management team can also be found in: David MacIsaac, *Strategic Bombing in World War Two: The Story of the United States Strategic Bombing Survey*, New York, Garland Publishing Company, 1976..

²³ Defense intellectuals are civilians who work for the Military Industrial Complex. See: Carol Cohn, "Sex and Death in the Rational World of Defense Intellectuals", op. cit, Sophia Dafinger, *Die Lehren des Luftkriegs. Sozialwissenschaftliche Expertise in den USA vom Zweiten Weltkrieg bis Vietnam*, Stuttgart, Steiner Verlag, 2020, Rolf Hobson, "'Defense intellectuals': Zur Karriere von Schreitschstrategen", in: Bernd Greiner, Tim B. Müller and Klaas Voss (dir), *Erbe des Kalten Krieges*, Hamburg, Verlag des Hamburger Instituts für Sozialforschung, 2013, 148-158.

However, he had already established links with supporters of the creation of the US Air Force, notably Air Corps General Gardner Grandison. Ball's profile was further removed from the "air force lobby" network. He was, besides, the civilian member who had most experience on the topic as a former member of the Air Force Evaluation Board, an organization in charge of assessing the effects of air strikes during World War Two. Ball is responsible for Galbraith's appointment as head of the "Overall Economic Effects Division". He supported him throughout the controversy.

The two academics - Likert and Galbraith - were like Ball: they had no direct connection to the "air force lobby". This was, however, their only common feature. They occupied different social positions. Likert had worked during the war in the Department of Agriculture. He had conducted opinion polls that aimed at contributing to the rationalization of the agricultural sector. He had been disappointed by the meagre impact of his surveys and planned to return, after the war, to the academic field. Along with Gordon Allport and Dorwin Cartwright, he was one of the most active members of the *Society for the Psychological Study of Social Issues*, an association that sought to demonstrate to the federal government the immediate usefulness of positivist social psychology, an emerging field of study which Likert hoped to consolidate²⁴. His ambition was to create an institute similar to the *Bureau of Applied Social Research* that his friend Paul Lazarsfeld had just created at Columbia University (Pollak 1979), i.e. a research institute financed by various non-academic institutions and, therefore, autonomous from universities. During the war, Galbraith had worked mainly in the Office of Price Control and he did not rule out continuing to work as an expert in a federal administration. His career options were also more open in the academic field, with political economy being taught at all the major universities in the country. He had also been successfully collaborating with *Fortune* magazine since 1943. He was also considering joining the diplomatic corps, which he did shortly in 1946. Galbraith had, therefore, many more career opportunities than Likert. Last but not least, he was close to the left wing of the Democratic Party which was, then, in favor of reducing the US military budget and, therefore, less favorable to the creation of the Air

²⁴ Blair T. Johnson and Diana R. Nichols, "Social Psychologists' Expertise in the Public Interest: Civilian Morale Research During World War II", *Journal of Social Issues*, 54-1, 1998, 53-77, p. 66.

force. Galbraith had, therefore, less reasons to get enrolled and interested by a particular interest group, in this case the "air force lobby"²⁵.

Finally, both Likert, Galbraith and their teams had different scientific profiles. In 1932, Likert had completed a PhD on the measurement of individual attitudes²⁶. The main methodological tool he proposed, the Likert scale, is still used today in questionnaire surveys. It consists of asking a person their degree of agreement with a proposition ("strongly agree", "agree", etc.) and then allocating a number to each type of response to allow statistical analysis. His team members shared his belief that mathematics is the best tool for the scientific study of society. These included sociologists Burton R. Fisher (the division's deputy director) and Herbert Hyman, political scientist Gabriel Almond, and psychosociologists Richard Crutchfield, Otto Klineberg, Daniel Katz, Theodor Newcomb, and Helen Peak. The latter, who married Likert some years later, was the only woman who held a non-subordinate role in the USSBS. In fact, most of the aforementioned members of the "Morale division" joined Likert's *Survey Research Center* when it was established in 1946. Galbraith, on the other hand, conceived of mathematics as a tool, among others, to study the social world. His Keynesian positions were already public, even outside academic circles, because of his articles in *Fortune*. His team was also more pluralistic than Likert's since it included scholars as different as Paul Baran, Nicholas Kaldor and Burton Klein (Galbraith's deputy).

These different attitudes towards mathematics had a direct impact on their relationship to part of their research material: the German population. Galbraith spent a long time in Germany during the spring and summer 1945 in search of empirical materials, including qualitative ones. The discovery of the destructions of German cities made a strong impression on him. He wrote to his wife on May 11th 1945: "The cities of Germany with few exceptions are a shambles. Those of the Rhineland are the worst as the papers have made clear but are all terribly shattered. Frankfurt has no undamaged houses to speak of and most of the blocks are heaps of rubble, but it is recognizable as a city in a sense that Cologne is not; big landmarks

²⁵ There is a comprehensive biography of Galbraith: Richard Parker, *John Kenneth Galbraith. His Life, His Politics, His Economics*, Chicago, University of Chicago Press 2006.. Information on Likert is more scattered: Sophia Dafinger, *Die Lehren des Luftkriegs. Sozialwissenschaftliche Expertise in den USA vom Zweiten Weltkrieg bis Vietnam*, op. cit, David MacIsaac, *Strategic Bombing in World War Two: The Story of the United States Strategic Bombing Survey*, op. cit.

²⁶ Rensis Likert, "A Technique for the Measurement of Attitudes", *Archives of Psychology*, 140, 1932, 1–55.

like the dome and the main shopping centers are still standing in part. (...) The countryside except where there was fighting is very lightly damaged. But the total picture is one of terrible destruction". He shared in the same letter that "you can't see those men and machines roll without a tremendous sense of awe about the United States. I never realized before just what the United States is"²⁷. This mix of sympathy with the victims of bombings and critical feelings against the perpetrators had not disappeared two months later when he wrote his report: "Berlin is still recognizable and no doubt could be rebuilt. But I hate to think of what bombing would do if it were any more efficient than it is"²⁸. Likert, on the other hand, left his deputy and his subordinate doing most of the data collection. He only made a short stay in Germany during the spring 1945 and, then, returned to the US. Like the "defense intellectuals" studied by Carol Cohn in her famous piece, Likert developed a "cold" and unemotional approach to "strategic bombings", including those which targeted civilians²⁹.

Galbraith concludes that bombings stiffen morale

The question of the effectiveness of "strategic bombings" was somewhat different for the two types of bombing mentioned in the introduction. In the case of "precision" bombing, no one imagined that the destruction of transport systems and factories could, in itself, have a counter-productive effect. Therefore, the survey aimed at understanding which type of bombing (those on transportation systems, on fabrics, etc.) had had the most positive effect. For "area" bombing – i.e. those directed against civilians - on the other hand, two hypotheses were on the table: that of a demoralizing and therefore militarily interesting effect (civilians revolt or stop participating in the war effort)³⁰ and that of a reinforcement of the society/State link to fight against the aggressors³¹. Some experts believed that both effects could occur simultaneously. In 1943, for example, the U.S. Air Force Command asked historians - including Carl L. Becker (Cornell University), Henry S. Commager (Columbia University), Edward Mead Earle (Princeton University), Louis Gottschalk and Bernadotte Schmitt (University of Chicago),

²⁷ Letter to Kitty. In: Richard P. F Holt, *The Selected Letters of John Kenneth Galbraith*, Kindle edition, Cambridge University Press, 2017.

²⁸ Letter to Kitty, July 26, 1945. In: Richard P. F Holt, *The Selected Letters of John Kenneth Galbraith*, op. cit.

²⁹ Carol Cohn, "Sex and Death in the Rational World of Defense Intellectuals", op. cit.

³⁰ Giulio Douhet, *Command of the Air*, op. cit.

³¹ E. B Strauss, "The psychological effects of bombing", *Royal United Service Institution*, 534 (84), 1939, 269-282.

and Dumas Malone (Harvard University) - to advise on the effects of "strategic bombings" on morale. According to them, it could happen that a person who saw their child die in front of their eyes felt demoralized to the point of refusing to participate further in the war effort, but the opposite effect - that of mobilization against the aggressors - also existed. Therefore, these experts wrote that "there is no conclusive evidence that British and American bombings of German cities have effectively weakened the general hold of the Nazi Government on the German people"³².

The USSBS investigation of Germany began in early 1945. The initial goal of the Galbraith Division was to collect documents indicating the level of German economic production before and during the air war. However, the investigators found almost none, either because these documents had been destroyed in the bombings or because they had been taken away by other services³³. The work of Galbraith's division did not really take off until May 1945 when Ball and him met the "number one target of the survey"³⁴: Albert Speer. Speer had been the Reich's Minister for Armaments and War Production between February 1942 and the surrender. Ball and Galbraith conducted five two-hour interviews with Speer during which he explained that, with the exception of the bombing of Hamburg in July-August 1943, the bombings had no major effect on war production. Asked more generally about the effects on morale, Speer replied: "Even until just before the end, work was continued with undiminished vigor (...) Although I, as a minister, am a well-known personality who would have been attacked in other lands at this period yet I received the friendliest of receptions (...). It is noteworthy that until the very end I could ride around with my adjutant and drier without any other escort and without feeling any danger and I could enter any factory in the west"³⁵.

Speer also gave Galbraith multiple documents from his ministry, including one that summarized the evolution of German war production until the end of 1944. This report explained that "within two and a half years Germany's military output in aircraft, weapons

³² Quoted in: Gian P Gentile, *How effective is strategic bombing? Lessons learned from Worl War II to Kosovo*, *op. cit*, p. 29.

³³ David MacIsaac, *Strategic Bombing in World War Two: The Story of the United States Strategic Bombing Survey*, *op. cit*, p. 86.

³⁴ George Ball, *The Past Has Another Pattern: Memoirs*, New York, London, W. W. Norton & Company, 1983, p. 51.

³⁵ USSBS. 1945. *USSBS, APO 413, Minutes of Meeting with Reichsminister Albert Speer, Flensburg, 17 May 1945*. Publisher, NARA, College Park, Box 243-6-908, pp. 11-12.

and ammunition was raised more than threefold, in tanks nearly sixfold", and that it did not collapse until the fall of 1944, when Allied ground forces conquered vassal territories of the Reich³⁶. Since "precision" strategic bombing had destroyed much of the infrastructure that was useful to the war economy during this period, the increase in German production was an enigma. Galbraith did not consider the possible role of the intensification of forced labor in concentration camps. He interpreted the rise of German production as a manifestation of the counterproductive effects of bombings on morale: "The stress generated by air raids allowed [Speer] to mobilize the energies of the population"³⁷. Galbraith's interpretation caused an outcry among the USSBS supporters of "strategic bombings". In his memoirs, he mentions the reaction of Orvil Anderson, the USSBS military adviser: "On the evening when we first discussed these figures (...), Orvil Anderson's voice broke, and he asked, 'Did I send those boys to do that?' However, he soon recovered his poise and gave his attention initially to faulting the German statistics and, when that proved impossible, to seeking to have them overlooked"³⁸.

At that time – during the summer 1945 -, the USSBS had not communicated yet on its findings. This was to be done with the production and publication of the "summary report". As its title indicates, the latter was to synthesize the conclusions of all the USSBS divisions. Cabot and Perera wrote the first version. According to Galbraith, this text "fulfilled the wishes [of air force supporters]. The patiently accumulated data, which demonstrated the disastrous failures of strategic bombings, were essentially ignored. No serious failures were mentioned in the report. Even partial successes were lost in this picture of total success". Each division director had to sign off on this report. Galbraith refused to do so, explaining that it was a "simple matter of intellectual honesty"³⁹.

The USSBS directorate agreed, then, on a compromise solution: the USSBS would produce not one but two synthesis reports on the German case: a *summary report* of about twenty pages and an *overall report*, longer, which would analyze the effects of the bombings in general, yet in a more detailed way. Both reports would be signed by all the directors of the USSBS, but

³⁶ USSBS. 1945. *United States Strategic Bombing Survey. The effects of strategic bombing on the German war economy. Overall economic effect division. October 31, 1945*. Publication of the USSBS, p. 7.

³⁷ Ibid.

³⁸ John K Galbraith, *A life in our times : memoirs*, London, Deutsch, 1981, p. 215.

³⁹ John K Galbraith, *A life in our times : memoirs, op. cit*, p. 226.

Galbraith would write the *draft* of the first and the secretariat - that is, Perera and Cabot - that of the second. In addition, both texts would be fed by pre-reports prepared by the two "scientific" divisions of the USSBS, i.e. Galbraith's, but also the positivist one.

Likert claims that the bombings had demoralizing effects

Likert had received a transcript of the main documents handed over by Speer, including the report showing the increase in German war production between 1942 and 1944. He was also aware of Galbraith's interpretation that the bombings had counterproductive effects regarding the question of "morale". Likert, however, felt that these sources were unreliable as they came from Speer's ministry, an institution which had interest to make the Führer believe that it was being successful. He, therefore, invited his team to work on other data.

The Likert Division conducted a first investigation in the cities of Krefeld and Darmstadt, which had been bombed in June 1943 and September 1944 respectively. They interviewed 200 people of each city. They took a good care of making representative samples by drawing names from the lists of ration coupons. In an undated document, probably produced in the spring of 1945, the person in charge of this study concluded that the bombings had an interesting effect on morale. This argument was supported by the finding that "the desire to quit the war as a result of bombing was reported by 58% of the people in Krefeld and 55% of the Darmstadt population". Since Darmstadt was bombed more heavily than Krefeld, and the damage was much more severe", it appeared to him that "the differences between the reports in both cities suggest that the heavier bombed city showed greater morale loss"⁴⁰. This conclusion was dissonant with another, more qualitative data, which the moral division had at its disposal: the testimonies of the people in charge of administrating the population. The mayor of the city of Krefeld, for example, explained to the moral division that the bombings had no effect on morale: "It is my opinion that the attacks had very little influence on the will of the people to resist. (...) you must realize that when people are bombed out over and over again, they become dulled after a while to the effects of bombing"⁴¹. The police chief agreed:

⁴⁰ USSBS. 1945. *Civilian reactions to bombing in Krefeld and Darmstadt. A pilot study based on interviews with representative samples of the population (undated)*. Publisher, NARA, College Park, Box 243-6-192, p. 2.

⁴¹ USSBS. 1944. *Interview 2, Oberbürgermeister J. S., 10 March*. Publisher, NARA, College Park, Box 243-6-190, p. 1.

"The people were dazed and depressed for about two weeks following the attack, but soon recovered and were of course very mad at the attackers. Their belief in the ultimate German victory was not affected"⁴² .

Likert sent his initial findings to the USSBS Secretariat in a document dated September 8, 1945, i.e. a few weeks before the "summary" and "overall" reports were released. The text presented these quantitative data on the demoralizing effects of "strategic bombings" and brushed aside the objections made by Galbraith: "According to official German statistics, armaments production continued to mount slowly till mid-1944, in spite of declining civilian morale. There is much evidence, however, to show that that these figures were padded. Even these statistics show that from mid-1944 on arms production began to decline and dropped every month thereafter at an increasing rate. A certain proportion of this drop was the result of the accumulative effects of lowered morale"⁴³ . Galbraith regretted this "fascination with statistical data"⁴⁴, which contradicted his hypothesis of a remobilizing effect of bombing directed against civilian populations. He did, however, agree to include the arguments produced by his positivist colleague in the synthesis report he drafted. In exchange for these concessions, Galbraith obtained that the specialized report produced by his division be published with the two synthesis reports⁴⁵ .

These first three texts - the *summary report*, the *overall report* and the report of the division headed by Galbraith - were presented to the press on 30 September 1945, six weeks after the surrender of Japan. In the euphoria of victory, the mainstream press retained only the ideas found on the first page or in the conclusion of the two summary reports: "Air Power Beat Reich, D'Olier Survey Finds" (Philadelphia Enquirer); "Bombers Beat Germany Civilian Survey Finds" (Washington Times-Herald); "Strategic Bombing of Germany is Termed Decisive in Victory" (NewYork Herald Tribune); "They Missed the Pickle Barrel But They Smashed Hitler"

⁴² USSBS. 1945. *Interview 3, Oberleutenant der Polizei Puetz, 13 March 1945*. Publisher, NARA, College Park, Box 243-6-190, p. 1.

⁴³ USSBS. 1945. *Summary. Morale division report, 8 September 1945*. Publisher, NARA, College Park, Box 243-6-192, p. 5.

⁴⁴ David MacIsaac, *Strategic Bombing in World War Two: The Story of the United States Strategic Bombing Survey*, *op. cit.*, p. 9.

⁴⁵ USSBS. 1945. *United States Strategic Bombing Survey. The effects of strategic bombing on the German war economy. Overall economic effect division. October 31 1945*. *op. cit.*

(Philadelphia record editorial)⁴⁶. This was a major victory for the partisans of "strategic bombings". Another one was coming: that of the publication of the Likert division's main report.

"Morale with an 'e' at the end is psycho-sociological non-sense"

The quantitative studies which Likert conducted in Krefeld and Darmstadt had been based on some samples whose size – 200 hundred people in each case – did not allow to draw firm conclusions. Likert and his team decided, therefore, to conduct a more ambitious survey. They administered a questionnaire to 3711 people who experienced (and survived from) the bombings. The questionnaire entailed questions such as: "How did you feel [during the bombings]. What were your experiences?" (A11); "Was your work affected in any way by the air raids?" (A27); "How many workdays were your absent? (A 28)⁴⁷. The questions were open-ended. In other words, the interviewees could answer as they pleased. Their response were transcribed and, then, coded in order to build a "moral index", i.e. a number expressing the morale of the interviewee.

By so doing, Likert and his team realized a quantification operation in Desrosières and Kott's sense. They expressed "in a numerical form what was previously expressed only by words and not by numbers"⁴⁸. Desrosières insists that quantification should not be confused with objective measurement. Quantification fashions "a new way of thinking, representing, expressing the world and acting on it"⁴⁹. In the case under investigation here, Likert and his team did not measure morale it in the same way as others have measured the distance between the Earth and the Moon, i.e. an object which can be thought to exist independently of the quantification operation. Their gesture resembles that of the inventors of the intelligence quotient, of opinion polls or of the quantification of drug users. They discretely

⁴⁶ David MacIsaac, *Strategic Bombing in World War Two: The Story of the United States Strategic Bombing Survey*, *op. cit.*, p. 144.

⁴⁷ USSBS, *United States Strategic Bombing Survey. The effects of Strategic Bombing on German morale*, vol 1, Publication of the USSBS, 1947.

⁴⁸ Alain Desrosières and Sandrine Kott, "Quantifier", *Genèses*, 58, 2005, 2-3, p. 2.

⁴⁹ Alain Desrosières, *Pour une sociologie historique de la quantification*, *op. cit.*, p. 7.

modified the concept. They did so by subsuming into the morale index the answers to two types of questions:

- those that measure (more or less well) what classical strategic thinking meant by morale, i.e. whether or not to go to the factory, whether or not to be more or less productive, whether or not to revolt against the regime (questions A 27 and A 28 mentioned above)
- those, such as question A16 mentioned above, that referred to the emotions felt by the interviewees during the bombings.

Thus, answering that one was frightened by a bombing became synonymous with a "break in morale", even if the person also answered that they felt encouraged to work more energetically in order to protect their children against the aggressors. Covariation with bombings could, then, be established: "Morale decreases as the weight of bombs increases [although...] the change is not proportional to tonnage, the maximal effect appearing when tonnage is stepped up to 500 tons"⁵⁰.

The Likert division published its reports on Germany and Japan in May and June 1947. Galbraith had long since left the USSBS. He therefore did not comment on this part of his colleague's work. Another person did: British-American poet Wystan Auden. Auden had been assigned to the Likert division because of his fluency in German. He criticized, with his own words, the quantification operation described above. He called some of the questions of the questionnaire "unintentionally humorous", adding that "we asked [the Germans] if they minded being bombed. We went to a city which lay in ruins and asked if it had been hit. We got no answers that we didn't expect"⁵¹.

Auden also called "socio-political jargon"⁵² the language used in the Likert Division. In particular, he criticized the use of the word "morale", stating that "it is illiterate and absurd... Morale with an 'e' at the end is psycho-sociological nonsense"⁵³. In other words, Auden pointed out how the language of the Likert division and the report ignored the ethical and humane

⁵⁰ USSBS, *United States Strategic Bombing Survey. The effects of Strategic Bombing on German morale*, vol 1, *op. cit*, p. 30.

⁵¹ Cornelia D. J. Pearsall, "The Poet and the Postwar City", *Poetry review*, 17-2 (online version), 1997, p. 4 (paragraph).

⁵² Quoted in: Stephen Brockmann, *Nuremberg: The Imaginary Capital*, Rochester, Carmen House, 2006, p. 222.

⁵³ Quoted in: Cornelia D. J. Pearsall, "The Poet and the Postwar City", *op. cit*, p. 4 (paragraph).

dimension of bombings. This thought emerged when Auden discovered the amount of destruction inflicted by the Allies and the sufferings endured by the population. In a letter written in May 1945 to a friend, he reported: "The town outside which we live was ninety-two percent destroyed in thirty minutes. You can't imagine what that looks like unless you see it with your own eyes. ... The work is very interesting but I'm near crying sometimes"⁵⁴.

At first sight, Auden's call to take into account the ethical questions posed by the bombing of civilians appears orthogonal to the primary function of the USSBS: to understand the military effects of bombings, whether one thinks that they were ethical or not. It is important to note, however, that Auden's concerns were not a pure isolated fact. In the United Kingdom, some activists like Vera Brittain and the *Bombing Restriction Committee* were criticizing the deliberate bombing of German civilians⁵⁵. Although it was a minority voice, it was powerful enough to embarrass the government during the celebrations of the victory: "Bomber Command was largely left out of celebrations of Victory in Europe; no specific Bomber Command medal was issued; Harris [the chief of the Bomber Command] received no peerage or other honour from the Labour government elected on 26 July 1945. Harris's own Despatch on War Operations was subjected to corrections by the Air Ministry, filed, and closed to the public for half a century"⁵⁶. Besides, it is impossible to fully disentangle the ethical and military aspects of the question. Giulio Douhet, the most prominent theoretician of the demoralizing effects of the bombings of civilians, also thought that they were moral/ethical because they would shorten the duration of the war and, thus, shorten the sufferings of civilians⁵⁷. The current advocates of "strategic bombings" make the exact same point⁵⁸. They argue that the best wars – or the least bad ones - are the shortest ones, and that the bombing of "civilian infrastructures"⁵⁹ can help bringing them to an end as fast as possible. Symmetrically, those who cast a morally critical eye on "strategic bombings" tend to also believe that they are inefficient. As mentioned above, this was the case of Galbraith. The reason why both

⁵⁴ Quoted in: Cornelia D. J. Pearsall, "The Poet and the Postwar City", op. cit, p. 5 (paragraph).

⁵⁵ Vera Mary Brittain, *Seed of chaos: what mass bombing really means*, London, 1944, Andrew Knapp, "The Allied Bombing Offensive in the British Media, 1942–45", in: Andrew Knapp and Hilary Footitt (dir), *Liberal Democracies at War: Conflict and Representation*, London, Bloomsbury, 2013, 39-65.

⁵⁶ Andrew Knapp, "The horror and the glory: Bomber Command in British memories since 1945", https://www.sciencespo.fr/mass-violence-war-massacre-resistance/en/document/horror-and-glory-bomber-command-british-memories-1945#footnoteref112_qoie6ds (consulté le 7 décembre 2018), 2016.

⁵⁷ Giulio Douhet, *Command of the Air*, op. cit, p. 196.

⁵⁸ Samuel Moyn, *Humane: How the United States Abandoned Peace and Reinvented War*, MacMillan, 2021.

⁵⁹ Nobody still officially advocates the bombing of civilians because it is illegal.

questions are intertwined does not only lay in the well-known fact that normative assumptions impact observations and knowledge production. In the case of "strategic bombings", it is impossible to fully separate both questions because the moral/ethical argument for "strategic bombings" – i.e. the idea that they would shorten the duration of the war – only works if they are military effective.

Conclusion

The Likert division of the USSBS played an important role in validating, in the aftermath of the war, the thesis of the effectiveness of the Allies' "strategic bombings". Under the leadership of its director, Rensis Likert, it provided the proponents of "strategic bombings" with arguments which facilitated the marginalization of Galbraith's critical theses. It also produced and published a specialized report explaining that "strategic bombings" demoralized the German (and Japanese) civilian population, and thus made a great contribution to the victory, at a time when the Congress and the Senate were debating the fate of the thousands of flying fortresses built between 1941 and 1945. Likert and his team reached these conclusions by ignoring some dissonant data on the grounds that they were not analyzable with "modern scientific techniques"⁶⁰, i.e. statistical analysis. They also produced a statistical artefact⁶¹ – called "morale index", which measured, in fact, the emotions felt during the bombings and war weariness. In doing so, these men made a major translation from the classic theory of the demoralizing effects of bombing, a theory according to which the fall in morale materialized in concrete behaviors such as revolting against the government, stopping to work or working with less energy. This epistemological bias prefigures a trend, observed by the historians of the so called "Cold War social sciences", in which mathematical methodological sophistication helps mask a multitude of tacit conventions with industrial, bureaucratic, and military interests⁶².

⁶⁰ USSBS, *Chapter I. The course of decline in morale. Official intelligence reports, supporting document, non daté*, NARA, College Park, Non daté, p. 83.

⁶¹ On this notion, see: Pierre Bourdieu, Jean-Claude Chamboredon and Jean-Claude Passeron, *Le métier de sociologue*, Paris, Mouton Editeur, 1983, p. 70.

⁶² Mark Solovey and Hamilton Cravens, *Cold War Social Science. Knowledge Production, Liberal Democracy, and Human Nature*, New York, Palgrave Macmillan, 2012, Joy Rohde, *Armed with Expertise. The Militarization of American Social Research During the Cold War*, Ithaca, Cornell University Press, 2013, Christian Dayé, "A fiction

In the longer term, the conclusions of the USSBS contributed to the social construction of the belief in the "strategic" effectiveness of bombing civilians, a belief that helped give military meaning to the bombings in Korea and Vietnam. The conclusions of the Likert Division also served as a support for the concept of "psychological warfare" developed, from 1951 onwards, by the Rand Corporation⁶³. The impact of this expertise declined, however, after the Vietnam war, when Auden's view became mainstream, i.e. when the bombing of civilians became the symbol of an inhumane way of waging war. In his memoirs, Galbraith echoes this normative and cognitive shift when he notes that "the purposes of both history and future policy would have been served by a more dramatic finding of failure, for this would have better prepared us for the costly ineffectiveness of the bombers in Korea and Vietnam, and we might have been spared the reproach of civilized opinion"⁶⁴. The field of strategic studies also began, then, to take a critical look at the Allied air war of 1941-1945, at the findings of the USSBS in general and the Likert division in particular. In 1976, an official historian of the US Air Force also criticized the quantification operation, noting that "their definition of morale was such as to make their findings of little more than academic interest"⁶⁵. This formula does not reflect a primary anti-intellectualism. What this expert meant was that a conception of morale which mainly measures what people feel when being bombed has little military interest, and this is easily agreed upon.

This history has also left a legacy in the academic field. I mentioned above that Likert hoped to create a research institute similar to Paul Lazarsfeld's *Bureau of Applied Social Research* (BASR). The Rand Project network provided him with the resources to make this happen. His *Survey Research Center began* was created in 1946 at the University of Michigan, around the time of the publication of the Pacific War Synthesis Reports. The USSBS provided this institute with its first research contract, which allowed Likert to hire almost all of the main members of his Likert division at the SRC. In 1949, the SRC absorbed other structures to become the *Institute for Social Research* (ISR) at the University of Michigan. During the Cold War, the ISR

of long standing': Techniques of prospection and the role of positivism in US Cold War social science, 1950–65", *History of the Human Sciences*, 29-4/5, 2016, 35-58.

⁶³ Sophia Dafinger, *Die Lehren des Luftkriegs. Sozialwissenschaftliche Expertise in den USA vom Zweiten Weltkrieg bis Vietnam*, op. cit.

⁶⁴ John K Galbraith, *A life in our times : memoirs*, op. cit, p. 227.

⁶⁵ David MacIsaac, *Strategic Bombing in World War Two: The Story of the United States Strategic Bombing Survey*, op. cit, p. 115.

became, along with the BASR, one of the main torch bearer of the behaviorist social sciences in the United States and one of the main vehicles for the quantification of social phenomena, including war.

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