

Discursive Strategies in scientific magazines: media, scientific disclosure
and biopower¹

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"Newton's binomial theorem is as gorgeous as the Venus of Milo

The trouble is, few people note that."

Álvaro de Campos²

Introduction:

In Brazil, the emergence and the strong presence of science magazines marked the decades of the 1980s and, mostly, the 1990s. It would be difficult to say whether this phenomenon is equally frequent and distributed internationally, although most theoretical analysis induced us to believe that, if it is not universal, surely its amplitude is wide, since the explanations the issue deserves largely surpass any country's boundaries.

This could be enough to stir our interest, for, within this universe, it is possible to explore issues not only associated with scientific disclosure, but also with the public representation of contemporary sciences, which is viscerally connected with technologies employed in the transformation of the universe, as well as life itself. We also could consider the relations, conflicts and negotiations set between the media and science significant actors, such as scientists, population, media and the State, which can allow us to link up biotechnologies, media and biopower, an urgent and fascinating thematic.

Concerning the current research, we defined three different kinds of science magazines as its corpus: *Galileu* (Editora Globo),

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² de Campos, Álvaro. In: Pessoa, Fernando. **Obra Poética**. 519, pg 343.

Superinteressante (Editora Abril) and Scientific American, Brazilian edition (Duetto Editora). Those magazines have massive monthly circulation figures and relay on a very loyal audience. The articles regarding biosciences and biotechnologies, on the one hand, and the ones concerning the environment, specially global warming, on the other, were the topics chosen for selection and analysis.

Supported by a theoretical and critical bibliography on the history of sciences, as well as by the emergent science studies and cultural theory, our hypothesis indicates two opposed and almost paradoxical directions - in the case of humans, regarded in their singularity, we have found very optimistic articles, which virtually manage to promise, if not eternity, something very close to it; if not aging eradication, then its fadeout within this universe where biological and chronological life are no longer due to correspond among themselves; in the case of the environment, on the contrary, their tone almost always sounds like catastrophe forecasting, suggesting an imminent death of the species.

There appears to be a **technical-scientific narcissism** under construction, promising a lot to anyone who succeeds in managing one's informative capital, as well as the care with one's own body, although threatening, in the mean time, this long-lasting individual with the risk derived from all things taken as otherness: violence and terrorism, understood as manifestations of the risks concerning social and political alterity, as well as ecological disasters - products of a nature enraged by the predatory technological culture's interventions.

2- Conjectures and conjectures:

We can surely imagine a set of factors favorable to the emergence of our communication vehicles, what might be explained by resorting to two great thematic axis; the first one relates to consumption segmentation, or customising, and the second refers to the importance of science and technology in an information society's reality, as well as our imaginary of the future.

Concerning the first topic, customizing consumption, as an interaction experience with media, our time features a segmentation of audiences and interests, as well as an assimilation of the *zapping* effect, which defines a non captive but drifting pattern of attention, always in search of novelties. Not incidentally, then, such magazines had to be if not reality's, at least cable TV contemporary mentality's, for they match channels like National Geographic, Discovery Channel, Discovery Health, Animal Planet, Discovery Kids and so on.

According to some theorists, this universe is called "media culture", as in opposition to mass culture; if the latter corresponded to the fear of homogenization and the consequent alienation of human subjectivity before a "massifying" cultural reality, "media culture" offers radical plurality and diversity. Within this movement, media culture anticipates what apparently is the utopy of "self-centered" digital media, where "what matters is that they bring the content I want, when I want, in the format I want", accordingly to the euphoric terminology used by its proclaimers.

The same factors also indicate an aspect this paper intends to privilege, that is, the manner how science magazines explore the circumstances of the public representation of science they arise, and the

kind of mediation they operate concerning biosciences and biotechnology's discoveries, elaborations, conquests, promises and projects.

The new contemporary trend, which associates scientific disclosure, science public representation and biopower, understood accordingly to Michel Foucault's³ work, also deserves attention. It means, the power associated with the two ways of intervening on life that he indicates. The first one would be connected to what Foucault defined as the machine-body, a body that must be conditioned aiming the best exploration of its forces and skills, its greater docility and utility, as well its best adequacy to control, what founded disciplinary societies logic, one of modernity's characteristics. The second one refers to a biopolitics of the population, centered within the body of the species and the regulating of its biological mechanisms such as: longevity, mortality, reproduction, health standards, migrations and the calculation of its possible variations.

In Foucauldian texts, this interaction between media and biopower, or biopolitics, is not explicit. However, it is easy to trace the contract which binds them together: on the one hand, media achieves prestige, seriousness and newness, since science is, in the Western model, the representation of truth, whilst technology is the expression of its effectivity. On the other hand, media provides visibility and magnification to techno-sciences promises, intervening both mediate and immediately in the achievement of today's necessary huge budgets, and also in decisions regarding the priority of investments.

³ Mainly in the last chapter of *The Will to Knowledge*, the first volume of History of Sexuality, titled **Right of Death and Power over Life**, that have been giving rise to excellent critical interpretations, mostly from Gilles Deleuze, Nicholas Rose, Paul Rabinow and Giorgio Agambem.

3- Visiting the magazines:

By choosing science magazines as this research object, our focus, therefore, will be the public representation of science and technology, in a movement that has its beginning perceived during the decades of the 1980s and the 1990s up to now. Here we find a set of connections and alliances that provide the present relations between two actors - media and science, which almost hold a complementary symbiosis - with support and strength. By broadcasting articles on scientific research, the media accomplishes prestige and newness; as already mentioned, in our time, science enjoys a very special status: it remains as the source of true statements, as it has always been understood by common sense⁴. However, now science is also the locus of reality's reorganization, promising to carry out the possible and the almost impossible through technological interventions.

"Whether we approve techno-scientific fantasies or not, they are an increasingly more powerful part of our cultural landscape, and we need to understand them, because these dreams are shaping the way important technologies are being developed and implemented in our society. It is not a matter of mere imaginary creations from science-fiction writers, it is more and more concerned with dreams related to the real world of influential members of the techno-scientific elite." (Wertheim, M. 2001, p.31).

⁴ It is curious that although finding its errors moments and places in the everyday life and the history of sciences, which sometimes generate true effects of transformation, the relation between speculative and experimental science and truth remains almost unflinching; even before the withdrawing of medicines from the market due to ineffectiveness or harmful side effects; even knowing that some of the most important science paradigms have slumped in the Twentieth Century, even after the "day physicists knew sin", as Oppenheimer has stated after Hiroshima and Nagasaki's bombs, we stake all of our chips that the best future will be a fruit of techno-science's wonders.

By its turn, media repays by assuring science's political and cultural ground, that, obtaining visibility, justifies its own importance and secures the necessary investments to its functioning. The consequences, however, do not end up here. Nowadays, the care habits concerning the human body support themselves in a wide biotechnological apparatus, and their use is straightforward associated with the functioning of consumption society.

4-Concerns and promisses

By necessity, the countless promises to surpass boundaries, regarding both life and human experience, specially the ones concerning health and aesthetics, created a huge appeal among the readers, for they are directly associated with each one's personal life. In this case, we can include both physical and mental health with renewed attention regarding some pathologies frequently mentioned in these magazines (as well as informative magazines) such as ADD (Attention Deficit Disorder), OCD (Obsessive-compulsive Disorder) or even Panic Syndrome, which sanction, upon its diagnosys employment, a consequent medicalization of society.

The appeal originated does not only affect reading, but also the consumption of products, for new desires and new fears are induced among the population, meanwhile a new logic concerning the relationship with the body is under construction. Biomedical technologies announced in newspapers and magazines promises individuals the means to sculpt the body shape, to remain alive and beautiful and to enhance performance, absolute conditions through which they positively belong to the new society of cognitive capitalism.

This new control possibility brings about individual responsibilities, inducing us to deal with our bodies according to a risk management model. In our understanding, this seems to be the new form of presence of a kind of politics that dislocates itself both from collectiveness to the individual

and from the State to the individual, acting in a subtle concurring manner with a new presence of power.

It is as though the constituted powers responsibility, that founded the political notion of nation and handed executive powers to governments, has changed the contract: it is no longer a matter of protecting in the broader sense of the term; it is about informing, hence the association with media. After being conveniently informed, the individual must adequate one's own behaviour to what one knows, sees and reads, always figuring the relation between pleasure and risk, as well as settling one's life in reference to the view of a new temporality - the permanent anticipation of the future in the present, paying an extraordinary and constant attention to oneself.

The consequence is logical: currently, some issues have achieved huge visibility in all media products: transgenic food, cloning, stem cells, gene therapies, biomedicine, genetic engineering, biopharmaceuticals, the internet, cyberspace, robotics and cyborgs are some of the presences in the spotlight in every medium, populating the social imaginary with some information and great amounts of confusion.

Always in a very optimistic, almost messianic tone and, in this sense, graciously comprising, when not the whole text, some tecnologists euphoric statements, such as Massachussets Institute of Technology (MIT) professor G.J. Sussman's "prophecy": "Unfortunately, I fear we shall be the last generation to die" - regretting not being **yet** contemporary to the process by which we will transfer our spirits to a disk and be transported to a machine, always less vulnerable than the current human body. And, in spite of defects, the solution is simple: one reinstalls the disk into the following machine.

We will be the last generation to die a natural death, Sussman forgot to add, because metropolises particularly uncontrolled violence, with terrorism as the new expression of politics and global warming as every medium's daily threat, is the other face of this new present.

Some examples can be cited by means of illustration. It is almost enough to mention the headlines in order to see how these issues are addressed:

Superinteressante: *God's name is Craig Venter. Subheading: He assembled pieces of several creatures. Took them to the laboratory. Sewed everything together. And gave that organic mess the breath of life. This is the old history of Dr. Frankenstein, the scientist who wanted to play God. And now it is being reenacted by the world richest researcher, a man who knows how to keep his promises.* The subject, of course, was genetic researches and, clearly the magazine endorsed the promises of John Craig Venter, an euphoric researcher. (October, 2007)

Galileu: *I, robot. Subheading: Our editor plunges into the world's most important fair of technologies and trends and assures: the future belongs to the androids.* Here, it is worthfull to make a comparison: "For how long it will still be possible to know who they are them and who we are?", science-fiction classical question, and "a lot of tasks performed by humans can be carried on by machines", states Zon Re Ti, scientist. (October, 2007)

Both magazines have much in commom: they are addressed to a young audience, particularly non specialized and probably interested in feeling up to date, as much as sensitive to the news regarding science. These magazines take up a rather questionable principle associated with reception theory: the one known as the deficit model, which implies a suposition that the audience has zero degree of information about the subject, as well as no spare time, nor interest in more complex articles. Thus, the magazines

share an infantile, very emotional and enthusiastic (or catastrophic) tone, and in general they also employ examples that produce more rhetorical and aesthetic effects than explanatory and elucidative ones.

In this sense, such magazines, specially *Superinteressante*, are criticized by researchers who study scientific disclosure in Brazil. They were supposed to be interested in becoming information vehicles, able to participate in the informal scientific education's capital, since hypothetically they lie between the scientific book and informative magazines. However, they don't seem to meet this role.

Scientific American Brazilian edition has a different profile. Besides much longer articles, the cooperation of scientists who present different points of view relativises the matter of truth, also functioning as a critical element. Let us see its example:

Ethnic medicine. Subheading: The dubious science of specialized medicines. An explanatory and openly partial article criticizing ethnic medicines follows this lead, attested by Jonathan Khan, a scientist involved in public policies. Because it is an international magazine, it also features translated articles.

5- The great danger:

We are radically threatened by a new millenarism, identified with the movement that predicted the end of the natural world in the year 1000, the millenium bug in the year 2000, and now predicts new catastrophes: we are more vulnerable than ever to terrorist acts and ecological disasters.

Images and texts mentioning and showing the elevation of sea levels, the desertification of different areas in the five continents, violent hurricanes, tropical forests fire, massive glacier melting, increasingly more intense floods and drought, the elevation of the Earth temperature range,

different animal and vegetal species risk of extinction and the prognostic of food and water scarcity are the images that more and more colonize television, the newspapers, cinema and the magazines.

Their presence discloses the discussion on climate changes that has invaded both media and people conversations, specially after the success of Davis Guggenheim's documentary *An Inconvenient Truth*, featuring the US ex-vice-president Al Gore, winner, on the same year, both of the Documentary Feature Oscar and the Nobel Prize. The latter was shared among over three thousand researchers that, under UN's tutorage, constitute the well known IPCC (Intergovernmental Panel on Climate Change).

Surely the discussion is positive and it would be naive, and even irresponsible, not to regard the focus of attention their contribution have generated as very healthy. Even so, it is also necessary to ponder the matter in question with a bit more caution. What does it mean and how the forecasted catastrophe is being heralded.

Among awarded documentaries and articles that predict catastrophes, the debate on the Climate Change has been causing concern and challenges. The issues associated with the environmental movement are intrinsically related to the recent events and future life styles aiming at the quality of life and economic prosperity (Egri & Pinfield, 1998).

What is left unsaid, and it is necessary to say it, is that climate change only confirms how human actions interfere with the planet's termometers.

Firstly, it is important to understand that global warming is a natural process, but lately it has been intensified by gas increasingly emissions that causes the greenhouse effect. The calculation is relatively simple: the planet temperature took thousands of years to vary five degrees. And,

according to today's scientific data, in only a hundred years temperature can vary between one to four degrees. That is, it is not reasonable to expect that, after injecting so many gases that cause warming, the atmosphere may be able to quickly eliminate them. This elevation has been increasing during the last two hundred years and, with more intensity, during the last fifty years.

That the above mentioned data conducts us to a logical uneasiness and that we are living a moment in which being an ecologist since the cradle seems to be mandatory, struggling to contribute with an elucidative answer to the media strive to outline our concerns makes sense.

That we struggle with singular habit changes in behalf of the salvation of the planet does not eliminate the responsibility of debating the context where this topic has been discussed. Likewise, this does not release us (at least it should'nt) from the need of pursuing an interpretation that is more critical than alarmed, trying to also find within this discussion, in the way it has been disclosed, what is the relevance and the mode of the involved actors presence, as well as how we should identify in it the traces of the games of knowledge and power⁵, and also its strategies.

Retrieving a more serene genealogy is what seems relevant: the history of nature is a long one, and the rupture perceived today is that instead of wondering whether we are violating a supposedly tameable nature, we should rather consider protecting the cosmos where we are a part. This helps us integrating figures that didn't participate in our imaginary, except in children tales, such as polar bears, penguins and seals, to whom we now represent the menace.

⁵ Formula due to Michel Foucault.

Also, the ecologist movements have their history: the first environmental crisis can be set in the 1960s and related to industrial production's perverse effects, such as pollution, among others. In this moment, these effects were yet considered disperse, not totally due to human production. Curiously, although since the fifties there has been a movement towards human activities globalization, this movement only connected itself with ecology during the eighties, which allows us to consider an "environment season" corresponding to the perimeter of the nations in question.

During the eighties, a new technological danger caused this change in the reasonably explored perspective of nuclear warfare, that provided both the informative media and American action movies with success and agility.

This scientific and political movement was the precursor of another ecologic movement which determines that, today, the whole planet is immediately interesting, also by complementary reasons, to two particular actors: the scientific community - its prestigious intermediary - and the politicians who regard this movement towards the environment's unification as the ideal instrument for the States globalization.

Some authors have addressed these issues in a responsible manner and, as a whole, in spite of the differences between them, in common they present an analysis of the relations and/or the attempt of translating politics as a technique. This involves different premises and imperatives: the notion of boundaries was part of modern politics, whether between the self and the other, this or that country, nature itself and culture. The notion of social contract explicits this reality.

On the contrary, contemporary technique rests on the inverse principle of the lack of limits. It is the place where the relation between

the real and the possible is played, but the conditions were altered: apparently, we have eradicated the impossible, that emerges in new temporal conditions, that is, as not possible yet, or, mainly, as economically unfeasible.

Therefore, our main threat - the one that forecasts future catastrophes - seems derived from the logic model of technical acting, which practises a pragmatism in which the objective is to provide autonomy to actions over intentions, that in the modern world belonged to politics and freedom's universe. Our societies, focused as they are in science and technique, allow us to unfold irreversible processes within and about nature itself.

Pragmatic and uncommitted with an accountable policy, our relation with technique brings about a genial advertence by Hannah Arendt, written back in the fifties, when, analysing the pertinency of the Kantian notion of radical evil in the book *The Human Condition*, she reminded us that "The scandal is that a great evil can match the lack of evil intentions" (Arendt, 2001, 426).

6-Final Considerations:

What we found in our scientific disclosure texts doesn't seem to deepen the issue. It is easier to identify ourselves with an alarming tone, which appears to garnish the magazines with the cloak of social and environmental responsibilities. Nothing against that, but it is worthwhile to remember a few specificities: firstly, there are no natural catastrophes; there are natural phenomena and social catastrophes, that is, speaking of a "natural catastrophe" would require a reconsideration or the use of quotation marks, for if there is such a thing as natural hit-or-miss, it would

indeed represent risk and we cannot prevent it from happening. It is the social vulnerability that transforms the "phenomenon" in catastrophe.

Secondly, "In the political imaginary of central countries, the catastrophe one must avoid tends to substitute the revolution one must make" (Jean Pierre Dupuy, 2007, 414).

Also, caution is due regarding the optimism that surrounds the press articles on biotechnological discoveries: on the brink, perhaps the opposite of life isn't death but immortality, as some scientific-fiction movies have shown us, perhaps the most critical spot in contemporary society.

In our point of view, providing more accurate interpretation should be scientific disclosure the most noble task. Echoing Scientific American Brazilian editor Ulisses Capozolis words,

"Eventhough some people might be surprised, a disclosure text can produce basic knowledge, as much as a conventional research. And this happens because what matters is interpretation, both in disclosure and research. It is interpretation that reveals the new and, likewise, reshapes the world".⁶

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⁶ A entrevista na íntegra está publicada como Divulgação e o Pulo do Gato, por Ulisses Capozoli, em Ciência e Público, Casa da Ciência 2006.

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