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Editado por Ana Romero de Pablos y María Jesús Santesmases

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Hybrid ontologies: materials, experimental cultures, and gender

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The journey of Spanish uranium in the sixties: meanings and materialities of a hybrid object

Ana Romero de Pablos..... 339

1.—Introduction. 2.—Spanish uranium. 3.—Political agreements. 4.—The commercial agreements. 5.—The trip. 6.—Conclusions.

ABSTRACT: In 1966, 137 tons of Spanish uranium ore arrived at the port of New Orleans from the port of Cádiz. In this paper, I want to use this trip, which involved political, industrial, and business agents as well as technical capabilities, to explore the uranium as a hybrid object - physical, technical and diplomatic. This material connected the interests of the Franco authorities, scientists, and businessmen from the electrical industry. It served the Franco regime in training researchers, in buying and importing technologies, methods and experimental practices, and in introducing ways to popularize atomic policies and ideologies from the United States. Uranium was a fuel that not only powered nuclear reactor but also fed new disciplinary spaces, modified landscapes, and sketched new industrial and administrative cartographies. Besides being a key piece of the Franco regime's foreign policy —it was useful to the Spanish regime to align itself with

prevailing Western thought on the civil uses of nuclear energy— it served internally to effectively abandon autarchic discourses and strengthen the power of the technocrats, who used atomic energy to transform Spanish electrical production. The materiality of uranium ore changed with travel and also its meanings.

Digital brain imaging in the 1970s: building a hybrid technology

Miguel Angel Rego Robles 367

1.—Introduction. 2.—Intimacy and space/time in graphic representation. 3.—Hybridization and visual training in CT images. 4.—Diagnostic imaging. Construction of the image from data. 5.—Epistemic approach from the hybridization of scopic regimens. 6.—Conclusions.

ABSTRACT: Computed tomography (CT), a technology based on the combination of radiology and computation, was used to scan a patient’s brain tumor in a London hospital in 1972. The patient’s head was introduced into a scanner, manufactured by the British record company EMI, to measure the amount of radiation absorbed by different points in the brain. The resulting image consisted of a digital tonal matrix that was materialized on newsprint, a cathode ray tube, and a Polaroid photograph. This article describes the production process of the CT image, a visual representation that would become, from the 1970s onwards, a common technology for contemporary neurosciences and a paradigm of visual representation in the transition from analog to digital. To this end, we analyze the implications of the radiographic image, invented at a time of the rise of the image-movement in which chronophotographs, image sequences, and cinematography are framed. In this analysis, we focus on the scopic regime in which each image is found. The knowledge that led to construction of the device circulated between the clinic, industry, and laboratory. A variety of agents were involved in the construction of CT scans, including the computer, X-ray radiation, a team of electronic engineers, a group of neuroradiologists from Atkinson Marley Hospital, and the X-ray scanner, among others. We also report on the impact of several factors associated with the epistemology of CT imaging, such as the reinforcement of clinical diagnoses, the linking of the morphological to the psychic in relation to the brain, and the transition from image-motion to image-time.

Collaborative networks and hybrid objects: women cytogeneticists in Mexico, 1960-1980

Ana Barahona 399

1.—Introduction. 2.—Cristina Cortinas in her national environment. 3.—Cristina Cortinas in her international environment. 4.—The return to Mexico. 5.—Conclusions.

ABSTRACT: Recent studies on the history of science have emphasized the transnational approach that problematizes classic Eurocentric narratives, interpretations of cultural diffusion, and the rigid opposition of the categories of “center” and “periphery” to explain the dynamics of transnational circuits and the circulation of knowledge, people, artifacts, and scientific practices. This paper attempts

to contribute to this direction by showing that the work carried out by Mexican geneticists in the 1960s and 1970s, especially the work on cytogenetics, cannot be characterized as peripheral because knowledge generated locally in Mexican and foreign institutions was able to circulate and become part of the consolidation of cytogenetics on a global scale, participating in international collaborative networks. This article addresses the trajectories of the Mexican biologist and geneticist María Cristina Cortinas, and to a lesser extent those of the Argentine-born Mexican physician and geneticist Susana Kofman. They shared a medical and research agenda and a time and place, participating in the early diagnosis of genetic diseases and revealing the correlation between clinical observations and the karyotype. This manuscript focuses on chromosomes as hybrid scientific objects that circulated between clinic and laboratory and on the local contexts, material cultures and specific practices that allowed these Mexican women geneticists to take part in the production and transmission of knowledge in the 1960s and 1970s, attributed to their participation in national and international scientific collaborative networks.

Glass jars, bananas, and flies: gender, emotions, and practices of *Drosophila* genetics

Marta Velasco Martín 429

1.—Introduction. 2.—Glass jars with bananas and flies as didactic tools: sight. 3.—Fermented bananas as bait to catch flies: odor. 4.—Fermented bananas as bait to catch flies: odor. 5.—Conclusions.

ABSTRACT: Bananas and glass jars were and are components of the material culture of *Drosophila* genetics. These hybrid (material, sensory and emotional) objects circulated between the field and the laboratory and among the classrooms, research stations, and kitchens of those who dedicated themselves to studies of heredity and evolution. They also circulated through time and geographic space as they became part of the collective knowledge of the community of *Drosophila* geneticists and the memories of their daughters and sons. The combination of written, objective, conceptual and, above all, oral, subjective and emotional sources brings them to life along with the activities and practices of those who used them, almost always women; they have not been erased from these emotional records as they have been from institutional records. Norms also appear, such as gender norms, which surrounded people at the time of the experience and influenced their value judgments about the objects, practices and identities of those who carried them out. Thus, by studying the practices and objects of a discipline such as *Drosophila* genetics, this article aims to contribute to the construction of a more inclusive history of genetics, to the history of women scientists and to studies on the role of emotions, the body, and memory in the construction of historical knowledge.

A hybrid ontology of gender: chromosomes, photographs, and ultrasound scans in the circulation of fetal imagery in Spain, 1950-1970

María Jesús Santesmases 459

- 1.—Introduction. 2.—The fetal karyotype. 3.—The photographs of Lennart Nilsson. 4.—The fetal ultrasound. 5.—Visual cultures, hybrid ontologies, and gender.

ABSTRACT: This article presents a proposal for a chronology of fetal images in Spain that includes the process of production and circulation of human chromosomes (fetal karyotype as a portrait), of the photographs of fetuses by Lennart Nilsson, and of the images provided by ultrasound scanning. This set of representations made the visual culture of the fetus a gendered historical subject that medicalized and technified pregnancy, privileging the fetus instead of the woman's pregnant body as the subject of pregnancy. In this process, the fetus gained autonomy as a hybrid ontology. This article contributes to a fetal historiography that analyzes the fetus as manufactured by the interaction of three technologies: cytology, photography, and ultrasound scanning.

ARTICLES

Tertian fevers in Menorca in the context of the Maldá Oscillation: the fevers of 1782

Kevin Albert Pometti Benítez 487

- 1.—Introduction. 2.—Main points of infection: an analysis of environmental conditions. 3.—Climate and disease. 4.—Public health proposals. 5.—Recapitulation.

ABSTRACT: The confluence of extreme climatic anomalies in the late 18th Century led to the alteration of ecosystems and the expansion of malarial fevers beyond their traditional endemic areas, affecting the development of daily life in the society of the time. Fevers spread throughout the Iberian Peninsula between 1783 and 1786, causing growing concern among doctors and authorities about ways to effectively tackle the epidemic. Tertian fevers were also present in the Balearic Islands, especially in Menorca, as reported by correspondents of the *Real Academia Médico-Práctica de Barcelona* in relation to the episode of fevers in 1782. The aim of this article was to analyze, through the testimony of Dr. Miquel Oleo, a doctor from Ciutadella in Menorca, the main points of infection on the island, taking account of the prevailing environmental conditions and the particularities of the island's climate and human activities. We also devote a section to analyzing the solutions proposed by the doctor in response to the questions posed by Juan Baptista de San Martín y Navas, Royal Auditor of the Army and Island of Menorca and member of its governing board.

Scientific research and clinical use of quinine in Portugal in the transition from the 18th to the 19th century

Maria Guilherme Semedo, Ana Leonor Pereira, and João Rui Pita 505

- 1.—Introduction. 2.—Research into the therapeutic activity of medicines containing quinine. 3.—Research into the therapeutic activity of quinine and its possible substitutes. 4.—The clinical use of quinine in Portugal in the first quarter of the 19th century as described in scientific journals and its medical prescription at the Hospital of the University of Coimbra (18th-19th centuries). 5.—Conclusions.

ABSTRACT: Quinine, a tree bark native to South America of the genus *Cinchona*, has antimalarial properties and occupies an important place in the history of medicine and pharmacy. Possibly already known to the Spanish in the 16th century, it was used in therapeutics for its febrifugal activity, becoming established as a treatment for intermittent fevers in the 18th and 19th centuries. This article aims to evaluate the reception of quinine in Portugal in the last quarter of the 18th century and the first quarter of the 19th century by studying Portuguese works that describe the therapeutic applications of quinine in detail, by studying a medical publication, the *Jornal de Coimbra*, and by examining medical prescriptions. In Portugal, quinine was also used for its febrifugal action, and several works were published describing its therapeutic activity in both intermittent fevers and diseases such as gout and gangrene. Acting on governmental instructions, the Portuguese scientific periodical *Jornal de Coimbra* (1812-1820) published reports by doctors throughout the country on diseases observed in the places where they practiced and on the treatments they applied. Reading this publication shows that quinine was a widespread and usually effective treatment for intermittent fevers, commonly combined with other drugs such as emetics. Quinine was also the most prescribed drug in a case study comprising 1,954 prescriptions. It was prescribed 434 times between 1779 and 1825 in prescriptions prepared by the Pharmaceutical Dispensary of the Coimbra University Hospital. The reports in the *Jornal de Coimbra* on the clinical application of quinine and the high frequency of its prescription demonstrates its important therapeutic role in Portugal.

Hypnotizing women, between the *femme fatale* and the witch in Arthur Conan Doyle’s literary fiction

Juan Marcos Bonet Sanfont 533

1.—Introduction. 2.—Witches, hysterics, and *femmes fatales*. 3.—Demon, ghoul out of hell, vampire soul: hypnotizing woman. 4.—Miss Penelosa: mental parasite. 5.—Conclusion.

ABSTRACT: The historiography on mesmerism and hypnosis shows that there were few women who put this knowledge into practice. In this sense, it is significant that there are few images of a woman hypnotizing a man and no images of a woman hypnotizing another woman. Thus, the woman who hypnotizes a man becomes a revolutionary, a subversive case that turns around not only a classic hypnotic relationship but also a social and historical situation of clear patriarchal domination. In this paper, I analyze two stories by Arthur Conan Doyle (1859-1930) featuring female hypnotists: *John Barrington Cowles* (1884) and *The Parasite* (1894). In the case of *John Barrington Cowles*, the hypnotizing woman is based on the literary and filmic stereotype of the *femme fatale*, which will appear in many different narrative formats throughout the 20th century up to the present day. In the case of *The Parasite*, however, the hypnotizing woman is much closer to the literary and folkloric stereotype of the witch. In this sense, I point out the fundamental role that the stereotype of the hypnotizing woman has played in recent cultural gender studies.

The temporality of the epidemiological transition in Chile, 1862-2018

Manuel Llorca-Jaña, Javier Rivas and Rodrigo Rivero-Cantillano 559

1.—Introduction. 2.—Sources. 3.—Evolution of the causes of death in Chile: results. 4.—Discussion: the fall in diseases characteristic of “poverty”. 5.—Conclusions.

ABSTRACT: This article analyzes the nature and temporality of the epidemiological transition (ET) in Chile, paying special attention to the composition of the causes of death in that country from 1862 to 2018. The evidence provided in this article allows us to establish that the ET effectively occurred in Chile under the “contemporary-late” model, to which we could add the adjective “accelerated”. Our results highlight the recentness of the overcoming of the first phase of Chilean TE in comparison to most developed countries, due to the prominence of infectious diseases as the main cause of death until the middle of the 20th century and the acceleration of this process (the short time period between the 1940s and the 1960s). Overcoming the first phase of ET was mainly possible due to the sudden “importation” of international technological advances (sulfonamides and antibiotics in particular) during a period in which there were still no substantial nutritional improvements in the population or major advances in the supply of drinking water or sewage services.

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Contributions to the history of health and disease in Argentina: provincial optics and debates

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