SOCIETAL REPRESENTATIONS ON THE ACCIDENT WITH CAESIUM-137

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Abstract

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The influence of societal representations on the theme of nuclear energy are reviewed in the light of the public's reactions to the accident with the capsule of ^{137}Cs in Goiânia. As a starting point, it is accepted that the panic caused by the accident can be properly understood only if human subjectivity is taken into consideration. This perspective is required whenever events unfold which put human life and the environment at risk. Faced with the accident, the public internalized radioactivity — an element unknown to them — as a certainty of contracting cancer and ultimately death, despite the fact that such outcomes can only be the result of excessive exposure to radioactivity.

1. INTRODUCTION

Bearing in mind the impact of the accident with the capsule of ^{137}Cs in Goiânia at the local and national levels in Brazil, this occurrence is discussed from the standpoint of societal representations, a theory which permeates philosophy, social psychology and social science.

The data referred to in the present analysis were culled from newspaper clippings filed at the offices of the Brazilian national Nuclear Energy Commission (CNEN) in Goiânia. The files, composed of 19 volumes, contain some 3650 articles from various sources covering the accident from the very first moment up until today. The newspapers used as sources were: 'O Popular' and 'Diário da Manhã', two local newspapers, along with 'Folha de São Paulo', 'Estado de São Paulo', 'Jornal do Brasil' and 'O Globo', which are national and widely read newspapers.

The starting point for the research was the sense of panic, restlessness and fear the accident provoked in the local and national populations as an effect of the societal representations that have emerged around the world since the beginning of the use of nuclear energy.

In order to analyse and reflect upon societal representations, two authors in particular are referred to: Lefebvre [1], who theorizes from the standpoint of philosophy, and Moscovici [2], who takes the social psychology approach.

We adopt the notions which are common to both, namely, that representations are forms of knowledge which direct social conduct in everyday life and which model the actions of individual persons.

Moscovici and his disciples consider that representations are a style of proper knowledge in modern society, where science penetrates into the various aspects of routine. They presuppose that there are two distinct classes of universes of thought: the 'consensual' universe, where the societal representations are produced, and the 'reified' universe, where the scientific and advanced thoughts are produced, each one with its own mechanism and rules.

Lefebvre assumes that representations are facts of conscience, social or individual, which imply a value, positive or negative, imputed to words or images that make them up. To

him, the appraised 'object' may arise as much from the memory as from the anticipation of a virtuality by the imaginary.

Therefore, as societal representations are facts of social, psychological and political order, this theory is appropriate to analyse events such as the accident, the ramifications of which were ultimately powerfully influenced by the objective and subjective dimensions of reality.

2. NUCLEAR ENERGY: THE GENESIS OF FEAR

The presupposition that the anxiety, panic and fear produced by the accident are due to societal representations built around the use of radioactivity allow to understand how these representations were created in another moment of recent history, remained stored in the societal imaginary and were relived or reactivated at each serious event related to the use of nuclear energy, as occurred in Goiânia.

Hobsbawn, in his reflections on the twentieth century, acknowledges that this is a century marked by the persistence of wars. "One lived and thought in terms of a world war even though the cannons were shut up and the bombs were not exploding." [3]

He goes further to assert, in the context of the Cold War: "Entire generations were raised under the threat of global nuclear battles that, one believed, could begin at any moment to destroy humanity. Eventually it did not happen, but for about forty years it seemed to us a daily possibility." [4]

The origin of fear and the representations about nuclear energy evolved in this martial context. More precisely, they were an offshoot of the end of World War II, when the atomic bombs were dropped on Hiroshima and Nagasaki, thus revealing to the world the destructive power of the new form of energy being used. At that moment, the image of the atomic mushroom, with all the horror it provokes, materialized and took root in the societal imaginary.

The destructive aspect immanent in nuclear energy was not forgotten, since it had been fed by the conflicting interests of the United States and the Soviet Union in the context of the Cold War. Political speeches and confrontations added emphasis to this dimension of nuclear energy, which was picked up by the media, didactic books, the arts and in particular, the movie industry and television, two powerful vehicles of language, image and communication.

Thus, the benefits to mankind of this form of energy were being suppressed in the societal imagery by the evocation of its destructive utilization and horrible consequences. Nevertheless, to those who, because of their professional activities – physicists, doctors, technicians – did not lose sight of the creative potential radioactivity brings to man, the evaluation of nuclear energy was quite positive. By contrast, the lay public, who ignored the wide range of its application in everyday life and the technology it generates, oscillated between indifference and, when confronted with the risk inherent in its utilization, a strongly negative opinion.

3. THE ACCIDENT, THE MEDIA AND PUBLIC BEHAVIOUR

Technically acknowledged on 29 September, the facts about the accident were first reported to the public by the radio and television on that same day. On 30 September, the newscasts about the event were still restricted to the local media. However, the accident became the main topic in the national and international media broadcasts on the following day. The news channels' approach to reporting was based on two priorities: first, to inform

the public about the accident itself and report what was going on and secondly, to explain what radiation really meant, what the accident was about and what the consequences might be. The media also reported on the technical actions being taken and the response of the population.

On 1 October, with the exception of Estado de São Paulo, which carried an article about the accident in an inside page, all the other newspapers gave extensive coverage to the event. The articles reported on a serious accident, involving a radioactive caesium isotope, following which a considerable number of people were taken to hospital or were being isolated under suspicion of contamination by radioactivity. According to the news on this date, a high dose of radiation might cause cancer, followed by death. News accounts also noted the existence of an institution named CNEN, which was responsible for the control of radioactive sources and which had dispatched technicians and experts to Goiânia to take care of the persons directly affected by the accident and to deal with its consequences.

Simultaneously, the media, with the aid of information passed on by the technicians and scientists, tried to explain to the public the meaning of terms or concepts such as caesium-137, radiation and its employment, and the like. On 1 October for instance, Folha de São Paulo published an article under the heading "Material is obtained from uranium fission" based on information provided by Robert Fulfaro, the Director of IPEN (Nuclear and Energy Research Institute). Fulfaro declared that "Caesium-137 is a radioactive material, produced by uranium fission, presented in the form of salt (chlorides or carburets), usually present in ceramic pastilles." On the same day Jornal do Brasil published on page 12 an article entitled "A mortal medicine", quoting Professor Bernado Blun, from Santa Ursula University, who stated that "The caesium-137 isotope largely used by nuclear medicine for the control of the growth and spreading of tumours, when in direct contact with a living being, may cause the opposite effect of the therapy [...] depending on the amount of radiation liberated on an individual, the caesium-137 will provoke, immediately, severe bleeding, paralysis of the central system and finally, death. In the long run it causes cataracts, leukaemia, cancer [...]."

Obviously, the press had adopted a discursive style in which the reliability of the testimony was to be linked to the degree of knowledge attributed to the person quoted, who, in turn, was subscribed by the institution he or she represented. Furthermore, the attempt to translate to the public the meaning of the technical terms employed to describe the accident was continuously referring to a non-existent prior knowledge, even among those who were used to reading the newspaper, i.e. those persons who were confined to the 'reified' universe. Therefore, the consequences of the damage that radiation caused to the human body were fully known by the population, but this understanding did not come from a specialized skill or from the acquaintance with nuclear medicine or physics. In this way, the media was responsible for the mediation between the 'reified' and 'consensual' universes. Owing to the media's immediate action, the uncommon became familiar. Nevertheless, for this knowledge to become internalized, it was necessary for it to spread orally — it had to become the main theme of conversations in cafes, homes, offices, shops and streets. In the process, the social memory of similar accidents was activated.

The characteristic behaviour of the public at the time was typified by the following newspaper articles:

- On 3 October, a first page headline in the Folha de São Paulo said: "Locals leave their houses for fear of radiation", referring to the desertion of their homes by the people who lived close to the focus of the contamination (epicentre) in the areas of the city called 'Central' (where the capsule was first split open), 'Aeroporto' (where the capsule was opened completely) and 'Norte Ferroviário' (where the fragments of the capsule were manipulated).

- On the same day, O Popular – a local newspaper – published an article entitled "The industry of gossip" which said stated: "The population had so many doubts that the public authorities went on the air to explain the accident and set up a direct-dial service for radio listeners. Almost 2000 calls were received daily, which showed how misinformed people were."
- On 13 October, Jornal do Brasil ran an item on page 4 entitled "Fear empties INAMPS Hospital". The article stated: "HGG (the General Hospital of Goiânia) is the largest emergency hospital in Goiânia, but as the people directly involved in the caesium-137 accident have been taken there, new patients are opting to go to the University Hospital [...]. On normal days, HGG admits some 1500 patients. Yesterday, only four patients were admitted there."

A few days after the disclosure of the accident, at least five per cent of the population presented symptoms of contamination, a figure which illustrates how the panic had taken hold in people's minds. This fact was verified by Donald Clarke Binns, a technician from CNEN who was responsible for the measurement of radiation in a soccer stadium in the downtown area which had temporarily been converted into a public ambulatory. Aside from the repeated cases of somatization, another important factor was the state of confusion in the public, in spite of the massive amounts of information they were receiving. This uncertainty would lead an observer to conclude that either the public did not trust the information provided to them or they lacked the conditions to process it.

It is important to emphasize at this point that a state of insecurity and anxiety began to guide the behaviour of the population. People were moving away from the vicinity of the epicentre, families were denying shelter to relatives made homeless by the accident, even a visitor from the affected neighbourhood would not be welcome in other people's houses. Discrimination across the nation was not only felt badly by the population from Goiânia and the state of Goiás, it also affected the products and goods exported from the region.

Some tried to interpret these attitudes as a factor of the way the media had dealt with the problem. In their view, the scope of the response was directly proportional to the extent of media coverage and the way the issues had been manipulated. This is an approach which privileges only the visible side of the problem and it does make sense. However, a strong argument can also be made that the repercussions of the accident were directly linked to societal representations and the way they were processed by the public. In this regard, the need to incorporate the dimension of subjectivity when analysing real social phenomena must be acknowledged.

4. THE ASSOCIATION WITH THE CHERNOBYL ACCIDENT

Amongst the articles selected for quotation and discussion is that on page 16 of O Estado de São Paulo of 1 October, 1987 entitled: "Nuclear radiation contaminates 60 individuals in Goiânia". According to the report, twenty contaminated individuals were still under intensive care and forty were being observed in isolation until it could be ascertained that they were not contaminated. The article stated: "According to technicians from CNEN in Rio de Janeiro, the device which caused the accident – a caesium-137 isotope, was an element also present in the accident of Chernobyl, in the Soviet Union [...]". This article was the first in a series to refer to one point we consider very important to understand the reasons for the magnitude of the impact of the Goiânia accident.

On the ensuing days, the association of this accident with the Chernobyl nuclear disaster was present in every newspaper. The first source of information which made possible the construction of such a comparison was the declaration of a CNEN director in Rio. This

declaration paved the way for the consolidation of this construction in the societal representations about the accident. Now there was a real reference for which to look when considering what radiation really meant: Chernobyl was the symbol everyone was searching for, the materialization of the accident in Goiânia, with all its implicit consequences.

But this reference touches on another very important matter in the analysis of the accident: when dealing with the peaceful or military uses of nuclear energy, it is impossible to confine them to regional history. If the interest of science permits the rapid installation of international schemes to control and repair the damage caused by nuclear accidents, the public will rectify even faster their own representations on this subject and through them, construct their own way to deal with this problem.

To comprehend what radiation, contamination, caesium-137, the atom, etc. are, is certainly a very difficult endeavour for any population. But they can and will compare this information with that stored in the societal memory of similar events in history.

On 4 October, 1987 the declaration of the supervisor of the CNEN staff sent to Goiânia for the decontamination procedures, Carlos Eduardo Almeida, was reproduced under the title "Radiation is stronger than in Chernobyl" on the first page of O Globo. The article stated: "The gamma radiation liberated by the capsule of caesium-137 is more harmful than alpha and beta radiation because it has a greater power of penetration (it can reach a depth of 10 cm and hit the liver and spine medulla). The beta radiation spread by Chernobyl, in the Soviet Union, for instance, only reaches a depth of 5 mm." The point here was to compare two different types of radiation in order to demonstrate that the gamma radiation emitted by the caesium-137 was much more harmful than the alpha and beta radiation released in Chernobyl. This assessment could be assimilated by part of the public. However, the mediations constructed by the technical and scientific reasoning were removed and a literal interpretation of facts of a similar nature prevailed. The result was even more panic and fear in the population.

Similarly, on 4 October, Diário da Manhã, a local newspaper, published a long commentary of the accident under the ironic title "Chernobyl in the Plateau", using an expression first coined by O Globo. This association, no matter how involuntary, reveals at once the universal and local characterization of the accident. To assimilate this characterization fully, it would be necessary to understand the specific characteristics of the Goiânia event and the fact that the equipment had been abandoned as scrap, the irresponsibility at all levels in relation to the storage and care of the radioactive device, the way the machine was manipulated by those who had removed it from the abandoned building, etc. These antecedents add a peculiar dimension to the accident and allow its specificities to come to light. Still, as a whole, the accident can only be properly understood if the elements which lend a globalized and universal meaning to it — namely, that it happened primarily as the result of the use of nuclear energy at the end of this century, with all the consequences, predictable or unpredictable, that such use entails — can be added to its specific characteristics.

5. CONCLUSION

One can conclude, therefore, that the feelings of insecurity, restlessness, fear and panic which overcame the population were provoked, on the one hand, by the representations derived from the materials aired by the media, and, on the other, by the representations present in societal memory, constituted by the remembrance of other facts linked to the use of nuclear energy.

REFERENCES

[1] MOSCOVICI, S., A Representação Social da Psicanálise (The Social Representation of Psychoanalysis), Zahar, Rio de Janeiro (1976) 25.

[2] LEFEBVRE, H., La Presencia y la Ausencia, Contribución a la Teoría de las Representaciones, Fondo de Cultura Económica, Mexico (1983).

[3] HOBSBAWM, E., Era dos Extremos, O Breve Século XX (The Age of Extremes, The Short Twentieth Century), Companhia das Letras, São Paulo (1995) 34.

[4] HOBSBAWM, E., ibid., p. 224.