

EDITORIAL

« Je suis Charlie » : New Findings on the Social and Political Psychology of Terrorism

« Je suis Charlie » : Nouvelles Avancées en Psychologie Sociale et Politique du Terrorisme

Armelle Nugier and Serge Guimond

Keywords: Charlie-Hebdo; Terrorism; rallies; prejudices; jihadism

Terrorism is a form of political violence that seeks to instill fear, anxiety and chaos (Dumont, Yzerbyt, Wigboldus & Gordijn, 2003). It can take many forms and reflect the actions of a State. Nevertheless, as Pelletier and Drozda-Senkowska (2016) suggest, regardless of its various forms, the goals and consequences of terrorism are in fundamental ways psychological in nature. As such, terrorism is psychological warfare. Social psychologists have made an important theoretical and empirical contribution to the study of terrorism (Kruglanski et al., 2013). Much of that contribution can be found in the previous special issue of the *International Review of Social Psychology* devoted to the topic (see Arciszewski, Verhaci, Goncalves & Kruglanski, 2009). In the present issue, we provide new evidence on the psychological impact of terrorism on the population at large and our focus is on the January 2015 attack on Charlie Hebdo and the Hyper Casher in Paris, France.

This special issue is part of a wider project supported by grants from the ANR and from the mission for interdisciplinarity of the CNRS in France, seeking to put state of the art research on terrorism from a psychological and social science perspective at the top of the research agenda. There is indeed an urgent need to study these forms of extreme violence so that people can understand what is going on. We feel that collaboration between experts from various fields is needed. We are happy to include in this special issue contributions from psychologists but also from political scientists. Researchers in the human and social sciences can play a major role here because with better understanding comes greater well-being. Long-term exposure to political violence brings psychological distress and other health problems (Canetti, Russ, Luborsky, Gerhart & Hobfoll, 2014). However, research has shown that understanding the causes of terrorism reduces

its negative psychological impact (Fisher, Postmes, Koepl, Conway & Fredriksson, 2011).

January 2015 in Paris: domestic terrorism

The terrorist attack of January 2015 in Paris involved the killings of several unarmed civilians in the name of a religion, Islam. It occurred after several major cities in the West were hit: New York and Washington in 2001, Madrid in 2004, London in 2005, or Boston in 2013 to name a few. There are both similarities and differences among these various acts of terrorism. Many existing analyses contribute to a better understanding of terrorism by discussing these similarities and differences. However, looking back over the last twenty years, it is difficult not to be completely stumped by the sheer increase in violence of a barbaric nature. Recent terrorist attacks were all specifically designed to kill as much as possible. Let us consider very briefly how the events unfolded in the case of the Charlie Hebdo attack.

On the morning of January 7, two heavily armed gunmen entered the building in Paris where the journalists and cartoonists were in an editorial meeting. 11 of them were killed and 11 others injured in a matter of minutes. The next day, a policewoman was killed by a man who, on January 9th enters the Hyper Casher grocery store, takes hostages and kills four more people. Everything ended on January 9 with all three terrorists being killed by the police. Of course, at the time, nobody knew exactly when it would end. As the events unfolded, an understanding of the situation as being acts of terrorism is constructed but this in no way can be reassuring. By their very nature, these acts communicate a sense that everything is possible. No one really knows who is going to be hit next. On January 11, people in Paris and all over France gathered together for a march of solidarity for the victims. This attack was officially sponsored by ISIS (Islamic State) and we now know that the three killers were all French citizens. Thus, this was a case of domestic terrorism, like in Boston in 2013, something that may be important from

the point of view of the long-term impact of these events on the population.

The major question raised in this special issue is precisely what impact did these events have on the population and how can one understand the processes that account for this impact? As we will show, the empirical results that are published in this special issue give a highly coherent answer, and one that does not necessarily fit with common sense. Before describing the contents of this issue in more detail, two questions must be clarified: Why was Charlie Hebdo targeted and why do Islamic terrorists seek to hit European targets?

Why Charlie Hebdo?

Charlie Hebdo is a well-known satirical newspaper in France that publishes cartoons on sensitive political and religious topics. Ten years ago, it got involved in the so-called Danish cartoons incident. In September 2005, a Danish newspaper, *Jyllands-Posten*, published 12 cartoons of Mahomet (Mohammed). Arguing that such a representation of the prophet was an act of blasphemy, an international campaign of protest of enormous proportion was launched against Denmark by various Islamic organizations (Kepel, 2015). In its special issue of February 8, 2006, Charlie Hebdo published the same cartoons in solidarity with Denmark. Half a million copy were sold (after the terrorist attack in Paris, more than 7 million issues of Charlie Hebdo were sold). The newspaper justified this action in support of Denmark by stating that “Charlie Hebdo attempts to analyse the controversy and its consequences. The aim is to show that freedom of expression must be stronger than intimidation”. Heated debates and arguments ensued in all of the news media in France (for more details, see Sala Pala & Simon, 2007). Many Muslim organizations in France saw this as a clear “provocation”. Eventually, Charlie Hebdo was attacked in court, on the count that it was racist and injurious toward a group of individuals that belonged to a religion. The trial ended on March 22, 2007. The chief editor, Philippe Val, was acquitted. The court considered that, despite the shocking and hurting nature of the publication, the whole Muslim community was not targeted, and the context of the publication did not indicate the intention to directly and groundlessly offend the Muslims as a whole. Thus, for the courts, the limits of freedom of expression were not exceeded (Kamiejski, De Oliveira & Guimond, 2012).

These types of events can obviously have a strong impact on public opinions. However, it is very difficult to know what kind of impact. Thanks to an ingenious study by Guimelli, Lo Monaco and Deschamps (2010), we know a bit more about this particular case. The results of their research are clear: The effect of this trial against Charlie Hebdo in connection with the Danish cartoons was to increase the expression of negative attitudes toward Muslims in France. These negative attitudes were perhaps present before the trial but people did not feel it was proper to report them. After the trial, French participants were more likely to agree even with such explicit statements as “The religion that Muslims practice can be conducive to terrorism”. As Guimelli et al. (2010) suggest, the justice system in a country is a legitimate authority.

As such, its decisions can legitimize the expression of certain (negative) attitudes that people would otherwise try to hide.

The important point is that this explains why Charlie Hebdo became a prime target of Islamic terrorism. Nine years later, the editorial committee of Charlie Hebdo and its cartoonists paid the price of these actions by being slaughtered on January 7 2015 by Chérif and Saïd Kouachi shouting *Allahou Akbar* and “The Prophet got its revenge”. From the point of view of the political principle of laïcité, religious groups seeking to put pressures on people so that they do not express certain views is intolerable. As one web site says it: Laïcité is not an opinion, it is the freedom to have one (<http://www.laicite-republique.org>). The people at Charlie Hebdo were among the most radical advocate of this principle. But they never used physical force or deadly weapons, only cartoons.

Why Europe?

Kepel (2015) has studied the development of Islamic movements from a political science perspective. Several years ago, he identified key aspects of what is going on now (see Kepel, 2003, 2004). His analysis suggests that in 2005, everything was practically written on the internet: the targets, Europe, the goals of these attacks, etc. He cites in particular the on-line publication (in 2005) of the propositions of the main thinker in the movement, Mustapha Setmarijan Nasar, alias Abu Musad al-Suri. This is describing the master plan. It suggests that the basic problem with the approach taken by Oussama Ben Laden was that there was no connection with the ground troops. Suri advocates a system whereby Jihad is implanted at the base of the society, not at the top, by reaching young marginalized men in western societies.

Kepel (2003, 2004) argued that everything would be decided not in Ryad or Bagdad but in the European suburbs. Either the young Muslims in Europe find their place in the society and are well integrated, or they are discriminated against, and pushed to the margin so that they will look for other options. The deadly terrorist attacks in 2015 in Paris were carried out by young people born in France (see Khosrokhavar, 2015). The attack against a gay club in Orlando on the Saturday night of June 12, 2016 was the action of Omar Mateen, born in New York. This is pretty much what Kepel was predicting by taking seriously the opus of Suri: young marginalized men being recruited for the Jihad. And what is the purpose of this political violence? To get even more recruits. According to Kepel (2015), these acts of terrorism are designed to bring a state of civil war in European cities. With the population becoming more hostile and discriminatory, members of the Muslim community can feel rejected. Looking for a way out, they can find joining a radical group more appealing. If the aim of Islamic terrorism is to create civil conflict and hostility towards Muslims then it is of paramount importance to know how the population is reacting. Evidence that terrorism increases prejudice and discrimination against Muslims would be evidence that Suri’s strategy is working. Evidence that prejudice and discrimination are decreasing would suggest that the people were able to resist. Beyond mere speculations, this special issue brings exactly that

type of evidence. All five papers that follow are data-based. They present evidence on the psychological reactions to the terrorist attacks that occurred in January 2015 in Paris. They do so in a manner that has significant theoretical as well as methodological import.

Methodological issues

In previous research, many laboratory experiments have sought to re-create a terror attack under controlled conditions in order to study how people cope (see Fisher et al., 2011). This research is critically important. Dumont et al. (2003) have shown for example that ingroup-outgroup social categorization can shape emotional reactions to a terrorist attack. Nevertheless, equally important are studies that examine people who are confronted with real instances of terrorism. Laboratory simulation necessarily lacks a vital component: the actual threat to human life that terrorism implies. When looking at news reports of a terrorism incident, a method used in laboratory experiments, people know in the back of their mind that there is no imminent danger and that they are re-living the incident. Such is not the case when there is an on-going terror attack. Thus, studying real cases of terrorism requires methodological innovations and adaptation. All five papers of this special issue provide important examples of the use of innovative research designs.

Both the paper by Cohu, Maisonneuve and Testé (2016) and the one by Pelletier and Drozda-senkowska (2016) show how the use of an extended time frame can be useful. They report evidence based on repeated observations made over time so that one can grasp how things evolved. This type of design is not often used in experimental social psychology. Yet, it allows one to assess the psychological impact of terrorism and to examine if this impact persists over time. Of course, when the people tested at different points in time are not the same, care must be taken in reaching conclusions. This type of design is vulnerable to many internal validity threats (see Campbell & Stanley, 1963). Other variables, rather than terrorism, can be responsible in important ways for the observations. However, when many independent studies reveal the same pattern, we can be more confident in our conclusions.

The papers by Mayer and Tiberj (2016), as well as that by Zerhouni, Rougier and Muller (2016), used an entirely different methodological approach. As is the case in many terrorist attacks, people in France gathered all over the country on January 11 for a display of solidarity with the victims. Studying *who* participated in such collective assembly and *why* can reveal important clues into the psychological reactions to terrorism. In a large national survey conducted after the attack, Mayer and Tiberj asked people if they took part in the collective gathering and if they wished they had done so. In this way, they can study the social and psychological characteristics of those who were involved. In contrast, Zerhouni et al. used data on the Implicit Association Test (IAT) that can reveal subtle or implicit level of prejudice toward an outgroup and tried to see if there was some significant relations between scores on this test in certain French cities and the level of participation in the collective gathering that occurred in these same French cities. Despite using different methods, the results obtained by Zerhouni

et al. are quite consistent with those obtained by Mayer and Tiberj.

Still, the evidence presented in these papers is essentially correlational in nature. In the next paper, Nugier and colleagues (2016) report the results of an experimental study that was conducted during the terrorist attack in January 2015 and that includes this attack as independent variable. Only one previous study has been able to use such a powerful experimental design that depends entirely on circumstances (Das, Bushman, Bezemer, Kerkhof & Vermeulen, 2009). This design is powerful because it can go beyond correlational evidence to test for possible interaction effects between independent variables manipulated in the laboratory and the naturally-occurring independent one.

Theoretical issues

In addition to their methodological aspects, the papers published in this special issue also make a valuable theoretical and practical contributions. In fact, as will be seen, the papers mutually complement each other in providing an important piece of the puzzle. The cardinal issue, as noted above, is whether the violent terrorist attack against Charlie Hebdo and the Hyper Casher resulted in more hostility against Muslims. This issue relates to our theoretical understanding of the source of outgroup prejudice and intergroup conflict, a topic that has been central in social psychology for over 50 years (see Kite and Whitley, 2016 for a review of theories and evidence in the area). It also relates, as explained above, to the capacity of the population to effectively resist terrorism. Identifying means of building resilience in a community against external threats such as terrorism or global warming is a practical agenda of vital importance. Research on the psychological reactions to terrorism can provide important clues in such matter.

Cohu et al. (2016) present evidence suggesting that the Paris attack increased outgroup prejudice but that this effect was not long-lasting. They find no effect on social dominance orientation (SDO), which is good news. SDO is one of the main predictors of outgroup hostility, reflecting the motivation to maintain group dominance (Pratto, Sidanius & Levin, 2006). Cohu et al. also investigated attachment to *laïcité*. Here, their results indicate no increase in the mean score on attachment to *laïcité* but a change in the way it is related to SDO. Before and immediately after the attack, there is a negative correlation indicating that valuing *laïcité* means valuing equality, not group dominance. However, in the third and last period of observation, between two to four weeks after the attack, they found a positive correlation between support for *laïcité* and SDO. This does not seem to reflect a change in SDO because SDO is always related to having more anti-immigrant prejudice in all three periods. The most probable explanation is that this reflects a change in the meaning of *laïcité*. This is extremely interesting because it fits with a number of recent studies dealing with *laïcité* (see Nugier, Oppin, Cohu, Kamiejski, Roebroek & Guimond, 2016; Roebroek, 2015; Roebroek & Guimond, 2015).

If the effect of the attack was to increase prejudice, perhaps those who took part in the collective action of

January 11, all over France, were motivated by hostility towards immigrants and Muslims. This is indeed the thesis that Emmanuel Todd (2015) put forward in a book published a couple of months after January 2015. Todd made headline news with his book that was on the cover of magazines, in major newspapers and discussed in top of the line talk shows in France. He explained that, according to his analysis, this major collective action was a total fraud. People who took part displayed empathy, and noble values but this was a mockery because according to his “scientific” investigation, they were a bunch of xenophobic, racist and islamophobic individuals. Many, including colleagues of Todd, refused to believe in this thesis. In this issue, the papers by Mayer and Tiberj (2016) as well as that of Zerhouni et al. (2016) using very different methods, each provide straightforward tests of Todd’s propositions. They consider Todd’s theory and method in detail. Not only do they find no support for it, they find exactly the reverse of what he claims. Participants in the January 11 gathering in France were significantly less prejudiced than the non-participants at the explicit level (Mayer & Tiberj, 2016) and at the implicit level (Zerhouni et al., 2016). Significant methodological problems are identified in Todd (2015) by Mayer and Tiberj (2016). Of course, nobody is perfect. But even if one gives the benefit of the doubt to Todd (2005), as Zerhouni et al. (2016) do, one does not find any support whatsoever for his claims.

At this point, an important question needs to be raised. If it is true that the effects of the attack was to increase prejudice, as Cohu et al. (2016) report, how can it be that those who were the most active in the giant collective reaction of January 11 would be less prejudiced than others? The last two papers of the special issue provide answers. In the paper by Nugier et al., (2016) the results of an experiment testing the effects of cultural worldviews on perceptions of group threat and intergroup hostility are presented. Because approximately half of the participants in the laboratory study were tested before the terrorist attack of January 7, and the remaining after, the authors could include this in the design as an independent variable. The results show significant interaction effects between the manipulated variables in the laboratory and the naturally occurring terrorist attack. More specifically, they find that in the control group, the effect of the terrorist attack was to increase perceptions group threat and hostility towards Muslims, exactly as Cohu et al. (2016) found. However, the reverse is observed in the colorblind equality worldview condition: Participants in that condition perceived less group threat and were less hostile towards Muslims after the terrorist attack than before. The colorblind equality condition made salient the values of “Liberté”, “Egalité” and “Fraternité” that participants in the collective movements of January 11 were displaying during the march. In other words, this evidence indicates that cultural worldviews moderate the psychological effects of terrorism. Thus, terrorism can obviously generate greater intergroup antagonism. This was observed here in Paris 2015 but also in Madrid in 2004 or in London in 2005. However, the findings of Mayer and Tiberj (2016), Zerhouni et al. (2016), and the experimental evidence of Nugier et al. all suggest, for the first time to our knowledge, that terrorism can also actually decrease prejudice

and intergroup hostility. As Nugier et al. (2016) explain in their paper, although surprising, this reversal effect actually fits very strongly with existing theories in social psychology. When “threat” is re-defined as “challenge”, it need not lead to hostile reactions.

Last but not least, Pelletier and Drozda-senkowska (2016) present additional evidence on the variety of reactions that can occur following a terrorist attack. They take a broader approach to identify possible stages in the reactions to real terrorist threats. In a word-association task conducted with Parisians in the days following the attack, they find that they spontaneously speak mainly about emotions such as fear and sadness, but also about values, one might say cultural worldviews, such as freedom of speech and laïcité (secularism), as well as solidarity. Interestingly, the only value that is never mentioned again one month and two months after the attack is “laïcité”, suggesting that some kind of change has occurred here. By distinguishing between personal and collective threats, they also find that the terrorist attack was largely experienced as a collective threat, even among people who lived near the site of the attacks. All in all, the papers in this special issue suggest that cultural norms and values, that together form a specific cultural worldview, constitute a decisive weapon that was used by the French population to allow group solidarity in the face of adversity. Prejudice and religious intolerance, whatever forms they may take, did not prove effective in standing up against terror in Paris in January 2015.

Acknowledgments

This special edition was supported by grant ANR 11-FRQU-004-01 and by the CNRS Défi S2C3 2016 grant for the project IM3CP.

The guest editors wish to thank all the external reviewers for their valuable help in assessing the papers that were submitted for publication in this special issue.

We also would like to express our sincere appreciation for the helpful comments provided on a previous draft of this paper by Elodie Roedbroeck, as well as Celine Darnon and Olivier Klein.

Competing Interests

The authors declare that they have no competing interests.

References

- Arciszewski, T., Verhac, J-F., Goncalves, I., & Kruglanski, A. (2009). From psychology of terrorists to psychology of terrorism. *International review of Social Psychology*, 22(3), 5–34.
- Campbell, D., & Stanley, J. (1963). *Experimental and quasi-experimental designs for research*. Chicago, IL: Rand-McNally.
- Canetti, D., Russ, E., Luborsky, J., Gerhart, J. I., & Hobfoll, S. E. (2014). Inflamed by the flames? The impact of terrorism and war on immunity. *Journal of Traumatic Stress*, 27, 345–352. DOI: <http://dx.doi.org/10.1002/jts.21920>
- Cohu, M., Maisonneuve, C., & Testé, B. (2016). The “Charlie-Hebdo” effect: repercussions of the

- January 2015 terrorist attacks in France on prejudice toward immigrants and North-Africans, social dominance orientation, and attachment to the principle of *laïcité*. *International Review of Social Psychology*, 29(1), 50–58. DOI: <http://dx.doi.org/10.5334/irsp.59>
- Das, E., Bushman, B. J., Bezemer, M. D., Kerkhof, P., & Vermeulen, I. E.** (2009). How terrorism news reports increase prejudice against outgroups: A terror management account. *Journal of Experimental Social Psychology*, 45, 453–459. DOI: <http://dx.doi.org/10.1016/j.jesp.2008.12.001>
- Dumont, M., Yzerbyt, V., Wigboldus, D., & Gordijn, E. H.** (2003). Social Categorization and Fear Reactions to the September 11th Terrorist Attacks. *Personality and Social Psychology Bulletin*, 29, 1509–1520. DOI: <http://dx.doi.org/10.1177/0146167203256923>
- Fischer, P., Kastenmüller, A., Greitemeyer, T., Fischer, J., Frey, D., & Crelley, D.** (2011). Threat and selective exposure: The moderating role of threat and decision context on confirmatory information search after decisions. *Journal of Experimental Psychology: General*, 140(1), 51–62. DOI: <http://dx.doi.org/10.1037/a0021595>
- Fischer, P., Postmes, T., Koepl, J., Conway, L., & Fredriksson, T.** (2011). The meaning of collective terrorist threat: Understanding the subjective causes of terrorism reduces its negative psychological impact. *Journal of Interpersonal Violence*, 26, 1432–1445. DOI: <http://dx.doi.org/10.1177/0886260510369137>
- Guimelli, C., Lo Monaco, G., & Deschamps, J. C.** (2010). The lawsuit against «Charlie Hebdo» and its effects on the social representations of the Muslim community. *International Review of Social Psychology*, 23, 5–36.
- Kamiesjski, R., De Oliveira, P., & Guimond, S.** (2012). Ethnic and religious conflicts in France. In Landis, D., & Albert, R. (Eds.), *Handbook of ethnic conflict: International Perspectives*. New York: Springer, pp. 483–506. DOI: http://dx.doi.org/10.1007/978-1-4614-0448-4_18
- Kepel, G.** (2003). *Jihad*. Paris: Gallimard.
- Kepel, G.** (2004). *Fitna: Guerre au cœur de l'islam*. Paris: Gallimard.
- Kepel, G.** (2015). *Terreur dans l'hexagone: Genèse du djihad français*. Paris: Gallimard.
- Khosrokhavar, F.** (2015). Qui sont les jihadistes français (Who are the French jihadists)? *Sciences humaines*, 268, 3–3.
- Kite, M. E., & Whitley, B. E.** (2016). *Psychology of prejudice and discrimination* (3rd edition). Routledge: Taylor & Francis Group.
- Kruglanski, A. W., Bélanger, J., Gelfand, M., Gunaratna, R., Hettiarachchi, M., Reinares, F., Orehek, E., Sasota, J., & Sharvit, K.** (2013). Terrorism – A (self) love story: Redirecting the significance quest can end violence. *American Psychologist*, 68, 559–575. DOI: <http://dx.doi.org/10.1037/a0032615>
- Mayer, N., & Tiberj, V.** (2016). Who were the « Charlie » in the streets? A socio-political approach of the January 11 rallies. *International Review of Social Psychology*, 29(1), 59–69. DOI: <http://dx.doi.org/10.5334/irsp.63>
- Nugier, A., Oppin, M., Cohu, M., Kamiejski, R., Roebroek, E., & Guimond, S.** (2016). « Nouvelle Laïcité » en France et Pression Normative Envers les Minorités Musulmanes (Secularism in France and Normative Pressure Against Muslim Minorities). *International Review of Social Psychology*, 29, 15–30. DOI: <http://dx.doi.org/10.5334/irsp.11>
- Nugier, A., Roebroek, E., Anier, N., Kleinlogel, E. P., Chatard, A., & Guimond, S.** (2016). The psychological effects of terrorism are moderated by cultural worldviews. *International Review of Social Psychology*, 29(1), 77–84. DOI: <http://dx.doi.org/10.5334/irsp.61>
- Pelletier, P., & Drozda-Senkowska, E.** (2016). The Charlie Hebdo Terror Attack in Paris: Follow-up of French Citizens' Terrorist Threat Perception and Its Aftermath. *International Review of Social Psychology*, 29(1), 85–98. DOI: <http://dx.doi.org/10.5334/irsp.51>
- Pratto, F., Sidanius, J., & Levin, S.** (2006). Social dominance theory and the dynamics of intergroup relations: Taking stock and looking forward. *European review of social psychology*, 17(1), 271–320. DOI: <http://dx.doi.org/10.1080/10463280601055772>
- Roebroek, E.** (2015). *Citoyenneté, laïcité, diversité: L'école et la transmission des principes républicains*. Unpublished PhD thesis, Laboratoire de Psychologie Sociale et Cognitive (CNRS UMR 6024), Université Blaise Pascal, Clermont-Ferrand.
- Roebroek, E., & Guimond, S.** (2015). Schooling, citizen-making, and anti-immigrant prejudice in France. *Journal of Social and Political Psychology*, 3(2), 20–42. DOI: <http://dx.doi.org/10.5964/jspp.v3i2.391>
- Sala Pala, V., & Simon, P.** (2007). Public and political debates on multicultural crises in France. *Report on national and European level cases*: EMILIE.
- Zerhouni, O., Rougier, M., & Muller, D.** (2016). Who (really) is Charlie? French cities with lower implicit prejudice toward Arabs demonstrated larger participation rates in Charlie Hebdo rallies. *International Review of Social Psychology*, 29(1), 69–76. DOI: <http://dx.doi.org/10.5334/irsp.50>

How to cite this article: Nugier, A., & Guimond, S. (2016). « Je suis Charlie » : New Findings on the Social and Political Psychology of Terrorism. *International Review of Social Psychology*, 29(1), 45–49, DOI: <http://dx.doi.org/10.5334/irsp.60>

Published: 23 August 2016

Copyright: © 2016 The Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC-BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited. See <http://creativecommons.org/licenses/by/4.0/>.



International Review of Social Psychology is a peer-reviewed open access journal published by Ubiquity Press.

OPEN ACCESS