Revista Lusófona de Estudos Culturais, vol. 3, n. 2, 2015/2016, pp. 327 – 331

Krieghbaum, H. (1970). *A ciência e os meios de comunicação de massa*. Rio de Janeiro: Edições Correio da Manhã.

Fábio Ribeiro

How did press journalists portrait science information in the first half of the 20th century in the USA? What kind of professional relationship scientists had with reporters to make their research available to the audiences? And what about the readers? Did they show any interest in science news? If so, how did they demonstrate such interest? These are the three key agents – science journalists, scientists, and readers – of Hillier Krieghbaum's (1902-1993) *Science and the Mass Media* [1]. This book follows a very pragmatic agenda, as questions and answers are provided directly, using short sentences, in a very well documented book about the news coverage of science issues. Krieghbaum, a former Journalism teacher at the New York University for 25 years, offers an excellent and very accurate documentation to discuss the role of science communication in the press – press clipping, annotations from congresses and interventions in gala dinners, where a personality is granted an award or for fundraising purposes, very typical in the American society. Moreover, this is a seminal work on the relationship between media and citizens, since the author explores several troubling situations that have not been settled in this time frame from the almost 50 years since the book´s publication and this review.

The book is composed of 14 short chapters, in which the questions pertaining the discussed matter are presented firstly as basic assessments, but gradually become more complex. In the first three chapters, the author introduces some common considerations to explain the need of a wider understanding and knowledge of the scientific information, thus distinguishing different types of science news coverage and highlighting the most frequent clashes between journalists and scientists. From chapter four to 10, Krieghbaum decides to focus on the human dimension of this subject, as if it were a dynamic triangle: journalists/editors; scientists; consumers/readers. In the final chapters, there is a particular interest in identifying the "internal and external barriers" of the journalist's endeavors to inform about science matters. Krieghbaum completes this deep approach by recommending several strategies for science journalists to improve their communication skills regarding the reporting on this subject and exposes his opinions on the future of science communication and possible challenges that said future could bring. Throughout this book, it is possible to notice that the author wishes science communication to be a priority for the public, as well as competently executed by journalists in a profound relationship with researchers.

[1] This book was translated into Portuguese by Maria Christina Lacerda Rodrigues, from the original one published in 1967 *Science and the Mass Media* (New York: New University Press; London: University of London Press Limited. (pp. 276; £39.42 – Amazon.com).

Although scientific publications may gather the particular interest of a small group within media audiences – a niche – the fact that it is important to share some of the scientific knowledge produced by specialists with the general public seems to be a consensus in modern societies. In 1967 the National Association of Science Writers from the USA (NASW) studied 1919 citizens and their relationship with news, especially science information pieces. 83% of such group has suggested that science can "promote a better world." More recently, in 2015, also in the same country, The Pew Research Centre interviewed 3748 American scientists and 71% of them considered that the general public seems to be keen on understanding their work. Besides that, 53% of them believe news coverage can promote wider chances of science to be discussed within media audiences. Krieghbaum tries to understand why people are interested in scientific innovations, and warns his readers about the strategic and deceitful interest of some citizens who only care about science to provide medical solutions for diseases or unique revolutions and new discoveries (pp. 59-60).

The most direct question brought by this book is shown right in its first chapter: "What [Science communication is] for?" Why do we need to read more about science? This is indeed an ingenious way to engage with readers since it offers them a chance to create their own answers for a very direct question. Krieghbaum starts explaining a potential reason: "not only health means a good life but also communication may be decisive for life itself, keeping patients aware and helping doctors in treatment as well" (p.8). In addition, science matters for public reasons. Science funding is often in charge of the government. Following the report of the National Science Foundation of the USA, public investment in science – which includes citizens' taxes, for instance – has risen from 0,8% to 15,6% between 1940 and 1965. Thus, as citizens seem to fund science, although indirectly, it is safe to admit that they are entitled to be aware of scientific innovations brought by research in this public regard. Carl Sagan (1989) made use of a similar argument when he said "science is an essential tool for democracy in an age of change. Our task is not just to train more scientists but also to deepen public understanding of science" (quoted in Sanchez et al., 2014, p. 50).

In chapter three, the author identifies troubling situations that commonly happen between scientists and journalists, by recalling Nathan Haseltine's speech during the George Westinghouse Award gala dinner, in 1953. The award was granted to journalists who covered scientific news and Haseltine, one of the winners, summarized several typical conflicts. For instance: for a science news article to be popular, readers must find it funny or amusing, which demands from reporters honed writing skills that enable the creation of appealing titles or leads; sometimes readers seem to be reluctant to understand more complicated details of scientific language; journalists tend to interpret small scientific innovations as universal and definitive answers, based on the mentality of the exclusive or breaking news that pervades the media. Finally, scientists seem to be cautious about the disclosure of their work, either due to the confidentiality of their research or because of the need to carry more tests to provide more understanding of a problem or confirm results.

From chapter four to ten, Krieghbaum decides to focus on the human dimension of the topic being discussed in this book, exploring the routines of science journalists, and characterizing them sociologically and demographically. In this regard, the author mentions five studies, produced by the already mentioned NASW. Said researches were carried from the 1930's and characterized this population thusly: most of them had graduated, were around 40 years old, and had "last went to the gym 25 years ago" (p.89); few felt motivated to pursue a Ph.D. They were also portrayed as self-confident, and as people who traveled a lot, especially to the annual convention of the American Medical Association, as well as other scientific events. They were relatively well paid, yet roughly distinguished among peers, and most of them came from New York State. Among their most typical routines there is a very definite tendency to read several scientific journals, as well as to collect science news from other media. Although Krieghbaum barely refers to the social sciences, it is somehow curious the way he recalls this scientific area in this context: "for social scientists, science journalists are observers, teachers, guides and hosts" (p. 108). In the end, the author summarizes the regular complaints scientists make about the work performed by science journalists: deficient selection of source material to compose the articles; inaccurate reports; sensationalism; and scientific distortions.

Krieghbaum also talked about the readers, the consumers of science news, reminding the relevant results of another NASW report that addresses this matter. The consumers of science news seem to share several characteristics, such as high income, high levels of education and a more active reading life. The vast majority of them considered the number of science news published by the press at that time to be "sufficient." When it comes to gender, the study also provided evidence that men tend to enjoy "scientific news" more than women, who admitted reading more "medical news." Krieghbaum also proposed a categorization of science news' readers: purely ignorants; poorly informed; minimum awareness of scientific endeavors; broad comprehension of science issues; active citizens.

As mentioned earlier, Krieghbaum follows more complex issues and questions in the final chapters of the book, starting with an inventory of the internal and external barriers posed for science journalists. In the newsrooms, journalists experienced problems to deconstruct scientific terms into a simpler understanding, tangible for the general public (p. 200). Apart from the little space for the science news in the newspapers, science journalists often felt that they could not fully understand the specific details of scientists' work – and that is why the author believes those professionals should pursue opportunities to learn more about science. Although the author does not provide further explanations on this potential lack of scientific knowledge by the journalists and editors, it seems clear that, from an external point of view, journalists had to face serious problems with public institutions to get more information on a subject. In mid-1950's, US government was reportedly reluctant to admit any correlation between different types of cancer and the already-wide consumption of cigarettes. This sort of censorship, as suggested by Krieghbaum, was not an exclusive practice of the State. Some companies were accused

of hiding information and pressuring journalists, forcing them to not publish articles on certain issues, or delaying said publications. This sort of action is, up to our days, still the subject of numerous speculations and debates. On the matter of the difficulties science journalists had to face the author also mentions that the media works with different schedules and timings when compared to the sciences. In other words: news are more immediatist.

Krieghbaum starts the last part of this more sophisticated approach by handing out some practical advice for science journalists, thus recalling basic recommendations, such as a rigorous follow-up of the most important scientific events. The author also suggests that close articulation with researchers is needed, as well as engaging with advanced training and education. Reading scientific journals should also be a priority for those professionals, as well as applying for a vast number of scientific fellowships – for instance, the Nieman Lab at the University of Columbia or the News Service at the University of Wisconsin.

In the last chapter, the author describes several future scenarios for the communication science and it is curious to observe that the temporal gap between the publication of this book and this review permits comparisons at some level, thus allowing us to verify or reject some of Krieghbaum's prospects. One could say that most of his considerations remain valid, as he pledged for appealing and informal writing so that audiences could better understand science information in newspapers. The author expected that, with the passing of time, more journalists would be brought to this area and that the improvement in public education and the consequent increase in people's income would oblige newspapers to publish more content on science. In our opinion, these predictions seem ambitious, even today. Nonetheless, it is safe to admit that mainstream media and school remain essential elements of science education and the awareness of science-related issues (Carvalho & Cabecinhas, 2004). The author also advised journalists to avoid common expressions that have turned to be a routine in science journalism writing: "huge discovery," "one step closer," "innovative investment," among others. However, we could argue that these very common words often provide spectacular effects to the media discourse, helping readers to engage with stories, which will, in turn, have more chances of remaining in their minds. As a final coherent future remark, the author believed that social sciences' growth would offer wider understanding about social and public life.

The inspiration to update Krieghbaum's book may be the most remarkable experiment to be followed by researchers in this area. Hence, it is safe to admit that communicating science is now a much more intricate effort that goes beyond the communication produced exclusively by journalists. Kreighbaum does not explore other ways in which scientists could promote the disclosure of their work outside the media sphere, and this is perhaps one of the most obvious limitations of this work.

The "communication of science", as a complex theoretical concept, is now understood consonant to different approaches. According to them, everything seems to be considered communicable, and yet, countless uncertainties remain. Without a doubt, the communication of science has become professionalized. As a result of technological

globalization and migration and the multiple opportunities for academic and professional training, there are certainly more sources of information, listening points and realities that escape the media spotlight. Laboratories, research facilities, and investigators are practically struggling with citation indexes, download and view ratings, internationalization, research projects and fellowships (Martins, 2012), a scenario that Krieghbaum certainly could not have predicted. Ultimately, it is possible to assert that as time goes by these needs were not resolved: the demand for visibility, effective appreciation of all the scientific work, and the debate about the actual impact of research in everyday life still worry present day scholars.

Bibliographic references

Carvalho, A. & Cabecinhas, R. (2004). Comunicação da ciência: perspectivas e desafios. *Comunicação e Sociedade, 6*, 5-10.

Krieghbaum, H. (1970). *A ciência e os meios de comunicação de massa*. Rio de Janeiro: Edições Correio da Manhã.

Martins, M. L. (2012). A política científica e tecnológica em Portugal e as ciências da comunicação: prioridades e indecisões. *Livro de atas do I Congresso Mundial de Comunicação Ibero-americana (*pp. 331-345). S. Paulo: CONFIBERCOM / SOCICOM.

Pew Research Center, Internet, Science & Tech. (2015). *How Scientists Engage the Public*. Retrieved from http://www.pewinternet.org/2015/02/15/how-scientists-engage-public/.

Sanchez, A.; Granado, A. & Antunes, J. L. (2014). *Redes sociais e cientistas*. Lisboa: Nova Escola Doutoral – Reitoria da Universidade Nova de Lisboa.

Biographical note

Fábio Ribeiro is a Research Associate at the Communication & Society Research Centre, where he serves also as a Science and Technology Manager. In 2013 he obtained his European PhD in Communication Sciences.

E-mail: fabio.ribeiro@ics.uminho.pt

University of Minho, Communication & Society Research Center, Gualtar - Braga-4710-057, Braga, Portugal.

*** Submitted: 10-10-2015**

*** Accepted: 16-10-2015**