

Graphic design and research in social sciences: Jacques Bertin and the Laboratoire de Graphique.

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Abstract:

The contemporary rise of data visualization and imaging technologies in all areas of knowledge now places design and visibility at the heart of research and its communication, with fundamental implications for scientific epistemology. Jacques Bertin's Laboratoire de Graphique (LG) of the Ecole des Hautes Etudes en Sciences Sociales (EHESS) in France, is a privileged entry for this study, since it was a major player in this movement, at the crossroads of graphic innovation and social sciences as they reinvented themselves in the second half of the twentieth century.

This intervention aims to explore a black box of research in the humanities and social sciences, according to two approaches, that of the interdisciplinary collaborations and that more experimental of the graphic design and formatting of information. By design we mean as all the processes from graphical display of data, to CHI, new methods of scientific representation.

This laboratory was created and directed by the cartographer and semiologist Jacques Bertin from 1954 to 2000 at the Ecole Pratique des Hautes Études and, under the impetus of Fernand Braudel, at the Ecole des Hautes Etudes en Sciences Sociales (EHESS), is considered as a forerunner of productions and reflections on graphic research in the social sciences. His work articulates an unprecedented production of images, visualization of data and scientific research, forming the subject of a fundamental treatise, *Graphical Semiology* (1967). The intervention will trace the largely unknown history of this laboratory, will pinpoint the contributions and the intellectual trajectory of its graphic experiments and collaborations.

Indeed, while the activities related to the LG's cartographic research are relatively well known, its interactions with history, statistics, sociology, anthropology, urbanism, literature and the decorative arts remain unexplored. Jacques Bertin, in *Semiology of graphics* (1967), highlighted the concept of « visual variables » to build a general rhetoric of visual representation: background shape orientation grain color, etc.

The paradox of these visual variables is the desire to achieve an objectivity of representation, while taking into account the "aesthetic" part of the data. This graphic rhetoric developed by Bertin has influenced many works and disciplines, becoming almost standard, convention, rules. In this session we propose to discuss the relationship between design and visual variables in the contemporary visual display of information.

We will start by presenting the two complementary funds of archives of the Laboratoire de Graphique the NAs and the BnF, allowing a genetic analysis of the origin of certain concepts of Bertin to give an account of the process of their elaboration.

We will present collaborations, content, and processes to produce a story that is at once aesthetic, social, economic, and political. We will measure the evolution of scientific imaginaries, the values and uses of representation methods and graphic communication tools, their epistemological scope into 4 thematic:

1. The Life of the Graphic Lab: Pathways, Collaborations and Practices at EHESS. Collaboration Braudel-Bertin, creation of the visual identity of the EHESS, practices and conceptualization of the place of graphic research in the social sciences. Bertin heritage in current research programs
2. The graphic semiotics of Jacques Bertin: genesis and effects, including in contemporary digital humanities (statistics, big data, cultural analytics). Visual variable and Display of information as the starting point of a research, fieldworks
3. The expressivity and plasticity of graphic work: the representation of geographical and human territory. Contribution of the experimental work of the Graphical Laboratory to cartography; materialization of the instrumental design and

graphic knowledge in the uses and materiality of the cards from the point of view of the plastic creation and the patrimonial conservation. Objectivity and visual display: relationships between graphics and fact in scientific demonstration

4. Graphical semiology in contemporary research, from graphic semiology to information design; pedagogical and epistemological issues of graphic semiology; dissemination of the work of the Laboratoire de Graphique and impact on the field of design and different disciplines in the international context. « Redesigning » the concepts of Bertin : how new data processing tools can contribute?

The new convergences between design and research will be mobilized to question the place devolved to design in the visual and instrumental construction of contemporary scientific practices and knowledge. This will stimulate a dynamic and a collective experience of interdisciplinary discovery of uses of these methods and tools in heritage context.